

**ORANGE COUNTY BOARD OF COMMISSIONERS  
ORANGE COUNTY PLANNING BOARD**

**QUARTERLY PUBLIC HEARING AGENDA**

**May 27, 2014**

**7:00 P.M.**

**Department of Social Services**

**Hillsborough Commons**

**113 Mayo Street**

**Hillsborough, North Carolina**

**NOTE: Information is available on-line at the "Meeting Agendas" link at:**

**<http://www.orangecountync.gov/>**

**and also in the Planning Department or the County Clerk's Office**

**NOTICE TO PEOPLE WITH IMPAIRED HEARING: Audio amplification equipment is available on request. If you need this assistance, please call the County Clerk's Office at (919) 245-2130.**

**A. OPENING REMARKS FROM THE CHAIR**

**B. PUBLIC CHARGE**

The Board of Commissioners pledges to the residents of Orange County its respect. The Board asks its residents to conduct themselves in a respectful, courteous manner, both with the Board and with fellow residents. At any time should any member of the Board or any resident fail to observe this public charge, the Chair will ask the offending member to leave the meeting until that individual regains personal control. Should decorum fail to be restored, the Chair will recess the meeting until such time that a genuine commitment to this public charge is observed. All electronic devices such as cell phones, pagers, and computers should please be turned off or set to silent/vibrate.

**C. PUBLIC HEARING ITEMS**

- 1. Class A Special Use Permit** - To review a Class A Special Use Permit application seeking to develop a solar array/public utility station on two parcels of property, totaling approximately 50 acres in area, off of Mt. Sinai Road near Cascade Drive in Chapel Hill Township.
- 2. Unified Development Ordinance (UDO) Text Amendment** - To review government-initiated amendments to the text of the UDO to change the existing public hearing process for Comprehensive Plan-, UDO-, and Zoning Atlas-related items/amendments.

**D. ADJOURNMENT OF PUBLIC HEARING**

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**ORANGE COUNTY  
BOARD OF COMMISSIONERS AND  
PLANNING BOARD  
QUARTERLY PUBLIC HEARING  
ACTION AGENDA ITEM ABSTRACT**  
**Meeting Date:** May 27, 2014

**Action Agenda  
Item No.** C.1

**SUBJECT:** Class A Special Use Permit – Solar Array off Mt. Sinai Road in Chapel Hill Township

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**DEPARTMENT:** Planning and Inspections

**PUBLIC HEARING: (Y/N)**

Yes

**ATTACHMENT(S):**

1. Application Packet
2. Property and Vicinity Map
3. Staff Comments
4. Notification Materials and Certification

**INFORMATION CONTACT:**

Michael D. Harvey, Planner III (919) 245-2597  
Patrick Mallett, Planner II (919) 245-2577  
Craig Benedict, Director (919) 245-2575

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**PURPOSE:** To hold a quasi-judicial public hearing and receive comment on a Class A Special Use Permit application in accordance with Section 2.7 *Special Use Permits* and Section 5.9.6 (C) *Solar Array-Public Utility* of the Orange County Unified Development Ordinance (UDO).

A quasi-judicial hearing means that testimony is sworn and evidence must be competent and substantial. Hearsay or unsubstantiated opinions are not sufficient testimony. Board members are also prohibited from engaging in conversations with anyone on the merits of project outside of the public hearing process. Such conversations, commonly referred to as '*ex-parte communications*' are prohibited.

**BACKGROUND:** On December 20, 2013 staff received an application proposing the development of a solar array on 2 parcels of property totaling approximately 50 acres in area owned by Shelia Bishop, Michael Bishop, and Annie Nunn.

The basic facts of the application are as follows:

**Applicants:** Sunlight Partners LLC,  
Shelia Bishop, Michael Bishop, and Annie Nunn

**Owners:** Shelia Bishop, Michael Bishop, and Annie Nunn

**Agent(s):** Sunlight Partners  
4215 East McDowell Road  
Suite 212  
Mesa, AZ 85215

Michael S. Fox (Project Attorney)  
 Tuggle Duggins P.A.  
 100 N. Greene Street  
 Suite 600  
 Greensboro, NC 27401

Location: Off of Mt. Sinai Road with access via Cascade Drive. Please refer to Attachment 2 for a vicinity map of the project.

Parcel Information:

- a. **PIN(s):** 9881-38-8874 and 9881-49-3072.
- b. **Size of parcel(s):** Approximately 50 acres.
  - i. PIN 9881-38-8874 is approximately 44 acres in area.
  - ii. PIN 9881-49-3072 is approximately 5.4 acres in area.

Approximately 19.93 acres of properties will be encumbered by the proposed solar facility as denoted on the submitted site plan.

- c. **Township:** Chapel Hill.
- d. **Zoning:** Rural Buffer (RB). The properties are not located within a Watershed Protection Overlay District.
- e. **Future Land Use Map Designation:** Rural Buffer.
- f. **Growth Management System Designation:** Rural.
- g. **Joint Land Use Plan Designation:** Rural Buffer – Rural Residential Area
- h. **Existing Conditions/Physical Features:** The 5.4 acre parcel has an existing structure located on it, which appears to be used as a residence. Both properties have areas of existing vegetation with trees achieving an average height of anywhere from 20 to 40 feet.

The larger parcel has existing vegetation as well as pasture area throughout.

There are two streams in the southern portion of the properties that are required to have the natural area on either side of the stream bank preserved in accordance with the provisions of Section 6.13 *Stream Buffers* of the UDO.

- i. **Roads:** The properties have frontage along Mt. Sinai Road. The larger parcel also has frontage along Cascade Drive. Vehicular access for the project is proposed to be off of Cascade Drive.

Surrounding Land Uses:

- a. **NORTH:** Undeveloped property approximately 128 acres in area, single-family residential lots zoned RB.
- b. **SOUTH:** Mt. Sinai Road, Triangle Land Conservancy and Duke Forest Property, and single-family residential lots zoned RB.



- c. **EAST:** Single-family residential lots, large undeveloped parcels of property zoned RB.
- d. **WEST:** Cascade Drive, single-family residential lots zoned RB.

Proposal: The applicant is proposing to develop a Solar Array-Public Utility on the aforementioned properties. As detailed within Attachment 1, the applicant is proposing to erect individual solar array panels on the northern portion of the properties. The Bishop's, who are one of the applicants for this project, will have approximately 1 acre of their 5 acre parcel of property encumbered by individual panels. The array will be approximately 200 feet from an existing structure on the property.

A typical array is 6 to 10 feet in height, with approximately 2' to 3' feet of ground clearance depending on the panel angle. The arrays will be screened by existing vegetation and any installed landscaping as depicted on the submitted site plan. An 8 foot high chain link security fence shall enclose the perimeter of the array to prevent access. Gravel paths/drives will be installed around these arrays in order to permit technicians to service the panels.

The applicant is indicating they will observe a 50 foot landscaped buffer along the property lines abutting residentially zoned property as required by the UDO. They will also leave the southern portion of the site (outside the security fencing) undeveloped.

Vehicular access to the site is restricted by an access gate off of Cascade Drive. The applicant is not proposing to develop a business, habitable structures, or other similar office facilities on the property. Therefore, no septic or well systems are proposed, or required, as part of the project.

According to the applicant the New Hope Volunteer Fire Department and Orange County EMS will be provided a key to access the site in the event of an emergency. An overhead, medium voltage, power line will be installed on the west of the identified leased area allowing the proposed facility to tie into the power grid via the existing electrical substation to the west of the property.

Ordinance Requirements – Class A Special Use: in accordance with Section 5.9.6 (C) (2) *Solar Arrays* of the UDO, the project is required to demonstrate compliance with the following standards of evaluation:

- (a) All on-site utility and transmission lines shall, to the extent feasible, be placed underground.

*STAFF COMMENT:* Based on language provided on the site plan the applicant is proposing to adhere to this requirement.

- (b) The height of proposed arrays and support structures shall not exceed 40 feet.

*STAFF COMMENT:* Data on the submitted site plan, specifically the typical rack height elevation, indicates the height of the racks will be approximately 6-10 feet from ground elevation. No other support structures, other than utility poles, are proposed.

- (c) Individual arrays/solar panels shall be designed and located in order to prevent reflective glare toward any inhabited buildings on adjacent properties as well as adjacent street rights-of-way.

*STAFF COMMENT:* Detail in the application narrative indicates the applicant will comply with this provision.

- (d) A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.

*STAFF COMMENT:* Note(s) on the site plan indicate warning signs shall be erected as required by the UDO.

- (e) All mechanical equipment of principal solar energy systems including any structure for batteries or storage cells, shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate, and provided with screening in accordance with the provisions of Section 6.8.

*STAFF COMMENT:* The site plan indicates the site shall be enclosed by an 8 foot high security fence around the entire perimeter. A 50' wide Landscape Buffer with screening materials will be provided around the northern, eastern and western property lines of the project (i.e. adjacent to residentially zoned property).

The southern property line will be remain undeveloped.

- (f) The applicant shall submit proof of liability insurance covering bodily injury and property damage demonstrating a minimum coverage limit of \$ 500,000.00 per occurrence.

*STAFF COMMENT:* The narrative provides language denoting the applicant's compliance with this provision.

- (g) A Type D Land Use Buffer shall be provided along any portion of the perimeter of the parcel, easement, or leasehold area located adjacent to property zoned, or otherwise utilized for, residential use except where such property is owned, leased or consists of other utility easements currently used for electrical distribution or transmission purposes.

Existing vegetation may be used to satisfy the landscaping requirements.

*STAFF COMMENT:* The site plan provides sufficient information demonstrating land use buffering requirements will be met.

In reviewing the request with other County departments, the following comments have been received:

1. The Sheriff's Department has indicated the proposed development will not require existing patrol patterns to be altered.
2. Orange County Emergency Services (EMS) staff has confirmed the New Hope Volunteer Fire Department will provide fire services and that EMS will provide emergency medical services. They do not believe the request will create a service provision problem for them.
3. There are no septic or well systems proposed for the property. As a result Orange County Environmental Health has indicated they have no concerns.
4. The Planning Department and the Department of Environment, Agriculture, Parks, and Recreation (DEAPR) staff has reviewed the proposal and determined the request, if approved, will have no significant impact to existing habitat area warranting special consideration or protection based on information contained within the *Inventory of Natural Areas and Wildlife Habitats for Orange County North Carolina*.
5. Orange County Solid Waste has indicated the request, if approved, will not impact service provision to the surrounding area.

6. The project has been submitted to the State Clearinghouse for review with no concerns being addressed. Based on these comments, staff has determined a formal Environmental Impact Statement is not required.

Please refer to Attachment 3 for additional detail.

Analysis: As required under Section 2.7.4 of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application*' and pass that analysis on to the reviewing body. In analyzing this request, the Planning Director offers the following:

1. The application has been deemed complete in accordance with the requirements of Section 2.7 of the UDO.
2. The project is classified as a 'utility' per Section 5.2 *Table of Permitted Uses* of the UDO and is a permitted use within the RB zoning district subject to the issuance of a Class A Special Use Permit.
3. Staff has determined that the property is of sufficient size to allow for the development of the project.
4. The proposal is not expected to have a negative impact on existing development in the area.
5. The proposal appears consistent with the various goals outlined within the Comprehensive Plan, including:
  - a. Natural and Cultural Systems Goal 1: Energy conservation, sustainable use of non-polluting renewable energy resources, efficient use of non-renewable energy resources and clean air.
  - b. Objective AE-15: Foster participation in green energy programs such as installation incentives for solar hot water/solar generation/solar tempering in residential or commercial construction. The County should develop programs that will link citizens and businesses with options for alternative and sustainable energy sources.
  - c. Objective AG-8: Encourage the use and production of natural fuel alternatives to petroleum based products and pursue new types of energy sources.

6. The proposal appears consistent with the various goals outlined within the Joint Planning Land Use Plan (hereafter 'the Plan').

As previously indicated this operation is classified as a utility land use providing an essential public service, specifically power. More importantly this project will result in the generation of power through environmentally responsible means, which is a major goal of the County.

While some could argue there are 'commercial' elements to the project, stringently regulated by the aforementioned Plan, the proposed array functions as any other similar utility project providing an essential public service. Such land uses, which have already been developed throughout the area, are not precluded by the Plan.

JPA Review: In accordance with the Joint Planning Area Agreement, this project was sent to the Town of Chapel Hill for review and comment. As of this date staff has not received any comments.

Notification Requirements: Per Sections 2.7.5 of the UDO, staff has caused a notice of this hearing to be published: *'as least twice in a newspaper of public circulation in the County'* for two (2) successive weeks: *' no less than ten (10) days nor more than twenty-five (25) days'* before the public hearing.

On May 14, 2014 staff posted a sign on the property providing a notice of the date, time, and location of the public hearing. Staff also sent written notice by certified mail to all adjacent property owners located within 500 feet of the subject property as required by Section 2.7.5 of the UDO. This notice was sent on May 9, 2014 (please see Attachment 4).

**FINANCIAL IMPACT:** This request has been reviewed by various County departments who have determined that the approval or denial of the request would not create the need for additional funding for the provision of County services.

**RECOMMENDATION(S):** The Planning Director recommends that the Board:

1. Receive the application,
2. Conduct the quasi-judicial Public Hearing and accept all evidence and sworn testimony as well as public, BOCC, and Planning Board comments.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the County Board of Commissioners in time for the **September 16, 2014** BOCC regular meeting.
4. Adjourn the public hearing until **September 16, 2014** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

**Orange County Planning and Inspections Department****APPLICATION FOR  
CLASS A SPECIAL USE PERMIT****APPLICANT INFORMATION:**Date: 12/20/13Applicant: Sunlight PartnersPhone: (480) 924-5519Address: 4215 E. McDowell Rd, Suite 212Cell Phone: (602) 334-8148Mesa, AZ 85215E-mail: jason.ramsey@sunlightpartners.comAgent: Jason RamseyPhone: (480) 999-3349Address: 4215 E. McDowell Rd, Suite 212Cell Phone: (602) 334-8148Mesa, Az 85215E-mail: jason.ramsey@sunlightpartners.comAddress of subject property: 2911 Mount Sinai Road, Chapel Hill, NC 27514Parcel Identification Number (PIN): 9881388874, 9881493072 Lot Size: 50.3 acresZoning Designation: Rural Buffer Watershed Overlay: Jordan Lake UnprotectedOther Overlay Zoning Districts: N/ARequest (include detailed description of proposed land use): Sunlight Partners is requesting a Special Use Permit for a  
unmanned photovoltaic solar farm.



**SUBMITTAL INFORMATION Per Section 2.7.3 of the Unified Development Ordinance (UDO), all Class A Special Use Permit applications are required to submit the following:**

- 1) 26 copies of a site plan prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer containing all required information detailed within Section 2.5 of the UDO. This site plan will also need to contain all relevant information demonstrating that the proposed special use compliance with all general and specific standards governing the proposed special use as detailed within Article(s) 5 and 6 of the UDO.
- 2) A detailed narrative outlining the proposed land use including operational requirements, the location of facility, appearance, etc.,
- 3) Documentation establishing compliance with Section 5.3.2 inclusive of the UDO.
- 4) The names and addresses of the owners involved with the project,
- 5) A list of property owners within 500 feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records,
- 6) Elevations of all structures proposed to be used in the development,
- 7) 26 copies of the Environmental Assessment and/or Environmental Impact Statement if required by Section 6.16 of the UDO,
- 8) Statement outlining the anticipated development schedule for the completion of the project,

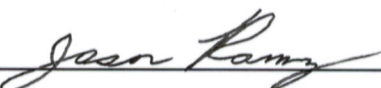
**\*\* NOTE: It should be remembered that the review of all special use permit applications/modifications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of an application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.**

**Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Unified Development Ordinance. \*\***

I (we), the undersigned, have been made aware of the process for the review and action associated with a Class A Special Use Permit application and understand that only completed applications, containing all information required by the Orange County UDO shall be reviewed and acted upon by the County.

I (we) understand that it shall be my (our) responsibility to present evidence to the County in the form of sworn testimony, exhibits, documents, models, plans, and the like support the request for approval of the Class A Special Use Permit.

Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the request by the County.

  
Applicant

12/20/13  
Date:

\_\_\_\_\_  
Applicant

\_\_\_\_\_  
Date:

### Binks Solar Project Narrative

Sunlight Partners respectfully submits the following as supporting documentation for the affirmation that the Binks Solar meets the requirements for approval of a Special Use within the Rural Buffer zoning district and that the project complies with the following standards:

- (1) The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted;

*The Binks Solar Project will maintain the public health, safety and general welfare if located where proposed and developed and operated according to the plan submitted. The following addresses how the project will not adversely affect health, safety, and general welfare.*

**Public Safety-** *The Binks Solar facility will not adversely affect public safety. The solar facility is an unmanned, infrequently visited project site. As such, the project will not increase the existing demand on public safety agencies (police and fire departments). The project site will be enclosed with a fence, preventing access to the general public. **Attachment A** is a ground mounted solar question and answer guide developed jointly by the Massachusetts Department of Energy Resources, Massachusetts Department of Environmental Protection and the Massachusetts Clean Energy Center. The attached guide addresses public safety concerns such as Hazardous Materials, Electric and Magnetic Fields (EMF), and Noise.*

**Noise-** *According to the Orange County noise ordinance “A Resolution and Ordinance to Provide for the Control of Noise in Orange County” amended February 1<sup>st</sup>, 1988, Sound Levels dB(a) by Receiving Land generally cannot exceed 60 dB(a) during the daytime and 50 dB(a) during the nighttime. The Binks Solar Project proposes to use Advanced Energy Solaron 500 inverters. An acoustic analysis was performed on the inverter model (**Attachment B**). According to the study the inverter will produce 68 dB(a) of sound measured at three (3) meters from the inverter. In an open area, sound levels decrease in accordance with the Inverse square law. Generally, sound decreases 6 dB for every doubling in distance from the sound source. The sound generated by the Binks Solar project will be less than 38 dB(a) at any point along the property boundary (Far below the noise ordinance threshold). The following table summarizes the sound level generated by the project:*

<b>Distance (Feet)</b>	<b>Distance (Meters)</b>	<b>Sound level (a-weighted)</b>
3.28	1	68 dB(a)
6.56	2	62 dB(a)
13.12	4	56 dB(a)
26.25	8	50 dB(a)
52.49	16	44 dB(a)
104.99	32	38 dB(a)
209.97	64	32 dB(a)
419.95	128	26 dB(a)
839.90	256	20 dB(a)



The following map shows the areas within the project where the sound exceeds 38 dB(a).





- (2) The use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property);

*Because the Binks Solar project will have landscaping and natural buffers shielding the project from view, the project will not impact the value of contiguous property.*

*In 2013, David Massey was commissioned to perform an analysis on solar farm impacts on adjacent property values within Guilford County. Mr. Massey is a State Certified General Real Estate Appraiser by the State of North Carolina and a Licensed Real Estate Broker. Mr. Massey's practice consists of residential and commercial appraisals in Guilford, Alamance, Orange, Durham, Randolph, Chatham and Caswell Counties of North Carolina.*

*Mr. Massey's study was performed to address the impact on adjacent property values related to two similar sized solar projects that Sunlight Partners was permitting in Guilford County. In the study (Attachment C) Mr. Massey concludes that, "My professional and expert opinion is that the two proposed Solar Farms that will not be visible will have no impact on the market values of the surrounding properties. The Solar Farms with the proposed landscaping buffers and natural buffers will not create a negative externality for the surrounding properties as they will not be visible."*

(c) The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the physical development of the County as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of County Commissioners.

*The proposed location for the Binks Solar project is designated as Rural Buffer. According to the Land Use Element of the Comprehensive Plan, Rural Buffer is defined as "Land adjacent to an urban or transition area which is rural in character and which should remain rural, contain very low-density residential uses, and not require urban services during the plan period." The Binks Solar project will be in harmony with the area and will be in compliance with the plan for the physical development of the County due to the fact that project will not increase the population density within the Rural Buffer area, will not require urban services, will not decrease the level of service on existing roads, and views of the Binks Solar project will be shielded by natural and landscape buffers.*

### **Specific Standards**

In addition to the general standards stated in Section 5.3.2(A), the following specific standards shall be addressed by the applicant before the issuance of a Special Use Permit:

- (1) Method and adequacy of provision of sewage disposal facilities, solid waste, and water.
- a. *Sewage Disposal Facilities- The Binks Solar project is an unmanned facility, with no regular employees located on-site. Because the site is unmanned, not sewage disposal facilities will be required.*

- b. *Solid Waste- The solar facility does not generate any solid waste during normal operation. Service crews will access the site periodically to perform routine grounds keeping. Any solid waste collected during grounds keeping will be disposed of off-site in appropriate solid waste facilities.*
- c. *Water- The Binks Solar project does not consume water during normal operation. Water will be used semi-annually to clean the solar panels. Water for panel cleaning will be obtained off-site from an appropriate water company.*

**(2) Method and adequacy of police, fire and rescue squad protection.**

- a. *Police- The Binks Solar project is an unmanned solar facility. The project site will be fenced to prevent public access. Because the site will not increase the general population of the county, the project will not increase demand on existing law-enforcement agencies.*
- b. *Fire and Rescue- The project site will be accessed from Cascade Drive. The perimeter allows vehicle access to the entire site, with two interior North/South access corridors. All rows of panels are unobstructed and provide two points of entry. As such, the design of the project site provides adequate access for fire and rescue protection. The project site will not require additional fire and rescue personnel.*

**(3) Method and adequacy of vehicular access to the site and traffic conditions around the site.**

*The Binks Solar facility will be accessed from Cascade Drive. Because the site will not be frequently accessed, Cascade Drive will provide adequate access to the site and Cascade Drive's traffic conditions will not be adversely impacted. The frequency and nature of site access is described below:*

*The Binks Solar project is an unmanned facility, with no regular employees located on-site. A maintenance/service crew will be on-site for limited periods of time to service the equipment, clean the PV panels, and to ensure that on-site vegetation is kept at appropriate levels. Routine maintenance generally will occur on a bi-monthly basis.*

## **Attachment A**

# CLEAN ENERGY RESULTS

Questions & Answers

## Ground-Mounted Solar Photovoltaic Systems



Westford Solar Park, photo courtesy of EEA

December 2012

Massachusetts Department of Energy Resources

Massachusetts Department of Environmental Protection

Massachusetts Clean Energy Center

## Table of Contents

Background .....	3
Hazardous Materials .....	5
End-of-Life/Decommissioning.....	7
Ambient Temperature (“Heat Island”) .....	9
Electric and Magnetic Fields (EMF).....	10
Property Values.....	13
Public Safety (including fires).....	14
Historic Preservation.....	16
Noise .....	18
Water-Related Impacts .....	20
Glare.....	22
Endangered Species and Natural Heritage .....	23

## Background

Solar photovoltaic (PV) technology, which converts sunlight directly into electricity, is a key priority for the state of Massachusetts' clean energy efforts. The environmental benefits of solar PV abound. Unlike conventional fossil fuel power generation (such as coal, gas and oil), generating electricity with solar PV involves no moving parts, uses no water, and generates electricity without emitting climate-warming greenhouse gases or other pollutants.

Solar PV's environmental and energy benefits, combined with strong incentives, have significantly increased the use of this technology. The Commonwealth's vibrant solar industry has a variety of ownership and financing options for Massachusetts residents and businesses looking to install solar PV systems. Purchasing a solar PV system generally involves upfront installation and equipment costs, but there are significant incentives<sup>1</sup>.

As the Massachusetts clean energy sector grows, the Patrick-Murray Administration is working to ensure that solar PV and other clean energy technologies are sited in a way that best protects human health and the environment, and minimizes impacts on scenic, natural, and historic resources.

## Purpose of Guide

This guide is intended to help local decision-makers and community members answer common questions about ground-mounted solar PV development. Ground-mounted solar PV has many proven advantages and there has been a steady growth of well received projects in the Commonwealth. However, these systems are still relatively new and unfamiliar additions to our physical landscape.

This guide focuses on questions that have been raised concerning the installation and operation of ground-mounted solar PV projects. It provides summaries and links to existing research and studies that can help people understand solar PV technology in general, and ground-mounted solar in particular.

Solar PV panels can and are of course also installed on buildings<sup>2</sup>, car ports or light poles. This guide focuses on ground-mounted systems since most questions relate to this type of solar installations.

Developed through the partnership of the Massachusetts Department of Energy Resources (DOER), the Massachusetts Department of Environmental Protection (MassDEP), and the Massachusetts Clean Energy Center (MassCEC), this guide draws from existing, recent literature in the United States and abroad and is not the result of new original scientific studies. The text was reviewed by the National Renewable Energy Laboratory (NREL).

As new information becomes available, the guide will be updated and expanded.

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<sup>1</sup> For a comprehensive overview, start at <http://masscec.com/index.cfm/page/Solar-PV/pid/12584> and <http://www.dsireusa.org/solar/>

<sup>2</sup> For an overview of the multiple options for siting PV and buildings in the same footprint, see the Solar Ready Buildings Planning Guide, NREL, 2009.

## **Solar PV Projects Are Sited Locally**

The siting authority for solar PV projects resides at the local – not the state – level. One purpose of this guide is to inform and facilitate local efforts to expand clean energy generation in a sustainable way, and provide a consolidated source of existing research and information that addresses common questions faced by communities.

As part of the Green Communities Act of 2008, DOER and the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) developed a model zoning by-law/ordinance called “as-of-right siting” that does not require a special permit. It is designed to help communities considering adoption of zoning for siting of large-scale solar. This model zoning by-law/ordinance provides standards for the placement, design, construction, operation, monitoring, modification and removal of new large-scale ground-mounted solar PV installations. The latest version of the model by-law was published in March 2012<sup>3</sup>. It provides useful information that will not be repeated extensively in this guide.

## **Consider Impacts of Other Possible Developments at Site**

Use of land for the purpose of solar photovoltaic power generation should be compatible with most other types of land usage. However DOER strongly discourages designating locations that require significant tree cutting, because of the important water management, cooling and climate benefits trees have. DOER encourages designating locations in industrial and commercial districts, or on vacant, disturbed land.

When assessing the impact of new ground-mounted solar arrays, communities and other stakeholders should carefully consider other types of development that might take place in a particular location if there was no solar installation. Stakeholders should bear in mind the higher or lower impacts that those alternatives might have in terms of noise, air pollution or landscape. These alternative impacts fall outside the scope of this guide, but are relevant when looking at individual projects.

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<sup>3</sup><http://www.mass.gov/eea/docs/doer/green-communities/grant-program/solar-model-bylaw-mar-2012.pdf>

## Hazardous Materials

**Question:** What, if any, health risks do chemicals used in solar panels and other devices used in solar PV arrays pose if they are released into the environment?

**Bottom Line:** Because PV panel materials are enclosed, and don't mix with water or vaporize into the air, there is little, if any, risk of chemical releases to the environment during normal use. The most common type of PV panels is made of tempered glass, which is quite strong. They pass hail tests, and are regularly installed in Arctic and Antarctic conditions. Only in the unlikely event of a sufficiently hot fire is there a slight chance that chemicals could be released. This is unlikely because most residential fires are not hot enough to melt PV components and PV systems must conform to state and federal fire safety, electrical and building codes.

Transformers used at PV installations, that are similar to the ones used throughout the electricity distribution system in cities and towns, have the potential to release chemicals if they leak or catch fire. Transformer coolants containing halogens have some potential for toxic releases to the air if combusted. However, modern transformers typically use non-toxic coolants, such as mineral oils. Potential releases from transformers using these coolants at PV installations are not expected to present a risk to human health.

**More Information:** Ground-mounted PV solar arrays are typically made up of panels of silicon solar cells covered by a thin layer of protective glass attached to an inert solid underlying substance (or "substrate"). While the vast majority of PV panels currently in use are made of silicon, certain types of solar cells may contain cadmium telluride (CdTe), copper indium diselenide (CIS), and gallium arsenide (GaAs).

All solar panel materials, including the chemicals noted above, are contained in a solid matrix, insoluble and non-volatile at ambient conditions, and enclosed. Therefore, releases to the ground from leaching, to the air from volatilization during use, or from panel breakage, are not a concern. Particulate emissions could only occur if the materials were ground to a fine dust, but there is no realistic scenario for this. Panels exposed to extremely high heat could emit vapors and particulates from PV panel components to the air. However, researchers have concluded that the potential for emissions derived from PV components during typical fires is limited given the relatively short-duration of most fires and the high melting point (>1000 degrees Celsius) of PV materials compared to the roof level temperatures typically observed during residential fires (800-900 degrees Celsius). In the rare instance where a solar panel might be subject to higher temperatures, the silicon and other chemicals that comprise the solar panel would likely bind to the glass that covers the PV cells and be retained there.

Release of any toxic materials from solid state inverters is also unlikely provided appropriate electrical and installation requirements are followed. For more information on public safety and fire, see the Public Safety section of this document.

We should also note that usually the rain is sufficient to keep the panels clean, so no extra cleaning in which cleaning products might be used, is necessary.



## Resources:

Energy Information Administration (EIA), 2002. Renewable Energy Annual 2001 with Preliminary Data for 2001, <ftp://ftp.eia.doe.gov/renewables/060301.pdf>

Electric Power Research Institute (2003). "Potential Health and Environmental Impacts Associated with the Manufacture and Use of Photovoltaic Cells." Report to the California Energy Commission, Palo Alto, CA. <http://mydocs.epri.com/docs/public/000000000001000095.pdf>.

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Fthenakis, V.M. Life cycle impact analysis of cadmium in CdTe PV production. Renewable and Sustainable Energy Reviews 8, 303-334, 2004.

Fthenakis V.M., Kim H.C., Colli A., and Kirchsteiger C., [Evaluation of Risks in the Life Cycle of Photovoltaics in a Comparative Context](#), 21st European Photovoltaic Solar Energy Conference, Dresden, Germany, 4-8 September 2006.

Moskowitz P. and Fthenakis V., Toxic materials released from photovoltaic modules during fires; health risks, Solar Cells, 29, 63-71, 1990.

Sherwani, A.F., Usmani, J.A., & Varun. Life cycle assessment of solar PV based electricity generation systems: A review. Renewable and Sustainable Energy Reviews.14, 540-544, 2010.

Zayed, J; Philippe, S (2009-08). "[Acute Oral and Inhalation Toxicities in Rats With Cadmium Telluride](#)" (PDF). *International journal of toxicology* (International Journal of Toxicology) **28** (4): 259–65.

## End-of-Life/Decommissioning

**Question:** What happens after solar panels are no longer used and are being decommissioned? Do hazardous waste disposal requirements apply?

**Bottom Line:** The interest in recycling of solar panels has increased in Europe and the U.S. as more panels are decommissioned. State regulations are in place to ensure proper disposal and recycling of panels with components that constitute solid or hazardous waste under state regulations.

**More information:** The average life of solar PV panels can be 20-30 years (or longer) after initial installation. PV cells typically lose about 0.5% of their energy production capacity per year. At their time of decommissioning, panels may be disposed, recycled or reused. Since widespread use of solar PV is recent in Massachusetts, only a small percentage of solar panels in use in the state have reached the end of their useful lifetime. A significant increase in the amount of end-of-life PV modules is expected over the next few decades.

When solar panels are decommissioned, state rules require that panel disposal be “properly managed” pursuant to Massachusetts hazardous waste regulations. There are many different types of solar panels used in ground-mounted solar PV systems; some of these panels have components that may, by state regulation, require special hazardous waste disposal or recycling. Solar module manufacturers typically provide a list of materials used in the manufacturing of their product, which is used to determine the proper disposal at the time of decommissioning.

People who lease land for solar projects are encouraged to include end-of-life panel management as part of the lease. In cases where panels are purchased, owners need to determine whether the end-of-life panels are a solid or hazardous waste and dispose of the panels appropriately. Massachusetts regulations require testing of waste before disposal.

Because of the various materials used to produce solar panels (such as metal and glass), interest in recycling of solar modules has grown. Throughout Europe, a not-for-profit association (PV Cycle) is managing a voluntary collection and recycling program for end-of-life PV modules. The American photovoltaic industry is not required by state or federal regulation to recycle its products, but several solar companies are starting to recycle on a voluntary basis. Some manufacturers are offering end-of-life recycling options and independent companies looking to recycle solar modules are growing. This allows for the recycling of the PV panels and prevents issues with the hazardous materials. Currently, the California Department of Toxic Substances Control is considering standards for the management of solar PV panels at the end of their use.

DOER’s model zoning provides language on requirements for abandonment and decommissioning of solar panels for use by local officials considering local approvals for these projects.

### Resources

End-of-life PV: then what? - Recycling solar PV panels

<http://www.renewableenergyfocus.com/view/3005/end-of-life-pv-then-what-recycling-solar-pv-panels/>

MassDEP Hazardous Waste Regulations 310 CMR 30  
<http://www.mass.gov/dep/service/regulations/310cmr30.pdf>

PV Cycle, Europe: <http://www.pvcycle.org/>

California Department of Toxic Substances Control, Proposed Standards for the Management of Hazardous Waste Solar Modules,  
[http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/Reg\\_Exempt\\_HW\\_Solar\\_Panels.cfm](http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/Reg_Exempt_HW_Solar_Panels.cfm)

## Ambient Temperature (“Heat Island”)

**Question:** Does the presence of ground-mounted solar PV arrays cause higher ambient temperatures in the surrounding neighborhood (i.e., the “heat island” effect)?

**Bottom Line:** All available evidence indicates that there is no solar “heat island” effect caused by the functioning of solar arrays. Cutting shade trees for solar PV might increase the need for cooling if those trees were shading buildings. This is primarily a concern in town centers and residential areas (locations where large ground-mounted PV is not encouraged) and is a potential impact of any development activity that requires tree-cutting.

**More Information:** All available evidence indicates that there is no solar “heat island” effect caused by the functioning of solar arrays. Solar panels absorb photons from direct sunlight and convert it to electricity. This minimizes the likelihood of substantially changing temperatures at the site or the surrounding neighborhood. For an area with no PV system, solar energy impacting the ground is either reflected or absorbed. There is no research to support heat production from the solar panels themselves.

Sunpower, a private solar manufacturer, conducted a study on the impact of solar PV on the local temperature and concluded that a solar PV array can absorb a higher percentage of ambient heat than could a forested parcel of land without an array. The study points out that while solar PV modules can reach operating temperatures up to 120 degrees Fahrenheit, they are thin and lightweight and therefore do not store a large amount of heat. Because of this, and the fact that panels are also shown to cool to ambient air temperature shortly after the sun sets, the Sunpower study concludes that the area surrounding a large-scale solar array is unlikely to experience a net heating change from the panels.

If trees are removed that were previously shading a building, that building could get warmer in full sunshine than when the trees were shading it. The June 1, 2011 tornado that ripped through Western Massachusetts created an opportunity to empirically measure the affects of the loss of neighborhood trees on temperatures and air humidity in the streets. A report by the U.S. Department of Agriculture Forest Service concluded that in the tornado-impacted neighborhood in Springfield, Massachusetts, daily mean morning and afternoon temperatures were typically greater than in the unaffected neighborhood and forest sites, but were similar at night. Residents noted increased use of air-conditioning units and an overall increase in energy costs in July and August of 2011.

### Resources:

SUNPOWER, Impact of PV Systems on Local Temperature, July 2010

USDA Forest Services report: <http://www.regreenspringfield.com/wp-content/uploads/2011/11/tornado%20climate%20report%203.pdf>

## Electric and Magnetic Fields (EMF)

**Question:** What, if any, health risks do the electric and magnetic fields (EMF) from solar panels and other components of solar PV arrays pose?

**Bottom Line:** Electric and magnetic fields are a normal part of life in the modern world. PV arrays generate EMF in the same extremely low frequency (ELF) range as electrical appliances and wiring found in most homes and buildings. The average daily background exposure to magnetic fields is estimated to be around one mG (milligauss – the unit used to measure magnetic field strength), but can vary considerably depending on a person's exposure to EMF from household electrical devices and wiring. The lowest exposure level that has been potentially associated with a health effect is three mG. Measurements at three commercial PV arrays in Massachusetts demonstrated that their contributions to off-site EMF exposures were low (less than 0.5 mG at the site boundary), which is consistent with the drop off of EMF strength based on distance from the source.

**More Information:** Solar PV panels, inverters and other components that make up solar PV arrays produce extremely low frequency EMF when generating and transmitting electricity. The extremely low frequency EMF from PV arrays is the same as the EMF people are exposed to from household electrical appliances, wiring in buildings, and power transmission lines (all at the power frequency of 60 hertz). EMF produced by cell phones, radios and microwaves is at much higher frequencies (30,000 hertz and above).

Electric fields are present when a device is *connected* to a power source, and are shielded or blocked by common materials, resulting in low potential for exposure. On the other hand, magnetic fields, which are only generated when a device is *turned on*, are not easily shielded and pass through most objects, resulting in greater potential for exposure. Both types of fields are strongest at the source and their strength decreases rapidly as the distance from the source increases. For example, the magnetic field from a vacuum cleaner six inches away from the motor is 300 mG and decreases to two mG three feet away. People are exposed to EMF during normal use of electricity and exposure varies greatly over time, depending on the distance to various household appliances and the length of time they are on. The daily average background level of magnetic fields for U.S. residents is one mG.

**EMF from PV Arrays:** Solar PV panels produce low levels of extremely low frequency EMF, with measured field strengths of less than one mG three inches from the panel. Solar PV power inverters, transformers and conduits generate higher levels of ELF-EMF. The amount of ELF-EMF is proportional to the electrical capacity of the inverter and is greater when more current (electricity) is flowing through a power line.

In a study of two PV arrays (using 10-20kW invertors) in Kerman and Davis, California, the magnetic field was highest at the inverters and transformers, but decreased rapidly to less than one mG within 50 feet of the units, well within the boundary of the PV array (Chang and Jennings 1994). This data indicates that extremely low frequency EMF field strengths at residences near systems of this size would be below the typical levels experienced by most people at home. The highest extremely low frequency EMF (up to 1,050 mG) was found next to an inverter unit at the point of entry to the electrical conduits. Even this

value is less than the ELF-EMF reported for some common household devices, such as an electric can opener with a maximum of 1500 mG at 6 inches.

In a recent study of 3 ground mounted PV arrays in Massachusetts, the above results were confirmed. The PV arrays had a capacity range of 1 to 3.5 MW. Magnetic field levels along the PV array site boundary were in the very low range of 0.2 to 0.4 mG. Magnetic fields at 3 to 7 feet from the inverters ranged from 500 to 150 mG. At a distance of 150 feet from the inverters, these fields dropped back to very low levels of 0.5 mG or less, and in many cases to much less than background levels (<0.2 mG).

**Potential Health Effects:** Four research studies have reported an association between three to four mG EMF exposure and childhood leukemia, while 11 other studies have not. These studies are inconsistent and do not demonstrate a causal link that would trigger a World Health Organization (WHO) designation of EMF as a possible carcinogen<sup>4</sup>. Studies looking at other cancers in humans and animals have not found evidence of a link to residential ELF-EMF exposure.

**Reference Exposure Levels:** To protect the general public from health effects from short-term high level magnetic fields, the International Commission on Non-Ionizing Radiation Protection (ICNIRP, 2010) advised an exposure limit for extremely low frequency magnetic fields at 2000mG. ICNIRP determined that the evidence on the impact of long-term exposure to low level magnetic fields was too uncertain to use to set a guideline. Guidelines for the magnetic field allowed at the edge of transmission line right-of-ways have been set at 200 mG by Florida and New York. Exposure to magnetic fields greater than 1000 mG is not recommended for people with pacemakers or defibrillators (ACGIH, 2001).

ELF-EMF does not appear to interfere with hearing aids, though interference from higher frequency EMF associated with cell phones has been reported.

#### **Resources:**

American Conference of Government Industrial Hygienist (ACGIH). 2001. as cited in NIEHS 2002.

California Department of Health Services (CA DHS). 2000. Electric and Magnetic Fields, measurements and possible effect on human health — what we know and what we don't know in 2000. This factsheet has a moderate level of technical detail and is intended for those with an interest in science. For more information, see <http://www.dhs.ca.gov/ps/deodc/ehib/>. California Electric and Magnetic Fields Program, A Project of the California Department of Health Services and the Public Health Institute.

Chang, GJ and Jennings, C. 1994. Magnetic field survey at PG&E photovoltaic sites. PG&E R&D Report 007.5-94-6. Available

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<sup>4</sup> WHO has designated ELF-EMF as a possible carcinogen. The use of the label "possible carcinogen" indicates that there is not enough evidence to designate ELF-EMF as a "probable carcinogen" or "human carcinogen," the two indicators of higher potential for being carcinogenic in humans.

Electric Power Research Institute (EPRI). 2012. EMF and your health. Available [http://my.epri.com/portal/server.pt?Abstract\\_id=000000000001023105](http://my.epri.com/portal/server.pt?Abstract_id=000000000001023105).

International Commission on Non-Ionizing Radiation Protection (ICNIRP). 2010. ICNIRP Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz – 100kHz). Health Physics 99(6):818-836.

National Cancer Institute (NCI). 2005. Magnetic Field Exposure and Cancer: Questions and Answers. U.S. Department of Health and Human Services, National Institutes of Health. Available <http://www.cancer.gov/cancertopics/factsheet/Risk/magnetic-fields>, accessed May 14, 2012.

National Institute of Environmental Health Science (NIEHS) 2002. Electric and Magnetic Fields Associated with the Use of Electric Power: Questions and Answers. Available [http://www.niehs.nih.gov/health/assets/docs\\_p\\_z/results\\_of\\_emf\\_research\\_emf\\_questions\\_answers\\_booklet.pdf](http://www.niehs.nih.gov/health/assets/docs_p_z/results_of_emf_research_emf_questions_answers_booklet.pdf), accessed May 11, 2012.

National Institute of Environmental Health Science (NIEHS) web page on EMF. Available <http://www.niehs.nih.gov/health/topics/agents/emf/>, accessed May 11, 2012.

Oregon Department of Transportation (Oregon DOT). Scaling public concerns of electromagnetic fields produced by solar photovoltaic arrays. Produced by Good Company for ODOT for the West Linn Solar Highway Project. Available [www.oregon.gov/ODOT/HWY/OIPP/docs/emfconcerns.pdf](http://www.oregon.gov/ODOT/HWY/OIPP/docs/emfconcerns.pdf).

World Health Organization (WHO). 2007. Electromagnetic fields and public health: Exposure to extremely low frequency fields. Fact sheet N°322. June 2007. Available <http://www.who.int/mediacentre/factsheets/fs322/en/index.html>, accessed May 16, 2012. This fact sheet provides a short summary of the in-depth review documented in the WHO 2007, Environmental Health Criteria 238. Available [http://www.who.int/peh-emf/publications/elf\\_ehc/en/index.html](http://www.who.int/peh-emf/publications/elf_ehc/en/index.html).

EMF in Your Environment, Magnetic Field Measurements of Everyday Electrical Devices (USEPA, 1992)

Tech Environmental, Study of Acoustic and EMF levels from Solar Photovoltaic Projects, Prepared for the Massachusetts Clean Energy Center, December 2012

## Property Values

**Question:** How do ground-mounted solar PV arrays adjacent to residential neighborhoods influence the property values in those neighborhoods?

**Bottom Line:** No research was found specific to ground-mounted solar PV and property values. Residential property value research on roof-mounted solar PV and wind turbines illustrates no evidence of devaluation of homes in the area. Municipalities that adopt zoning for solar facilities may want to consider encouraging project developers to include screening vegetation along site borders to minimize visual impacts on surrounding neighborhoods.

**More Information:** A review of literature nationwide shows little evidence that solar arrays influence nearby property values. An analysis focused on roof-mounted solar PV panels done by the U.S. Department of Energy Lawrence Berkeley National Laboratory concludes that household solar installation actually increases home property values. This research analyzes a large dataset of California homes that sold from 2000 through mid-2009 with PV installed. Across a large number of repeat sales model specifications and robustness tests, the analysis finds strong evidence that California homes with PV systems have sold for a premium over comparable homes without PV systems.

While neither of these reports focused on ground-mounted solar PV, this information may be relevant to this discussion.

### Resources:

The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis <http://eetd.lbl.gov/ea/ems/reports/lbnl-2829e.pdf>

An Analysis of the Effects of Residential Photovoltaic Energy Systems on Home Sales Prices in California <http://eetd.lbl.gov/ea/emp/reports/lbnl-4476e.pdf>



## Public Safety (including fires)

**Question:** What public safety issues arise from people's (including children) access areas where the solar arrays are installed? Can electrical and other equipment associated with solar projects cause electrical fires?

**Bottom Line:** Large-scale ground-mounted arrays are typically enclosed by fencing. This prevents children and the general public from coming into contact with the installations, thus preventing unsafe situations. The National Electric Code has mandatory requirements to promote the electrical safety of solar PV arrays. The solar industry and firefighters provide training and education for emergency personnel to ensure that the proper safety precautions are taken.

**More Information:** The National Electric Code has mandatory requirements for the electrical safety of solar PV arrays. To protect intruders, Article 690 of the National Electric Code covers the safety standards for solar PV installation and requires that conductors installed as part of solar PV be "not readily accessible." With a large-scale ground-mounted array, a fence is typically installed around the system to prevent intruders. Some communities have solar PV or signage by-laws that require identification of the system owner and 24-hour emergency contact information.

DOER's model by-law/ordinance requires owners of solar PV facilities to provide a copy of the project summary, electrical schematic, and site plan to the local fire chief, who can then work with the owner and local emergency services to develop an emergency response plan.

These measures can be combined with products to prevent theft of the panels. Some are very low cost options (fastener type) while there are other options that are more expensive (alarm system type) but also more effective. The biggest potential risk associated with solar PV systems is the risk of shock or electrocution for firefighters and other emergency responders who could come in contact with high voltage conductors. A 2010 study on firefighter safety and emergency response for solar PV systems by the Fire Protection Research Foundation, based in Quincy, Massachusetts, recommended steps firefighters can take when dealing with wiring and other components that may be energized. The Solar Energy Business Association of New England (SEBANE) has been working to provide training and education to first-responders to identify and avoid potential hazards when responding to a solar PV fire.

For more information about toxics/fires, see the Hazardous Materials Section.

### Resources:

*"Moskowitz, P.D. and Fthenakis, V.M., Toxic Materials Released from Photovoltaic Modules During Fires: Health Risks, Solar Cells, 29, 63-71, 1990. 21."*

Solar America Board for Codes and Standards

<http://www.solarabcs.org/about/publications/reports/blindspot/pdfs/BlindSpot.pdf>

"Fire Fighter Safety and Emergency Response for Solar Power Systems: Final Report" May 2010.  
Prepared by The Fire Protection Research Foundation

National Electric Code Article 250: Grounding and Bonding, Article 300: Wiring Methods, Article 690 Solar PV Systems, Article 705 Interconnected Electric Power Production Sources

## Historic Preservation

**Question:** What are the appropriate standards when land with certain historical or archaeological significance is developed for large-scale solar PV arrays?

**Bottom Line:** Parties undertaking solar PV projects with state or federal agency involvement must provide the Massachusetts Historical Commission (MHC) with complete project information as early as possible in the planning stage, by mail, to the MHC's office (see Resources). Parties should also contact local planning, historical or historic district commissions to learn about any required local approvals. Municipalities should also take the presence of historic resources into account when establishing zoning regulations for solar energy facilities in order to avoid or minimize impacts.

**More Information:** Land being evaluated for the siting large-scale solar PV may have historical or archaeological significance, including properties listed in the National or State Registers of Historic Places and/or the Inventory of Historic and Archaeological Assets of the Commonwealth.

Federal and state laws require that any new construction, demolition or rehabilitation projects (including new construction of solar PV) that propose to use funding, licenses or permits from federal or state government agencies must be reviewed by the MHC so that feasible alternatives are developed and implemented to avoid or mitigate any adverse affects to historic and archaeological properties. Projects receiving federal funding, licenses or permits are reviewed by the involved federal agency in consultation with the MHC and other parties in compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f) and the implementing regulations (36 CFR 800) in order to reach agreement to resolve any adverse effects. Projects receiving state funding, licenses or permits must notify the MHC in compliance with M.G.L. c. 9, ss. 26-27C and the implementing regulations 950 CMR 71. If the MHC determines that the project will have an adverse effect, the involved state agency, the project proponent, the local historical preservation agencies, and other interested parties consult to reach an agreement that outlines measures to be implemented to avoid, minimize, or mitigate adverse effects. For projects with both federal and state agency involvement, the Section 106 process is used.

Some communities have local preservation ordinances or established historic districts that require local approval for new construction visible from a public way. Local historic district commissions have adopted design guidelines for new construction within their historic districts and historic neighborhoods. However, these guidelines must account for Chapter 40C Section 7 of the General Laws, which requires a historic district commission to consider the policy of the Commonwealth to encourage the use of solar energy systems and to protect solar access.

### Resources:

Federal Agency Assisted Projects:

Section 106 review information and federal regulations 36 CFR 800 are available at the Advisory Council on Historic Preservation (ACHP) web site: [www.achp.gov](http://www.achp.gov). Check with the involved federal agency for how they propose to initiate the MHC notification required by 36 CFR 800.3.

State Agency Assisted Projects:

Massachusetts General Laws Chapter 9, sections 26-27C

<http://www.malegislature.gov/Laws/GeneralLaws/Search>

MHC Regulations 950 CMR 71 (available from the State House Bookstore)

MHC Review & Compliance FAQs <http://www.sec.state.ma.us/mhc/mhcrevcom/revcomidx.htm>

MHC Project Notification Form (PNF) & Guidance for Completing the PNF and required attachments (USGS locus map, project plans, current photographs keyed to the plan). Mail or deliver the complete project information to the MHC's office: <http://www.sec.state.ma.us/mhc/mhcform/formidx.htm>

General Guidance about Designing Solar PV Projects on Historic Buildings and in Historic Areas:

<http://www.nrel.gov/docs/fy11osti/51297.pdf>

## Noise

**Question:** Do the inverters, transformers or other equipment used as part of ground-mounted solar PV create noise that will impact the surrounding neighborhood?

**Bottom Line:** Ground-mounted solar PV array inverters and transformers make a humming noise during daytime, when the array generates electricity. At 50 to 150 feet from the boundary of the arrays, any sound from the inverters is inaudible. Parties that are planning and designing ground-mounted solar PV can explore options to minimize noise impacts to surrounding areas even more. These could include conducting pre-construction sound studies, evaluating where to place transformers, and undertaking appropriate noise mitigation measures.

**More Information:** Most typically, the source of noise associated with ground-mounted solar PV comes from inverters and transformers. There also may be some minimal noise from switching gear associated with power substations. The crackling or hissing sound caused by high-voltage transmission lines (the “Corona effect”) is not a concern in the case of solar PV, which uses lower voltage lines.

Parties siting ground-mounted solar PV projects should consult equipment manufacturers to obtain information about sound that can be expected from electrical equipment, which can vary. For example, according to manufacturer’s information, a SatConPowergate Plus 1 MW Commercial Solar PV Inverter has an unshielded noise rating of 65 decibels (dBA) at five feet. This is approximately the sound equivalent of having a normal conversation with someone three feet away. Another source of information is the National Electrical Manufacturers Association (NEMA) standards, which will provide maximum sound levels from various equipment arrays. From NEMA, a large dry-type transformer (2001-3333 kVA) that is forced air cooled and ventilated has an average sound level of 71 dBA, which is approximately the sound level one would expect from a vacuum cleaner at ten feet. There may be several such units on a substantially sized PV site, which would increase the sound level to some degree.

Sound impacts from electrical equipment can be modeled to the property line or nearest sensitive receptor (residence). Sound impacts can be mitigated with the use of enclosures, shielding and placement of the sound-generating equipment on-site. The rule of thumb for siting noise-generating equipment is that the sound impact can be reduced by half by doubling the distance to the receptor.

In some areas both in the U.S. and Canada, sound impact analysis is required as part of the permitting process for large PV systems. For example, in the Province of Ontario, Canada, any project greater than 12 MW is required to perform a sound impact analysis (Ontario 359/09). California also requires a sound impact analysis for Large PV projects. Massachusetts currently has no such requirement, but the reader should note that ground mounted systems in Massachusetts very rarely go over 6 MW, which is half the size of the 12 MW that triggers a sound analysis in Ontario.

A recent study measured noise levels at set distances from the inverters and from the outer boundary of three ground mounted PV arrays in Massachusetts with a capacity range of 1 to 3.5 MW. Close to the inverters (10 feet), sound levels varied from an average of 55 dBA to 65 dBA. Sound levels along the fenced boundary of the PV arrays were generally at background levels, though a faint inverter hum could be heard at some locations. Any sound from the PV array and equipment was inaudible and sound

levels were at background levels at setback distances of 50 to 150 feet from the boundary. Project developers should consult with local planning and zoning officials to determine if local noise ordinances may be applicable. Many local noise ordinances establish absolute limits on project impact noise (such as a 40 dBA nighttime limit). In these communities, a noise impact assessment may be required.

**Resources:**

NEMA Standards Publication No. TR=1-1993(R2000), *Transformers, Regulators and Reactors*

Noise Assessment: Borrego 1 Solar Project, MUP 3300-10-26 Prepared by Ldn Consulting, Inc, Fallbrook, CA. January 14, 2011

Ontario Regulation 359/09 Renewable Energy Approval (REA) Regulation, Ontario Ministry of the Environment, Canada

Tech Environmental, Study of Acoustic and EMF levels from Solar Photovoltaic Projects, Prepared for the Massachusetts Clean Energy Center, December 2012

## Water-Related Impacts

**Question:** Can chemicals that might be contained in solar PV threaten public drinking water systems? Will flooding occur in cases where trees must be removed in order to install the solar arrays? How do we ensure that wetland resources are protected?

**Bottom Line:** Rules are in place to ensure that ground-mounted solar arrays are installed in ways that protect of public water supply, wetlands, and other water resource areas. All solar panels are contained in a solid matrix, are insoluble and are enclosed. Therefore releases are not a concern.

**More Information:** Because trees offer multiple water management, cooling and climate benefits, clear cutting of trees for the installation of ground-mounted solar PV is discouraged. For projects that do propose to alter trees, the Massachusetts Environmental Policy Act (MEPA) has thresholds for the proposed alteration of a certain number of acres of land, the size of electrical facilities, and other criteria that trigger state review of proposed projects. Clear cutting of trees and other aspects of proposed projects would be reviewed through an Environmental Notification Form/Environmental Impact Statement if thresholds are triggered.

MassDEP has determined that the installation of solar arrays can be compatible with the operation and protection of public drinking water systems. This includes the installation of solar arrays within Zone I, which is a 400-foot protective radius around a public ground water well. Solar projects proposed on lands owned by public water systems outside Zone I may be approved subject to standard best management practices, such as proper labeling, storage, use, and disposal of products. MassDEP has a guidance/review process in place to ensure that the installation of ground-mounted solar PV in these areas protects public water supplies.

Installing solar arrays on undeveloped land can preserve the permeable nature of the land surface provided the project design minimizes disturbance to natural vegetative cover, avoids concentrated runoff, and precipitation is otherwise recharged into the ground to the greatest extent practicable. Storm water flow, as well as information about site-specific soils and slope, is taken into account during the design and installation of solar arrays.

MassDEP discourages installation of ground-mounted solar PV systems in wetland areas, including riverfront locations. Solar projects within wetland areas are unlikely to comply with the performance standards in the Wetlands Protection Act regulations. If a solar installation is proposed in a wetland, a riverfront area, a floodplain, or within 100 feet of certain wetlands, the project proponent must file a notice of intent (or application to work in wetland areas) with the local Conservation Commission, which administers the Wetlands Protection Act at the municipal level. Copies should also go to MassDEP. Solar installations may be sited near, but outside of wetlands, in a manner that protects the functions of wetlands and that minimizes impacts from associated activities such as access and maintenance. Ancillary structures related to construction of a solar installation or transmission of power may be permitted to cross rivers and streams using best design and management practices.

**Resources:**

More information about the Wetlands Protection Act requirements may be found in the implementing regulations at 310 CMR 10.00: <http://www.mass.gov/dep/service/regulations/310cmr10a.pdf>

More information about Environmental Notification Form/Environmental Impact Statement: <http://www.env.state.ma.us/mepa/regs/11-03.aspx>.

MassDEP Policy for Siting Solar Projects in Zone I: <http://www.mass.gov/dep/water/laws/1101.htm>

MassDEP Guidance for Siting Wind and Solar in Public Water Supply Land: <http://www.mass.gov/dep/water/laws/wseppws.htm>

MassDEP Chapter 91 Guidance for Renewable Energy Projects: [http://www.mass.gov/dep/water/priorities/ene\\_91.htm](http://www.mass.gov/dep/water/priorities/ene_91.htm)



## Glare

**Question:** How important is reflectivity and potential visual impacts from solar projects, especially near airports?

**Bottom Line:** Solar panels are designed to reflect only about 2 percent of incoming light, so issues with glare from PV panels are rare. Pre-construction modeling can ensure that the placement of solar panels prevents glare.

**More Information:** Solar panels are designed to absorb solar energy and convert it into electricity. Most are designed with anti-reflective glass front surfaces to capture and retain as much of the solar spectrum as possible. Solar module glass has less reflectivity than water or window glass. Typical panels are designed to reflect only about 2 percent of incoming sunlight. Reflected light from solar panels will have a significantly lower intensity than glare from direct sunlight.

An analysis of a proposed 25-degree fixed-tilt flat-plate polycrystalline PV system located outside of Las Vegas, Nevada showed that the potential for hazardous glare from flat-plate PV systems is similar to that of smooth water and is not expected to be a hazard to air navigation.

Many projects throughout the U.S. and the world have been installed near airports with no impact on flight operations. United Kingdom and U.S. aircraft accident databases contain no cases of accidents in which glare caused by a solar energy facility was cited as a factor.

When siting solar PV arrays pre-construction modeling can ensure the panels are placed in a way that minimizes any potential glare to surrounding areas.

### Resources:

Technical Guidance for Evaluating Selected Solar Technologies on Airports, Federal Aviation Administration, November 2010 (currently under review):

[http://www.faa.gov/airports/environmental/policy\\_guidance/media/airport\\_solar\\_guide.pdf](http://www.faa.gov/airports/environmental/policy_guidance/media/airport_solar_guide.pdf)

A Study of the Hazardous Glare Potential to Aviators from Utility-Scale Flat-Plate Photovoltaic Systems, Black & Veatch Corporation, August 2011: <http://www.isrn.com/journals/re/2011/651857/>

Solar Photovoltaic Energy Facilities, Assessment of Potential Impact on Aviation, Spaven Consulting, January 2011: <http://plan.scambs.gov.uk/swiftlg/MediaTemp/1121414-374831.pdf>

## Endangered Species and Natural Heritage

**Question:** Who ensures that rare animal and plant species and their habitats are not displaced or destroyed during the construction of ground-mounted solar PV?

**Bottom Line:** Rules are in place to ensure that the installation of ground mounted solar arrays protects state-listed rare species and animals and plants. Project proponents can check with the local Conservation Commission to determine if the footprint of the solar PV project lies within a rare species habitat.

**More Information:** The Massachusetts Natural Heritage and Endangered Species Program (NHESP) was created under the Massachusetts Endangered Species Act (MESA) and is responsible for protecting rare animal and plant species and their habitats from being displaced or destroyed. Specifically, NHESP reviews projects proposed for:

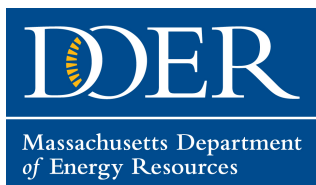
- **Priority Habitats:** These are areas known to be populated by state-listed rare species of animals or plants. Any project that could result in the alteration of more than two acres of Priority Habitat is subject to NHESP regulatory review. Projects will need to file a MESA Information Request Form, along with a project plan, a U.S. Geological Service (USGS) topographical map of the site, and a \$50 processing fee. NHESP will let project administrators know within 30 days if the filing is complete, then will determine within the next 60 days whether the project, as proposed, would result in a “take” of state-listed rare species that might require the project to redesign, scale down, or abandon its plan.
- **Estimated Habitats.** These are a sub-set of Priority Habitats that are based on the geographical range of state-listed rare wildlife – particularly animals that live in and around wetlands. If the project is proposed for one of these areas and the local Conservation Commission requires filing a Notice of Intent (NOI) under the Wetlands Protection Act, the project will need to submit copies of the NOI, project plans and a U.S. Geological Service (USGS) topographical map to NHESP. Within 30 days of receiving this information, NHESP will send its comments to the Conservation Commission, with copies to the project administrator, project consultants, and the Department of Environmental Protection (MassDEP).

Projects can check with the Conservation Commission in your town or city to find out if its footprint lies within an Estimated Habitat for rare species. Each Commission has a large-scale map of its community available for public inspection. Each map NHESP develops to delineate a Priority Habitat or Estimated Habitat is based on at least 25 years of local rare animal and plant observation, and the best scientific evidence available. It is important to note that to ensure adequate protection of rare species, NHESP does not disclose detailed site-specific information about them.

### Resources:

To learn more about the NHESP review process and download a MESA Information Request Form, visit:  
[http://www.mass.gov/dfwele/dfw/nhesp/regulatory\\_review/mesa/mesa\\_project\\_review.htm](http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_project_review.htm)

For lists of rare animal and plant species in Massachusetts, visit:  
[http://www.mass.gov/dfwele/dfw/nhesp/species\\_info/mesa\\_list/mesa\\_list.htm](http://www.mass.gov/dfwele/dfw/nhesp/species_info/mesa_list/mesa_list.htm)



## **Attachment B**



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**Inverter Sound Power Level Testing**  
**Advanced Energy Industries, Fort Collins, CO**

**Prepared by: Tyler Rynberg, PE**  
**Vibro-Acoustic Consultants**  
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**Date: 14 April 2010**

## Table of Contents

1	Background	p. 1
2	Description of Inverter	p. 1
3	General Methodology	p. 1
4	Data Collection	p. 2
4.1	Measurement System Parameters	p. 2
4.2	Measurement Locations and Site Conditions	p. 2
4.3	Qualification of Acoustical Environment	p. 3
4.4	Data Presentation	p. 3
5	Discussion	p. 4
Figures 1~7 Measurement Data Plots		p. 5

## 1. Background

Advanced Energy Industries (AEI) wishes to document the sound power levels generated by the Solaron 500, a 500 kW inverter. AEI has requested that the testing of the fuel cell be performed per the ISO 3744-1994 Standard. We visited the AEI facility on Thursday, 1 April 2010, to perform the testing.

Since sound power is a property of the source being tested (rather than the cumulative result of multiple sources interacting with the environment), these data are applicable to many different installation conditions. In this document, we report the measured sound power levels and sound pressure levels and provide commentary on how we would insert this source into computer-based noise propagation models.

## 2. Description of Inverter

The device under test was designated as Solaron 500 model number 3159500-0000 A1 (with 3R enclosure), a 500 kW inverter, manufactured by AEI in March 2010. The inverter had a serial number of 750385 F/R A1. The inverter was 1.83m wide x 0.97m deep x 2m high.

The inverter was mounted on a rigid wood platform constructed using 2x4 studs and rigid foam. The platform raised the inverter 0.2m off the floor. The reference box established for the inverter had the following dimensions: L1 = 1.83m, L2 = 0.97m, L3 = 2.21m.

The inverter was supplied DC input voltage by power generation equipment located in an adjacent room.

## 3. General Methodology

We measured the sound pressure levels generated by the inverter per the ISO 3744-1994 Standard. During the measurements, we collected the overall un-weighted equivalent continuous sound level ( $L_{EQ}$ ), as well as the un-weighted 1/3-octave band spectra from both the inverter and ambient conditions. The measurement duration at each microphone position was 60 seconds.

To measure the inverter, we established a parallelepiped measurement surface 1 meter from the reference box. The resultant measurement surface had the following dimensions: L1 = 3.83m, L2 = 2.97m, L3 = 3.21m, and totaled 55.01 square meters. We used 9 microphone positions, per Figure C2 of the ISO 3744-1994 Standard. For all 9 positions, the fixed microphone position technique was used.

We tested four operating configurations of the inverter. As an exploratory test, we also measured a fifth configuration at only one microphone position. The tested configurations are shown in the following table:

Configuration	Input Voltage	Output Power	Blower Setting
1	790V	100% (500kW)	Maximum
2	850V	100% (500kW)	Maximum
3	730~745V <sup>1</sup>	100% (500kW)	Maximum
4	790V	50% (250kW)	Maximum
5	850V	50% (250kW)	Maximum

<sup>1</sup>During this measurement, the voltage regulator was not operating properly. The input voltage was observed to oscillate between 730V and 745V.

We understand from our discussions with AEI personnel that the operating conditions tested are representative of a real-world installation.

## 4. Data Collection

### 4.1 Measurement System Parameters

We measured the sound power levels using our standard testing suite:

<u>Instrument</u>	<u>Make / Model</u>	<u>Identification</u>
Microphone Calibrator	Brüel & Kjær 4231	S/N 2292439
Noise Meter	Norsonic N-140	S/N 1403581
Microphone Preamplifier	Norsonic N-1209	S/N 12749
Microphone	Norsonic N-1225	S/N 96063

The noise meter was calibrated to 94 dB at 1 kHz before and after the measurements. The microphone windscreen was used. The Norsonic N-140 has an internal correction filter to correct for the effects of the windscreen.

### 4.2 Measurement Locations and Site Conditions

We collected data in the Solaron testing lab adjacent to the main fabrication area at the AEI facility in Fort Collins, CO. The testing lab measured approximately 13.41m x 19.51m x 3.35m. The floor is an exposed concrete slab; three of the walls are constructed using vinyl-faced gypsum board on stud-framing; the remaining wall was open to the main fabrication area; the ceiling is a suspended grid containing vinyl-faced gypsum board panels. The testing area contains several workstations and other inverters. The inverter was placed near the center of the testing lab space, at least 5.5m from any of the lab walls. No workstations or other inverters were located within 4m of the inverter. However, the top of the inverter was only 1.14m below the suspended gypsum board ceiling. In an effort to reduce the effects of the ceiling on the measurements, several ceiling tiles above the



inverter were removed. This roof deck is approximately 2.8m above the suspended ceiling, providing a vertical clearance of 3.9m.

The temperature in the fabrication area was estimated to be 22°C. The relative humidity was typical of an indoor air-conditioned environment.

### 4.3 Qualification of Acoustical Environment

#### Ambient Noise Correction Factor $K_1$

In the majority of 1/3 octave bands, the ambient noise levels were greater than 6 dB below the test conditions. In the 50~80Hz, 630Hz, and 2~6.3kHz 1/3 octave bands, the ambient noise was frequently only 1~4 dB below the test conditions. Generally, the “middle” four measurement positions had a greater signal-to-noise ratio than the “top” five positions.

#### Acoustical Correction Factor $K_2$

The reflecting plane extended a minimum of 4.5m from the measurement surface in all directions, which meets the ISO-3744 Standard for the 50 Hz lower boundary of the presented data. The reflecting plane was concrete slab-on-grade and was estimated to have an absorption coefficient of 0.05 or less in the frequency bands of interest.

The Approximate Method was used to determine the environmental correction factor,  $K_2$ . Our calculations show that the highest value for  $K_2$  is 9.6 dB and occurs in the 500Hz octave band. The environment does not meet the ISO-3744 Standard requirement of  $K_2 < 2$  dB. The following table presents the calculated octave band  $K_2$  values:

Calculated $K_2$	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
	5.2 dB	4.6 dB	6.8 dB	9.6 dB	9.3 dB	8.6 dB	7.1 dB	6.2 dB

While the values for  $K_2$  exceed the ISO Standard in all octave bands, the Standard allows for compliance by using a maximum correction factor of 2 dB. Values for which the correction factor is limited to 2 dB therefore represent a “worst-case” or upper boundary for the actual performance of the device under test.

### 4.4 Data Presentation

Data are presented in Tables 1~7. For each configuration, we present the overall A-weighted (L<sub>WA</sub>) and the un-weighted 1/3 octave band sound power levels in decibels referenced to  $1 \times 10^{-12}$  W. We also present the overall A-weighted (dBA) and the un-weighted 1/3 octave band sound pressure levels in decibels referenced to 20  $\mu$ Pa for each configuration.

## 5. Discussion

### Non-Compliance Sound Pressure Levels

The noise generated in the 50~80Hz, 630Hz, and 2~6.3kHz 1/3 octave bands do not exceed the ambient conditions by the minimum 6 dB required by the ISO-3744 Standard. The published levels in these bands should be considered to be the upper boundary of the exact level – the true level is likely to be lower in level than the calculated values. The overall sound power level, LwA, does meet the requirements of the ISO-3744 Standard, in terms of ambient noise. However, the acoustical environment does not meet the ISO-3744 Standard in any of the 1/3 octave bands. Therefore, the published levels in all of the bands, including the overall LwA, should be considered as the upper boundary of the actual level.

### Configurations

There was no significant difference in sound power level between the configurations. The only statistically important variation was the amplitude of a 9kHz tone, which was highest with Configuration 2. This tone could be a sub-harmonic of the switching circuitry, which runs at 18kHz.

### Noise Modeling

In all of the configurations tested, the relatively broadband noise from the blower dominated the noise character. There is also significant tonality at the 160 Hz band from the blower. The directionality in the noise generation appears to be modest, with all four sides fitting within a 2 dB window. The relatively uniform directivity is due to the presence of air inlets or outlets on all four sides as well as at the bottom of the inverter. As there are no openings in the top of the inverter, the levels at the top typically measured 7 dB lower than the sides of the unit.

With the configurations tested, we would model the unit as a box with uniform directivity at an elevation of approximately 1m.

• • •

Please feel free to call if you have any questions; we may be reached in our San Francisco office by telephone at (+1) 415-693-0424 or via email at [tyler@va-consult.com](mailto:tyler@va-consult.com).

Sincerely,



Tyler Rynberg, PE

Vibro-Acoustic Consultants

**Table 1: AEI Soloron 500 Sound Power Measurements – Calculated Sound Power Levels in dB, re:  $1 \times 10^{-12}$  W**

Configuration	LwA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
1	83.5	77.5	81.0	77.0	80.0	84.0	87.5	79.0	75.5	77.0	76.0	77.5	73.0	74.0	74.0	71.0	70.0	68.0	65.0	64.5	64.5	63.0	58.5	67.5	66.5
2	84.0	77.5	80.5	77.0	80.0	84.0	87.5	78.5	75.5	76.5	76.0	78.0	73.5	74.0	74.0	71.0	70.0	68.0	66.0	66.0	65.5	65.0	62.5	72.0	72.0
3	83.5	77.0	80.5	76.5	80.0	83.5	87.5	78.5	75.5	76.5	77.5	78.0	73.5	74.5	74.0	71.5	72.0	69.5	66.5	65.5	64.5	63.0	58.0	63.0	61.5
4	83.0	77.0	77.0	76.5	80.0	83.5	87.5	78.5	73.5	76.5	76.0	77.5	73.5	74.0	74.0	71.0	70.0	67.5	65.0	64.5	64.5	63.0	58.0	61.5	61.5

\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 2: AEI Soloron 500 Configuration 1 – Measured Sound Pressure Level at 1m in dB, re: 20 $\mu$ Pa**

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.7	61.0	69.0	61.0	63.9	68.4	75.2	61.7	57.2	59.5	58.5	59.7	55.9	58.1	57.7	56.1	54.5	51.3	49.5	49.5	48.9	48.1	43.6	52.2	51.1
Left	66.1	59.0	61.1	61.9	65.0	67.4	66.0	59.1	61.0	60.4	61.5	61.9	57.3	56.7	56.4	53.2	52.5	50.3	47.9	46.6	45.8	42.8	39.3	49.3	48.5
Rear	67.8	61.0	65.5	60.1	62.4	65.9	68.3	64.4	59.9	59.4	59.3	59.9	57.3	58.9	60.1	56.3	55.4	52.2	50.7	49.5	49.6	48.7	44.0	54.3	54.7
Right	67.7	58.2	65.6	57.1	63.1	68.7	75.0	66.6	58.9	63.5	58.2	60.8	57.0	56.7	57.1	54.1	52.6	50.2	47.5	46.9	46.9	47.0	41.5	51.9	51.3
Front Top	64.3	60.6	59.4	59.2	61.2	66.7	67.9	56.7	56.2	56.9	57.7	59.5	54.3	55.3	54.5	51.9	51.2	49.3	46.7	45.8	45.5	43.0	39.1	48.2	43.7
Left Top	63.9	60.7	60.6	59.6	59.8	63.0	62.6	55.7	54.2	58.3	56.9	59.7	55.2	55.8	55.0	52.3	50.4	49.3	46.2	45.1	45.0	42.5	38.0	46.7	42.9
Rear Top	64.8	59.5	60.1	57.4	62.5	65.8	62.5	55.8	56.8	58.9	59.3	60.7	55.9	55.1	56.5	52.7	52.2	50.7	46.6	45.9	46.8	45.1	39.7	47.2	43.3
Right Top	64.9	59.8	60.3	56.9	63.4	67.5	67.5	59.4	54.3	56.8	56.3	60.1	55.0	55.4	56.1	52.7	52.7	51.0	47.9	47.2	47.0	46.1	40.9	45.5	43.8
Top	62.3	60.6	59.6	58.3	60.9	64.3	67.7	59.1	57.5	55.8	56.6	56.4	52.5	52.3	52.3	49.9	48.4	49.5	44.4	43.3	46.3	42.7	35.8	41.3	38.5

\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 3: AEI Solaron 500 Configuration 2 – Measured Sound Pressure Level at 1m in dB, re: 20µPa**

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	68.3	60.9	67.3	61.5	64.2	68.2	74.7	61.9	57.4	59.1	58.8	61.4	56.7	58.7	57.8	55.8	54.8	51.6	50.7	50.6	49.8	49.4	47.5	57.4	57.6
Left	66.7	58.7	61.1	62.0	65.0	67.5	65.7	58.8	62.6	59.5	62.1	62.1	56.9	57.3	56.7	53.3	52.3	50.3	48.9	48.4	47.4	45.4	44.6	53.9	48.5
Rear	68.1	61.0	65.1	60.2	62.3	64.7	67.4	63.1	58.2	59.0	59.8	60.1	57.7	59.1	59.9	55.9	55.2	52.1	51.3	51.1	50.3	50.6	48.4	57.1	59.5
Right	68.1	58.3	65.5	57.0	63.0	68.5	74.6	66.5	59.6	63.3	58.2	61.0	56.9	56.6	56.8	54.0	52.6	50.3	49.1	49.2	48.3	48.9	46.6	56.9	57.1
Front Top	64.7	60.8	59.2	58.8	61.2	67.0	68.4	56.6	55.7	56.6	57.7	59.9	53.9	55.4	55.0	52.6	51.3	49.6	47.7	47.4	46.2	44.9	43.0	51.8	49.3
Left Top	64.6	59.9	60.7	59.3	58.8	62.2	65.7	57.4	56.0	57.2	57.4	60.6	56.5	54.7	54.7	52.4	50.4	49.5	47.1	47.5	47.0	45.8	43.3	53.0	50.3
Rear Top	65.1	60.2	59.9	57.2	61.8	65.4	62.0	56.9	56.6	59.2	59.2	60.1	56.1	56.1	55.5	52.9	52.4	50.5	48.0	47.6	47.8	46.8	42.9	50.2	49.8
Right Top	65.1	59.5	59.7	56.8	63.7	67.1	68.1	60.1	54.2	57.3	56.3	59.9	55.2	55.5	55.5	52.7	52.9	50.4	48.5	48.4	47.5	47.3	44.2	51.4	49.2
Top	62.5	60.1	58.8	58.2	61.3	63.9	67.6	59.0	56.3	56.2	56.6	57.0	52.5	51.9	52.5	50.3	48.8	49.3	45.1	44.3	46.4	43.5	38.8	48.2	44.7

\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 4: AEI Solaron 500 Configuration 3 – Measured Sound Pressure Level at 1m in dB, re: 20µPa**

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	68.0	60.8	67.6	61.4	64.0	68.3	74.8	62.0	57.2	58.7	58.4	60.9	57.0	58.7	58.1	56.2	57.5	52.4	50.9	50.2	48.9	47.6	43.0	48.6	46.1
Left	67.0	58.5	61.2	61.6	64.7	67.1	66.3	59.0	62.3	60.7	63.9	63.5	56.6	56.5	56.7	53.7	54.8	52.5	49.3	47.6	45.8	42.8	38.7	45.2	43.7
Rear	67.9	61.2	65.8	60.2	62.3	64.4	67.4	63.1	58.7	58.6	60.0	60.4	58.0	60.2	59.9	56.4	56.2	55.3	51.3	50.6	49.5	49.0	43.8	49.4	49.0
Right	67.3	58.6	66.1	57.5	62.3	68.2	74.1	66.2	59.6	62.8	58.7	59.5	57.1	57.1	57.0	54.1	53.7	51.5	50.1	48.4	46.9	47.0	41.5	48.0	47.0
Front Top	65.1	60.2	58.7	59.0	61.5	67.3	68.5	56.6	55.8	57.7	59.4	59.9	55.0	55.5	55.1	53.9	53.6	50.9	48.2	46.5	45.3	43.1	38.2	42.9	39.7
Left Top	64.8	59.7	60.3	58.9	58.1	61.9	65.4	58.0	55.6	58.1	58.5	59.8	55.3	55.9	55.2	53.3	55.4	51.0	47.3	46.1	45.6	42.9	37.5	42.6	39.6
Rear Top	65.5	58.5	58.9	55.3	61.3	64.2	61.1	55.3	58.4	59.0	60.0	61.5	56.6	56.8	56.5	53.3	54.1	51.8	48.3	46.5	47.2	45.5	39.3	42.5	39.3
Right Top	65.6	59.0	60.4	56.6	63.1	66.4	67.6	58.9	52.9	58.4	58.9	61.2	55.2	56.1	56.2	54.3	54.3	52.1	48.8	47.5	47.0	46.1	40.9	43.2	40.1
Top	62.7	59.5	58.5	57.7	61.3	64.6	67.6	58.8	56.1	56.3	56.8	57.2	53.2	52.5	53.1	50.3	49.7	50.1	45.1	43.7	45.7	42.4	35.0	37.1	33.7

\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 5: AEI Solaron 500 Configuration 4 – Measured Sound Pressure Level at 1m in dB, re: 20µPa**

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.5	59.6	62.3	61.0	64.0	68.2	75.2	61.9	55.6	58.9	58.2	60.3	56.0	58.0	57.9	55.8	54.7	51.2	49.1	49.2	49.1	47.8	43.1	46.9	47.5
Left	65.6	57.9	59.9	61.9	64.9	67.1	66.3	58.2	56.8	59.4	61.2	61.3	56.9	56.7	56.1	53.2	52.5	50.2	47.5	46.4	45.8	42.4	38.7	45.5	43.8
Rear	67.0	60.3	61.2	60.0	62.0	64.4	67.6	63.8	59.3	58.2	59.1	59.8	56.8	58.8	59.7	55.9	55.0	51.6	50.1	49.4	49.4	48.5	43.5	47.2	48.8
Right	66.8	56.4	59.8	56.6	62.2	67.6	73.8	65.8	57.7	63.7	58.8	58.8	57.1	56.1	57.0	53.8	52.3	49.7	46.7	46.9	46.8	46.6	41.1	46.3	46.2
Front Top	64.1	60.8	58.7	58.7	61.1	65.5	68.1	56.0	54.7	57.0	57.8	59.5	54.8	56.1	54.7	51.8	50.2	49.1	46.1	45.7	45.3	42.7	37.8	41.4	39.5
Left Top	64.0	59.2	58.6	59.1	58.3	62.1	65.6	57.9	55.7	57.6	57.3	60.1	55.5	55.6	54.7	52.1	50.8	49.0	45.7	45.1	45.7	42.9	37.6	42.7	40.0
Rear Top	64.8	59.8	59.0	58.0	63.1	65.3	63.4	56.7	54.3	57.2	58.1	60.8	56.1	55.5	56.8	53.9	51.8	50.2	46.6	45.7	47.0	46.0	39.4	40.5	38.9
Right Top	65.0	59.8	57.9	57.6	64.4	67.4	68.1	60.3	53.4	57.2	55.4	59.9	57.1	55.6	55.9	54.2	52.9	50.2	47.6	47.0	46.8	46.1	40.5	41.7	40.9
Top	62.3	60.3	58.4	58.4	61.1	63.0	67.1	58.7	53.3	56.1	56.8	57.5	53.0	52.8	53.0	49.6	47.6	49.5	44.2	43.0	45.9	42.3	34.9	35.3	34.3

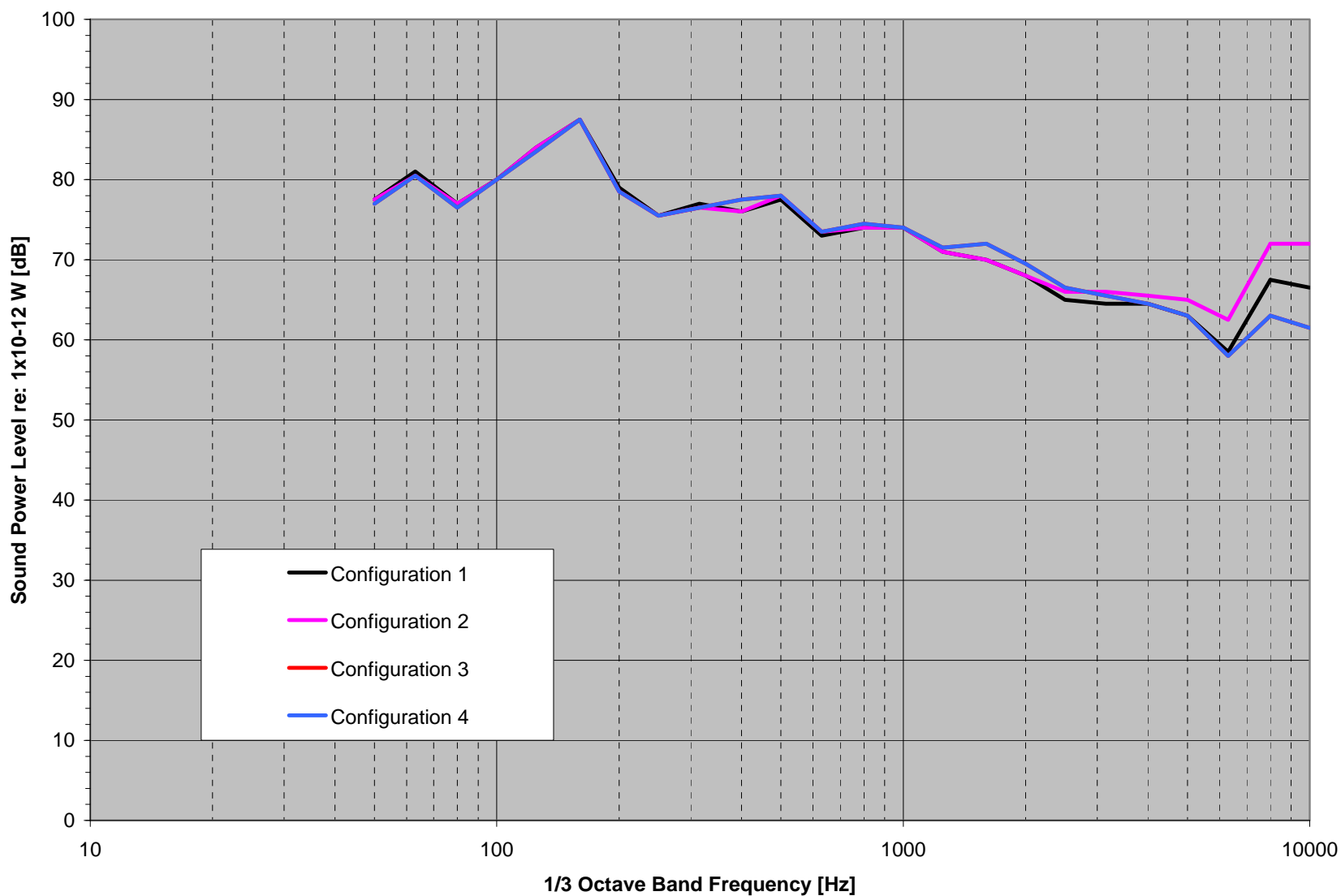
\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 6: AEI Solaron 500 Configuration 5 – Measured Sound Pressure Level at 1m in dB, re: 20µPa**

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.4	60.5	63.3	61.3	63.9	68.1	74.6	61.9	56.2	58.9	58.5	61.2	56.1	58.2	57.4	55.8	54.8	51.5	49.2	48.8	48.6	47.5	42.6	45.6	45.3

\*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

**Table 7: AEI Solaron 500 – 1/3 Octave Band Sound Power Levels in dB, re:  $1 \times 10^{-12}$  W**



## **Attachment C**

## David S. Massey, Inc.

Real Estate Appraisers and Consultants

Commercial and Residential

1629 South Church Street Burlington, NC 27216-1438

Telephone (336) 226-9374 Fax (336) 228-0621

Websites: [www.MasseyAppraisals.com](http://www.MasseyAppraisals.com) / [www.MasseyRe.com](http://www.MasseyRe.com)

Email: [david@masseyre.com](mailto:david@masseyre.com)

February 20, 2013

Mr. Michael Fox, Esquire  
Tuggle Duggins P.A.  
100 N. Greene Street, Suite 600  
Greensboro, N.C. 27401

Dear Mr. Fox:

This letter is in response to Tuggle Duggins, P.A. request to retrain me as an Expert Witness. My scope of retention is to provide consulting and expert witness services, opinions and testimony regarding the impact of solar farms on adjacent property values.

My detailed qualifications are attached to this report. Briefly, I am a State Certified General Real Estate Appraiser by the State of North Carolina and a Licensed Real Estate Broker. My company David S. Massey, Inc. was started in 1990. In 1982 I went to work for my father as a Real Estate Salesperson and did all the appraisals for his company. This was before Certification of Appraisers became law. In total I have 31 years of experience in Real Estate Appraisals and Brokerage. My work is focused 99% on real estate appraisals and the brokerage is handled by my sales force of 18 Independent Contractors.

The State Certified General Real Estate Appraiser certification is the highest level of certification earned in the State of North Carolina. This certification allows me to appraise all types of properties. My practice consists of residential and commercial appraisals in Guilford, Alamance, Orange, Durham, Randolph, Chatham and Caswell Counties of North Carolina. My primary counties are Alamance and Guilford Counties. My office is located in Alamance County and my primary residence is a horse farm located in Southeastern Guilford County.



Page 2

Your engagement letter is for me to study the impact of solar farms on adjoining property values. This study falls under the appraisal definition of External Depreciation or External Obsolescence. Simply put, this is the influence of a feature outside of the subject property. The influence may or may not exist.

External obsolescence is a key consideration in appraisal work and results from diminished value to improvements. It is also one of the most difficult concepts to understand. It is implicit in all three basic approaches to value but is most often specifically addressed in the cost approach. It is separately addressed because it is independent of physical deterioration and functional problems. External obsolescence can be categorized into locational, environmental, and economic. The loss itself results from tangible influences such as traffic, odor, view, and neighborhood, as well as intangible influences such as economy and effective demand influences.

The basic premise is the principle of externalities, as stated in *The Appraisal of Real Estate*, tenth edition. "Economies outside a property have a positive effect on its value while diseconomies outside a property have a negative effect on its value."

Two methods can be used to measure external obsolescence. The procedure best supported by market evidence should be selected. An appraiser can either capitalize the income or rent loss attributable to the negative influence, or compare sales of similar properties that are subject to the negative influence with other properties that do not have the negative influence.

In my research regarding Solar Farms, I found no sales of properties next to or near to a solar farm. I contacted several appraisal peers and none had any sales of properties near solar farms. This is understandable as Solar Farms are relatively new to the American Real Estate market.

No direct market data was found to determine if any Economic Depreciation or Obsolescence does or does not exist due to a Solar Farm.

I then determined that the best course of action would be to determine Economic Depreciation from externalities that can be measured with market data. Two market studies I performed are a part of this report.

One, I measured the market reaction to a High Voltage Power Line Tower being in the rear yard of a house, the side yard of another and across the street from another house in the same development. I compared these three sales with a similar house in the development that does not have a view of the HVPL Tower. This study shows a market derived depreciation rate of 5% due to the unsightly tower.

Page 3

Next, I measured the impact of an Industrial Plant and a large Manufactured Home Park located across the street from a development. These externalities are both clearly visible to the development. I compared three homes in this development to a similar house in a similar development that does not have the Industrial Plant and Mobile Home development influence. This study yielded a market derived external depreciation rate of 3%

From these two studies I performed, one can see that visible externalities create between 3% and 5% external depreciation based on the market derived data.

I found an additional study regarding Wind Farms and the impact on surrounding property values. This 164 page study can be found at <http://eetd.lbl.gov/EA/EMP> . This study was performed by Berkley Labs. The work described in this report was funded by the Office of Energy Efficiency and Renewable Energy (Wind & Hydropower Technologies Program) of the U.S. Department of Energy in December of 2009.

An abstract of the above study follows:

“The present research collected data on almost 7,500 sales of single family homes situated within 10 miles of 24 existing wind facilities in nine different U.S. states. The conclusions of the study are drawn from eight different hedonic pricing models, as well as both repeat sales and sales volume models. The various analyses are strongly consistent in that none of the models uncovers conclusive evidence of the existence of any widespread property value impacts that might be present in communities surrounding wind energy facilities. Specifically, neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statistically significant effect on home sales prices.”

From my two studies in neighboring Alamance County and the with support from the Wind Farm Study, my professional and expert opinion is that the two proposed Solar Farms that will not be visible will have no impact on the market values of the surrounding properties. The Solar Farms with the proposed landscaping buffers and natural buffers will not create a negative externality for the surrounding properties as they will not be visible.

As a horse farm owner in Southwest Guilford County and as a professional real estate appraiser, I would welcome a solar farm next door to my farm. There are certainly much worse uses of land that would harm property values such a Swine Farms, Poultry Farms and other noxious uses that unlike a solar farm can be seen, smelled and heard.

Respectfully submitted,

A handwritten signature in black ink that reads "David S. Massey". The signature is written in a cursive style with a large, stylized 'D' and a long, sweeping 'y' at the end.

David S. Massey  
State Certified General Appraiser #A2912

Attachments:

Appraiser Credentials  
Market Studies of External Depreciation

RECORDING REQUESTED BY  
AND WHEN RECORDED MAIL TO:

Sunlight Partners  
4215 East McDowell Road  
Suite 212  
Mesa, Arizona 85215

(Space Above For Recorder's Use)

## MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE (this "Memorandum") is made and entered into as of January 7, 2013, by and between Sheila N. Bishop, Michael L. Bishop and Annie Virginia Nunn ("Landlord"), and **Sunlight Partners, LLC**, a Nevada limited liability company or assigns ("Tenant");

**WITNESSETH:**

**WHEREAS**, Landlord and Tenant have entered into that certain Ground Lease dated December 13, 2012, (the "Lease"), relating to all or a portion of the "Property" commonly known as County of Orange, A.P.N. 9881388874 and 9881493072. The leased "Premises" are more particularly described in **Exhibit "1"** attached to this Memorandum and incorporated by this reference; and

**WHEREAS**, Landlord and Tenant desire to enter into this Memorandum to provide notice of Tenant's interest in the Premises.

**WHEREAS**, Landlord and Tenant desire to enter into this Memorandum for the purpose of providing record notice of the Lease and certain of the terms and conditions thereof.

**NOW, THEREFORE**, for and in consideration of the payments and covenants to be paid and performed by Tenant under the terms of the Lease, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. **TERM.** The "Approval Period" of the Lease shall commence on January 1, 2013, and expires on December 31, 2014. Unless otherwise agreed in writing between Landlord and Tenant, the "Term" of the Lease shall commence on the "Rent Commencement Date," as defined

SVB m   
Landlord

JK  
Tenant

in the Lease, which date may be selected by Tenant in its sole discretion, but in no event later than the expiration of the Approval Period. The Term of the Lease shall expire on its fifteenth anniversary (the "Expiration Date"), except as extended as provided below.

**2. RENEWAL TERMS.** Tenant has the right to renew the Lease for three (3) additional periods of five (5) years (the "Renewal Term(s)") from the expiration of the original Term of the Lease or the then current Renewal Term. In the event that Tenant elects not to exercise any or all of the Renewal Terms, Tenant shall have the right to continue the Lease for a period of between one (1) and twelve (12) months after the end of the then-current Term (also a "Renewal Term").

**3. LEASED PREMISES.** The Premises is described in Exhibit "1". The Premises is leased together with, and includes all of Landlord's air rights, water rights and any easements, rights-of-way or other interests appurtenant to the Property, including in, on, under or to any land, highway, alley, street or right-of-way abutting or adjoining the Property, as necessary for Tenants "Intended Use".

**4. TENANT'S EXCLUSIVE USE.** During the Term of the Lease and any Renewal Term(s), Landlord covenants that it will not (a) use or lease or (b) permit any tenant to use or lease or (c) permit any occupant or subtenant or assignee of a tenant or occupant to use any of the Property outside of the Premises, or any other property located within a radius of one (1) mile of the Property in which Landlord has an interest, for the purpose of conducting a business that is engaged in the solar power generation business and/or a use similar to the Intended Use.

**5. RIGHT OF FIRST REFUSAL.** During the Term of the Lease and any Renewal Term(s) thereto, Tenant shall have a right of first refusal, as detailed in the Lease, with respect to sales or leases of the Property or the Premises.

**6. COUNTERPARTS.** This agreement may be executed in two or more counterparts, each of which together shall be deemed an original, but all of which together shall constitute one and the same instrument.

### **SIGNATURES TO FOLLOW**

SVB m  
Landlord

MRB

Page 2

JTC  
Tenant



IN WITNESS WHEREOF

**LANDLORD:**

By: \_\_\_\_\_  
SHEILA N. BISHOP

By: Michael L. Bishop  
MICHAEL L. BISHOP

By: \_\_\_\_\_  
ANNIE VIRGINIA NUNN

**TENANT:**

**SUNLIGHT PARTNERS, LLC**  
a Nevada limited liability company

By: Jason Ellsworth  
JASON ELLSWORTH  
PRESIDENT

**IN WITNESS WHEREOF****LANDLORD:**

By: Sheila N. Bishop  
SHEILA N. BISHOP

By: Not present  
MICHAEL L. BISHOP

By: Annie Virginia Nunn  
ANNIE VIRGINIA NUNN

**TENANT:**

**SUNLIGHT PARTNERS, LLC**  
**a Nevada limited liability company**

By: \_\_\_\_\_  
JASON ELLSWORTH  
PRESIDENT

SVBm MRP  
Landlord

JE  
Tenant

**LANDLORD ACKNOWLEDGMENT**

STATE OF NORTH CAROLINA )  
 ) ss.  
 COUNTY OF Orange )

On Jan. 7th 2013, before me Jasmine Tiarra Davis, Notary Public, personally appeared Sheila N. Bishop and Annie Virginia Nunn, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of North Carolina that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Jasmine Tiarra Davis

**TENANT ACKNOWLEDGMENT**

STATE OF ARIZONA )  
 ) ss.  
 COUNTY OF MARICOPA )

On Jan. 16, 2013, before me Theresa M. Hemphill, Notary Public, personally appeared JASON ELLSWORTH, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of Arizona that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Theresa M. Hemphill (SEAL)



SVB m  
 Landlord

E  
 Tenant



LANDLORD ACKNOWLEDGMENT

STATE OF NORTH CAROLINA )  
 ) ss.  
 COUNTY OF Durham )

On 11/8/2013, before me Gail W. McFarland  
Michael L. Bishop (gwm), Notary  
 Public, personally appeared Michael L. Bishop, who proved to  
 me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to  
 the within instrument and acknowledged to me that he/she/they executed the same in  
 his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the  
 person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of North Carolina that the  
 foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Gail W. McFarland  
My commission expires 10/29/15

TENANT ACKNOWLEDGMENT

STATE OF ARIZONA )  
 ) ss.  
 COUNTY OF MARICOPA )

On \_\_\_\_\_, before me \_\_\_\_\_, Notary  
 Public, personally appeared JASON ELLSWORTH, who proved to me on the basis of  
 satisfactory evidence to be the person whose name is subscribed to the within instrument and  
 acknowledged to me that he/she/they executed the same in his authorized capacity, and that by  
 his signature on the instrument the person, or the entity upon behalf of which the person acted,  
 executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of Arizona that the foregoing  
 paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_

(SEAL)

\_\_\_\_\_  
 Landlord

JB  
 Tenant

**EXHIBIT 1**

To Memorandum of Lease dated January 7, 2013  
among  
Sheila N. Bishop, Michael L. Bishop and Annie Virginia Nunn, as "Landlord"  
and  
Sunlight Partners, LLC as "Tenant"

**Description of the Premises**

Real property in the County of Orange, State of North Carolina, described as follows:

All or a portion of Assessor's Tax Parcel Numbers 9881388874 and 9881493072, to be further defined upon receipt of a valid Title Report.

SVBm  
Landlord

MLB

VB  
Tenant

PIN	OWNER1_LAST	OWNER1_FIRST	OWNER2_LAST
9881393407	SPAINHOUR	JAMES E	OLIVER
9881298619	THOMANN	WAYNE R	THOMANN
9881380433	RYAN	SHARON	
9882304441	OLSON	TIMOTHY K	OLSON
9882301239	YOUNG	DAVID R	YOUNG
9881289994	GEWALT	SALLY LYNN	PETRANKA
9881298334	RADCLIFFE	MARK BLAKLEY	RADCLIFFE
9882407620	KIRKLAND	ALFRED S	
9881493072	BISHOP	MICHAEL L	BISHOP
9881371405	MARCHMAN	ROBERT LEE IV	MARCHMAN
9881393660	MATTINGLY	DANIEL E	CHERNEY
9881380749	MAUPIN	MELANIE JO	
9881487800	NOLAN	DANIEL	DONALDSON
9881384515	WEGMAN	LYDIA NAN	CANTWELL
9881375457	VEGA	CYNTHIA L	null
9881390566	PASCHALL	GINA	
9882304127	LANGHAM	LAURI	LANGHAM
9881485059	NUNN	ANNIE VIRGINIA	
9881185784	FALLS OF NEW HOPE ASSOCIATION	INC	
9881297458	BANKS	DONALD WILLIAM	
9881390238	TRUEBLOOD	THOMAS L	TRUEBLOOD
9881289280	FINDLAY	JOHN W A	null
9881373411	BURNS	ANDREW C III	BURNS
9881390127	STEVENS	HARRIETT LU	
9881298298	RADCLIFFE	MARK BLAKLEY	RADCLIFFE
9881496159	NOLAN	DANIEL	DONALDSON
9881278954	FOURQUIREAN	FRED T	FOURQUIREAN
9881289039	KELLUM	DONALD	KELLUM
9881485626	BISHOP	SHEILA N	NUNN
9881585392	KIRKLAND	ALFRED S	
9881296151	FALLS OF NEW HOPE ASSOCIATION	INC	
9881187348	PENDER	MARGARET	PENDER
9881471110	TRIANGLE LAND	CONSERVANCY	
9881471110	TRIANGLE LAND	CONSERVANCY	
9881394717	SMITH	PATRICIA CAROLE	
9881383237	WEGMAN	LYDIA NAN	CANTWELL
9881383013	CANTWELL	ROBERT S	WEGMAN
9881390743	MCKINNEY	ROSS E JR	MCKINNEY
9881378448	MERCER	LARRY	MERCER
9881391828	PARKIN	JEFFREY S	HOERCHER
9881288779	FALLS OF NEW HOPE ASSOCIATION	INC	
9881279738	JACKSON	DAVID B	JACKSON
9881381606	LINDROOS	PAMELA MARIE	CHINCHAR

9881370603	KATZ	BARRY	NOVIK
9882302007	HOMEGUY	INC	null
9882209004	WALTER	MELISSA	null
9881380331	JOHNSON	BLAKE A	JOHNSON
9881374242	BURNS	ANDREW C III	BURNS
9881388874	BISHOP	SHEILA N	NUNN
9881394917	SMITH	PATRICIA CAROLE	

=====

OWNER2_FIRST	ADDRESS1	ADDRESS2	CITY	STATE	ZIPCODE
PATRICIA A	5502 CASCADE DR		CHAPEL HILL	NC	27514
CHARLOTTE H	2521 CHARLOCK CT		CHAPEL HILL	NC	275149609
	5701 CASCADE DR		CHAPEL HILL	NC	27514
ROBIN M	5312 CASCADE DR		CHAPEL HILL	NC	27514
MILLY S	5317 CASCADE DR		CHAPEL HILL	NC	275149547
JOHN GUNTER	2531 FALLS DR		CHAPEL HILL	NC	275149695
CONSTANZA J DE	2520 FALLS DR		CHAPEL HILL	NC	275149695
	3111 MT SANAI RD		CHAPEL HILL	NC	27514
SHEILA N	2916 MT SINAI		CHAPEL HILL	NC	275149685
SUSAN S	5805 CASCADE DR		CHAPEL HILL	NC	27514
MARY SUE	5420 CASCADE DR		CHAPEL HILL	NC	275149690
	5609 CASCADE DR		CHAPEL HILL	NC	27514
KIM A	3004 MT SINAI RD		CHAPEL HILL	NC	27514
ROBERT SEWELL	5704 CASCADE DR		CHAPEL HILL	NC	275149535
null	5821 CASCADE DR	null	CHAPEL HILL	NC	27514
	5505 CASCADE DR		CHAPEL HILL	NC	275149691
DAVID	5320 CASCADE DR		CHAPEL HILL	NC	275149547
	2911 MOUNT SINAI RD		CHAPEL HILL	NC	275149685
	5830 BRISBANE DR		CHAPEL HILL	NC	27514
	600 COMMERCE DR		DECATUR	GA	300302610
NANCY T	5511 CASCADE DR		CHAPEL HILL	NC	27514
null	2829 CONNESTEE TRL	null	BREVARD	NC	28712
JULIA W	5809 CASCADE DR	null	Chapel Hill	NC	27514
	5517 CASCADE DR		CHAPEL HILL	NC	27514
CONSTANZA J DE	2520 FALLS DR		CHAPEL HILL	NC	275149695
KIM A	3004 MT SINAI RD		CHAPEL HILL	NC	27514
ELLEN G	5719 CASCADE DR		CHAPEL HILL	NC	275149535
SALLY	5715 CASCADE DR		CHAPEL HILL	NC	275149535
ANNIE VIRGINIA	2916 MT SINAI RD		CHAPEL HILL	NC	275149685
	3111 MT SINAI RD		CHAPEL HILL	NC	27514
	5830 BRISBANE DR		CHAPEL HILL	NC	27514
DAVID	2509 CAPREA CT	null	Chapel Hill	NC	27516
	SUITE 205	1101 HAYNES STREET	RALEIGH	NC	27604
	SUITE 205	1101 HAYNES STREET	RALEIGH	NC	27604
	5408 CASCADE DR		CHAPEL HILL	NC	27514
ROBERT SEWELL	5704 CASCADE DR		CHAPEL HILL	NC	275149535
LYDIA N	5704 CASCADE DR		CHAPEL HILL	NC	27514
HOLLY B	2523 CHARLOCK CT		CHAPEL HILL	NC	275149609
LINDA	111 BROOK LANE		DURHAM	NC	27712
SUSAN J	2522 CHARLOCK CT		CHAPEL HILL	NC	275149609
	5830 BRISBANE DRIVE		CHAPEL HILL	NC	27514
LAEL W	5721 CASCADE DR		CHAPEL HILL	NC	275149535
CHRIS-ANN	73 CRYSTAL OAKS CT		DURHAM	NC	27707

BELINDA	5801 CASCADE DR		CHAPEL HILL	NC	275149620
null	109 RIVER WALK LN	null	Carrboro	NC	27510
null	2518 CHARLOCK CT	null	CHAPEL HILL	NC	275149609
JENNIFER M	5705 CASCADE DR		CHAPEL HILL	NC	275149535
JULIA W	5809 CASCADE DR	null	Chapel Hill	NC	27514
ANNIE VIRGINIA	2911 MOUNT SINAI RD		CHAPEL HILL	NC	275149685
	5408 CASCADE DR		CHAPEL HILL	NC	27514

PIN	OWNER1_LAST	OWNER1_FIRST	OWNER2_LAST	OWNER2_FIRST
9881496159	NOLAN	DANIEL	DONALDSON	KIM A
9881487800	NOLAN	DANIEL	DONALDSON	KIM A
9881485059	NUNN	ANNIE VIRGINIA		
9881388874	BISHOP	SHEILA N	NUNN	ANNIE VIRGINIA
9881485626	BISHOP	SHEILA N	NUNN	ANNIE VIRGINIA
9881585392	KIRKLAND	ALFRED S		
9882407620	KIRKLAND	ALFRED S		
9881493072	BISHOP	MICHAEL L	BISHOP	SHEILA N

=====

ADDRESS1	ADDRESS2	CITY	STATE	ZIPCODE
3004 MT SINAI RD		CHAPEL HILL	NC	27514
3004 MT SINAI RD		CHAPEL HILL	NC	27514
2911 MOUNT SINAI RD		CHAPEL HILL	NC	275149685
2911 MOUNT SINAI RD		CHAPEL HILL	NC	275149685
2916 MT SINAI RD		CHAPEL HILL	NC	275149685
3111 MT SINAI RD		CHAPEL HILL	NC	27514
3111 MT SANAI RD		CHAPEL HILL	NC	27514
2916 MT SINAI		CHAPEL HILL	NC	275149685



**APPLICATION FOR ENVIRONMENTAL ASSESSMENT**Project Name Binks SolarApplicant Sunlight Partners, LLCAddress 4215 E. McDowell RoadSuite 212Mesa, AZ 85215Phone (480) 999-3349Owner Sheila Bishop & Anne NunnAddress 2916 Mount Sinai RoadChapel Hill, NC 27514Phone (919) 942-9202Location of Property 2911 Mount Sinai RoadChapel Hill, NC 27514Acreage 21.5 Acres Township Chapel Hill (7)Tax Map Reference \_\_\_\_\_ PIN(s) 9881388874, 9881493072Zoning District RB Land Use Plan Category Rural Buffer**FOR DEPARTMENT USE ONLY**

Date received \_\_\_\_\_ Reviewed by \_\_\_\_\_

Date accepted/rejected \_\_\_\_\_

Summary Comments:

**I. GENERAL SITE INFORMATION**

TO BE COMPLETED BY APPLICANT, WITH ASSISTANCE FROM PLANNING DEPARTMENT AS NEEDED

**A. Zoning and use of adjacent property.**

North Rural Buffer South Rural Buffer  
East Rural Buffer West Rural Buffer

**B. Topography:**

highest elevation 503 ft.  
lowest elevation 465 ft. (Please refer to attached topographic map)

general direction of slope Varies  
(Please reference attached slope map)

Estimate % of property with

0 - 5% slope	<u>60.4%</u>
5 - 15% slope	<u>39.2%</u>
15 - 25% slope	<u>0.4%</u>
more than 25% slope	<u>0.0%</u>

(97% of project site is less than 10% slope)

(Required only for the portion of the site associated with or impacted by the proposed activity)

**C. Drainage**

Are there any streams or drainage easements located on the property? Yes, Please reference attached hydrology map

Is any of the site located within a:

Watersupply Watershed	<u>No</u>
Water Quality Critical Area	<u>No</u>
Floodplain	<u>No</u>

Describe The property contains two intermittent streams. However, the project will not impact the streams. By design, the project avoids the streams and allows for a minimum 100-foot buffer of the streams.  
Please see the attached hydrology map for more details.

- D. Does the property contain any of the following Inventory Natural or Cultural Resources? (As identified in the "Inventory of Sites of Cultural, Historical, Recreational, Biological, and Geological Significance in the Unincorporated Portions of Orange County" or the "Inventory of Natural Areas and Wildlife Habitats of Orange County, North Carolina".)

	<u>yes</u>	<u>no</u>
a. cemeteries	_____	<u>X</u>
b. archaeological sites	_____	<u>X</u>
c. historic sites	_____	<u>X</u>
d. areas of geological significance	_____	<u>X</u>
e. designated natural areas	_____	<u>X</u>
f. designated habitat	_____	<u>X</u>
g. other	_____	<u>X</u>

Please see attached Cultural Resource map.

For each "yes" answer above, please indicate location on site plan and complete the following, with the assistance of the Orange County Environmental Planner. Also complete Attachment A.

(1) Type of resource \_\_\_\_\_

Inventory reference no. or page \_\_\_\_\_

Description of Resource \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

(2) Type of resource \_\_\_\_\_

Inventory reference no. or page \_\_\_\_\_

Description of resource \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

(Attach additional sheets if needed)

## II. TO BE COMPLETED BY APPLICANT

### A. PROJECT DESCRIPTION

1. Describe proposed use of property  
The proposed use of the property is the operation of a un-manned photovoltaic solar facility. The project will interconnect into the existing electrical distribution grid. All electricity produced from the project will be purchased by Duke Energy.
2. Number of lots 2
3. Number of structures 0
4. Estimated square footage of area to be graded for development of attached residential units (excluding roads, but including parking areas)  
0 square feet.
5. Estimated square footage of area to be graded for non-residential use (excluding roads) ~30,000 square feet  
 (Grading will occur on areas with >10% slope within the project boundary.)
6. Estimated area to be graded for roads 0 square feet
7. Road Type: Public \_\_\_\_\_ Private \_\_\_\_\_  
 Class A \_\_\_\_\_  
 Class B \_\_\_\_\_  
 Class C \_\_\_\_\_  
 Total road length \_\_\_\_\_
8. Hours of operation for commercial or industrial use  
The solar facility will produce power from sunrise to sunset.

**B. STATE PERMITS REQUIRED**

1. Does the project involve the mining of earth products?  
No

If so, how many cubic feet of material are expected to be excavated? \_\_\_\_\_

Has an application for a Mining Permit been submitted to NCDRCD? \_\_\_\_\_

Please attach map indicating expected extent of proposed activity.

2. Does the project involve generation or storage of hazardous or toxic wastes, as identified by the Environmental Protection Agency? (A listing of all hazardous materials is available from the Planning Department) No

Describe the wastes to be generated. \_\_\_\_\_

\_\_\_\_\_

How much material is expected to be generated per month?

\_\_\_\_\_

Will any material be treated onsite? \_\_\_\_\_

Volume? \_\_\_\_\_

Will any material be stored onsite? \_\_\_\_\_

Volume? \_\_\_\_\_

Where will disposal of the material take place?

\_\_\_\_\_

How will materials be transported to the disposal site?

\_\_\_\_\_

What measures are proposed to protect water quality and air quality in case of spills?

\_\_\_\_\_



3. Will the project involve a land application system for treatment of wastewater? No

If yes, describe \_\_\_\_\_

Has an application for a non-discharge permit been submitted to the NC Department of Environmental Management or Orange County Department of Environmental Health? \_\_\_\_\_

4. Is a septic tank system proposed which has a design capacity of more than 3000 gallons per day? No

If yes, describe \_\_\_\_\_

Has an application for a non-discharge permit been submitted to the NC Department of Environmental Management or Orange County Department of Environmental Health? \_\_\_\_\_

5. Does the activity involve sludge disposal? No

If yes, where is the source of the sludge? \_\_\_\_\_

Describe where and how the sludge is being disposed. \_\_\_\_\_

Has a NPDES permit from the NC Division of Environmental Management been issued? \_\_\_\_\_

#### 6. Water Usage

a. Estimated no. of employees 0 x 25 gpd = 0 gpd

b. Estimated water use for climate control 0 gpd

c. Process water 0 gpd

0 % consumed  
0 % discharged to septic system  
0 % discharged to surface (including storm sewers)  
 (describe: \_\_\_\_\_)  
0 % evaporated  
0 % reclaimed/reused  
0 % other  
 100 %

\_\_\_\_\_ gpd

- d. Water used for cooling, heating, etc., in association with production or manufacturing

0 % reused  
0 % consumed  
0 % discharged  
 (describe: \_\_\_\_\_)  
0 % other  
100 %

0 gpd  
 Total Water Usage

- e. Describe source of water

N/A

#### ATTACHMENT A

TO BE COMPLETED ONLY IF INVENTORY SITE(S) IS/ARE IDENTIFIED IN I.E.

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

- (1) a. Impact on Resource from Proposed Development

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- b. Proposed Mitigation

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

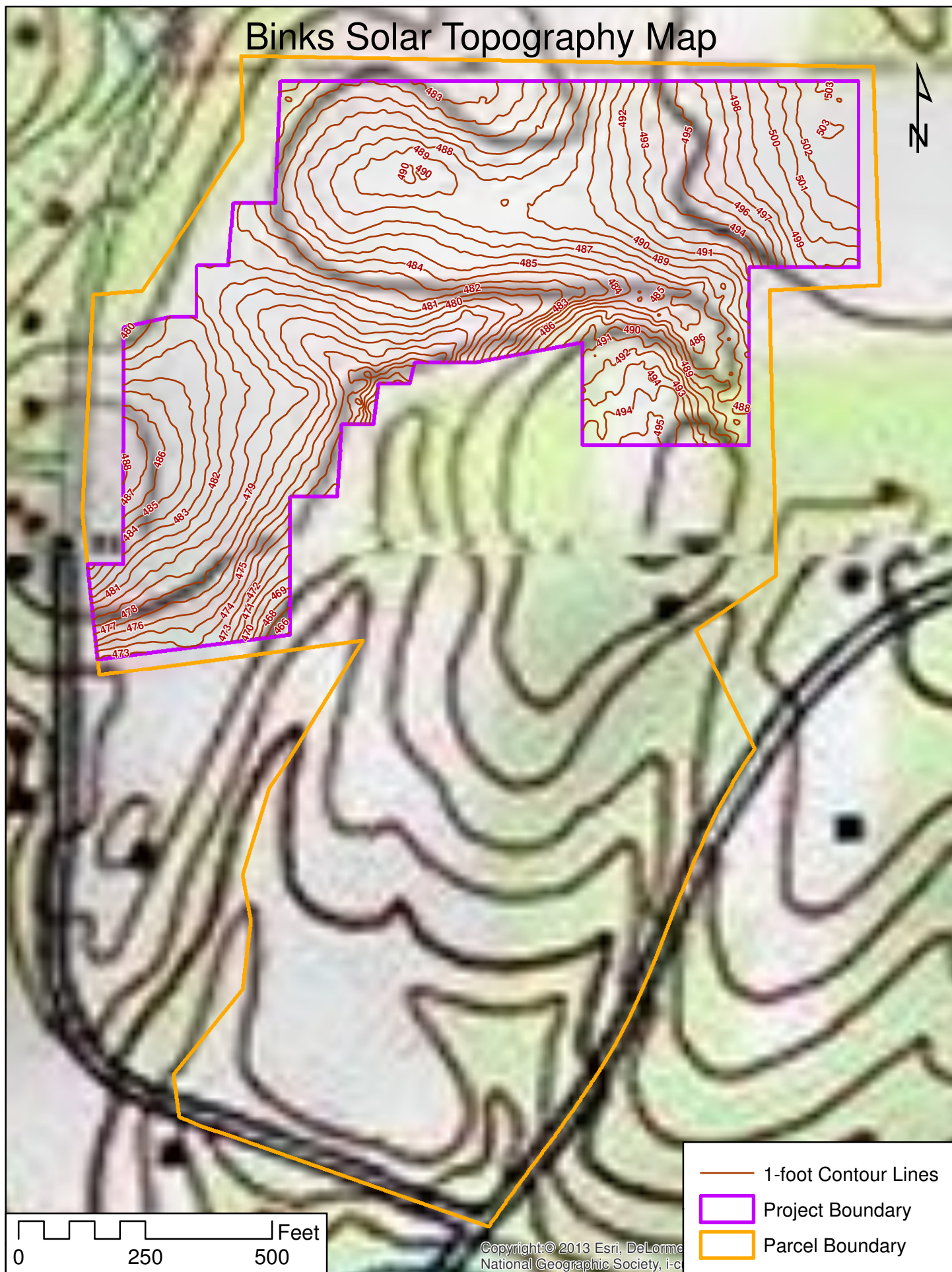
- (2) a. Impact on Resource from Proposed Development

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

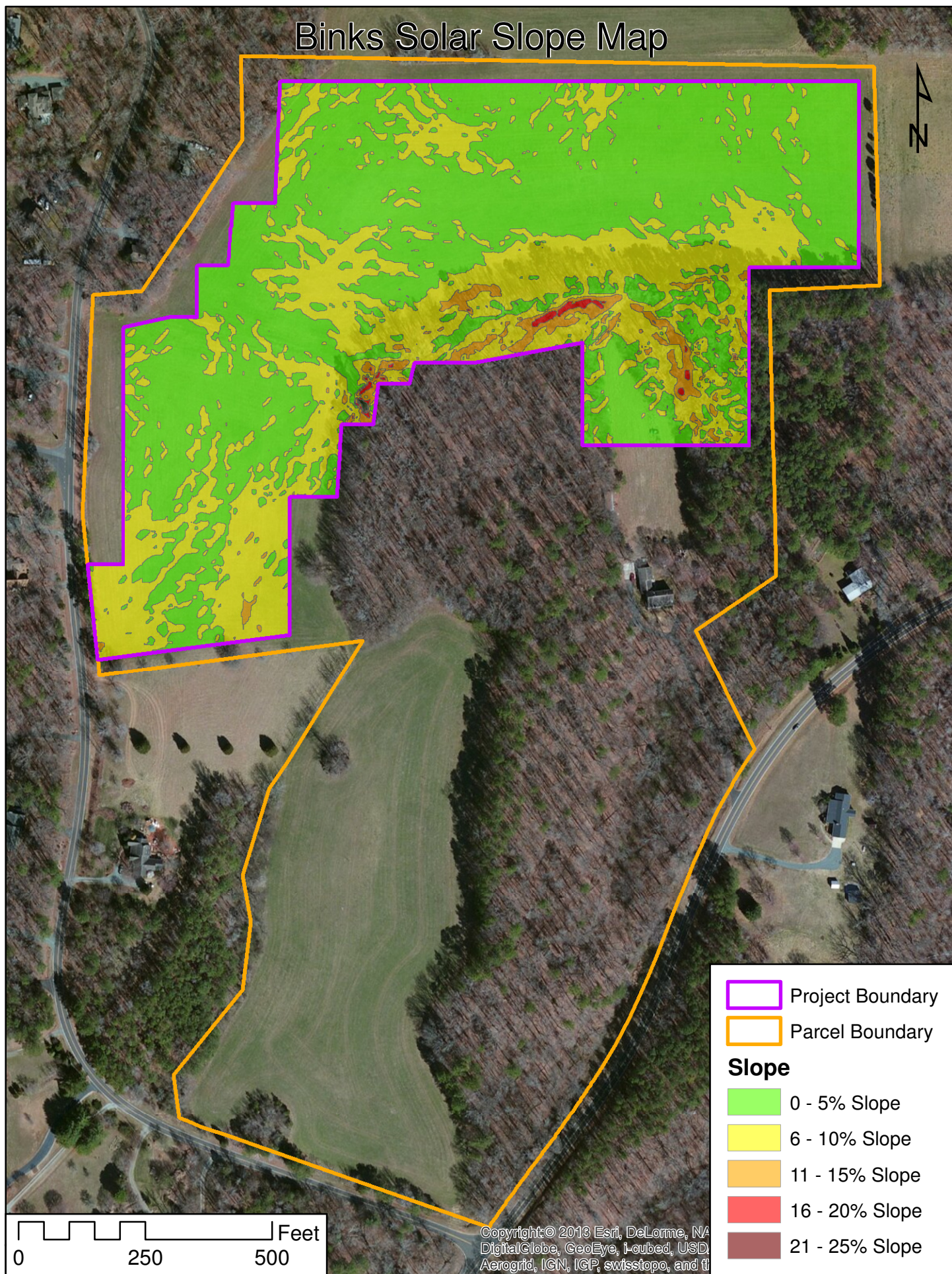
- b. Proposed Mitigation

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

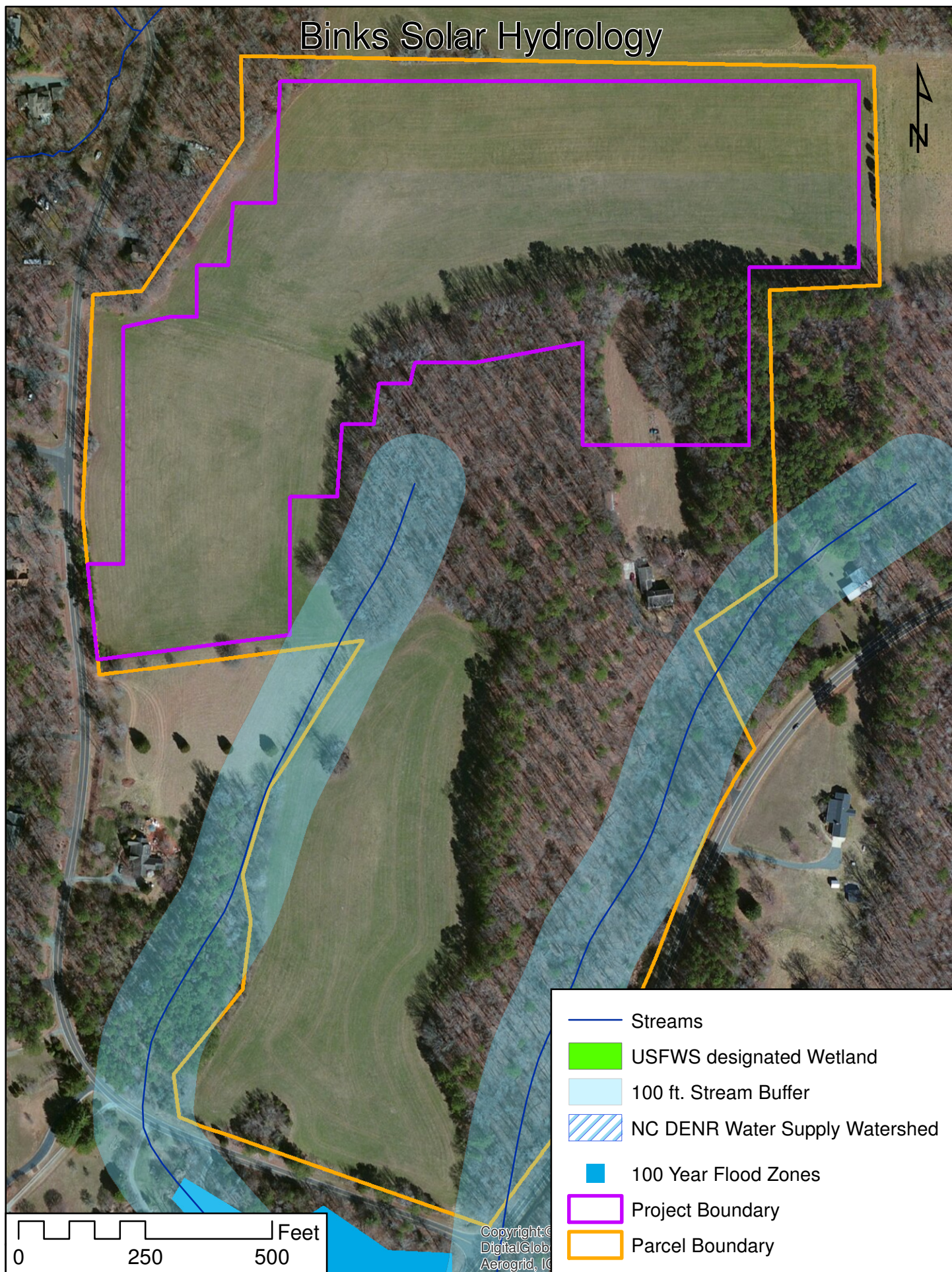
# Binks Solar Topography Map









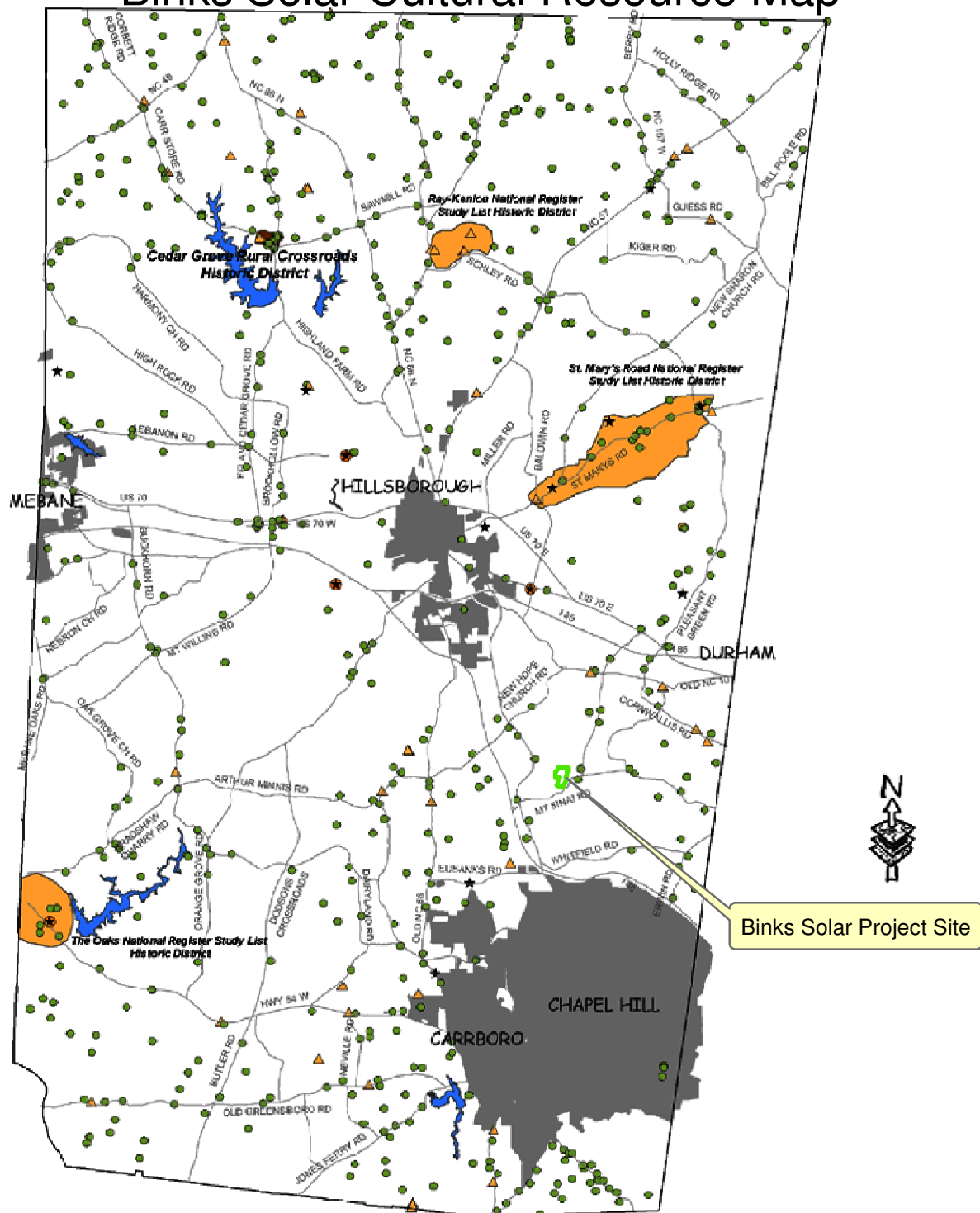




# Historic Sites

2007 Update

## Binks Solar Cultural Resource Map



### Historic sites

- Historic Sites
- ★ National Register
- National Register Local Landmark
- ▲ National Register Study List

### Historic District

- National Register Study List Historic District
- Main roads
- Lakes
- Cities



GIS Map prepared by  
Orange County  
Environment & Resource  
Conservation Department  
July 18, 2007

FLOOD PLAIN DATA

THIS PROPERTY IS LOCATED WITHIN FLOOD PLAIN ZONE "X" AS INDICATED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY, NATIONAL FLOOD INSURANCE RATE MAP, ORANGE COUNTY, NORTH CAROLINA, #3710988100-J, EFFECTIVE FEBRUARY 02, 2007.

ZONE "X" IS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY AS: AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLANE. THE PROPERTY IS NOT ENCLUMBERED BY IDENTIFIED FLOODPLAINS AND IS NOT SUBJECT TO THE PROVISIONS OF THE SPECIAL FLOOD OVERLAY DISTRICT

ENGINEER'S NOTE

1. DUE TO THE LOW TRAFFIC VOLUME, MINIMAL PARKING WILL BE PROVIDED UPON BUILDOUT OF THIS DEVELOPMENT. TEMPORARY MAINTENANCE CREW SHALL UTILIZE THE GRAVEL ACCESSWAY FOR PARKING.
2. THE ONLY UTILITY PROPOSED FOR THIS SITE SHALL BE DUK. NO OTHER UTILITIES SHALL BE EMPLOYED OR PROPOSED FOR THIS PROJECT.
3. MINIMAL SIGNAGE SHALL BE PROPOSED AT THIS TIME.
4. NO EXTERIOR LIGHTING IS PROPOSED AT THIS TIME.
5. DURING GRADING AND CONSTRUCTION, DUST CONTROL WILL BE PROVIDED BY WATERING AND CONTROLLED VEHICULAR SPEEDS. AFTER CONSTRUCTION, DUST CONTROL WILL BE IMPLEMENTED BY INSTALLING GRAVEL ROADS AS WELL AS REDUCING THE VEHICULAR SPEEDS. THE SOLAR PANELS WILL ACT AS WIND BREAKS. THE PERIMETER FENCING WILL ACT AS A WIND BREAK.
6. WEED AND NOXIOUS PLANTS SHALL BE ROUTINELY REMOVED FROM THE SITE. IT IS THE RESPONSIBILITY OF THE DEVELOPER TO REGULARLY PROVIDE THIS SERVICE TO THE SITE.

LANDSCAPE NOTES

1. QUARTERLY INSPECTION AND MAINTENANCE OF LANDSCAPING AND VEGETATION TO BE COMPLETED AS REQUIRED.
2. SEE BD-02 FOR LANDSCAPING NOTES AND DRAWINGS.

GEOTECHNICAL NOTES

1. A GEOTECHNICAL REPORT WILL BE PRODUCED FOLLOWING SUP APPROVAL. REPORT WILL BE A SUBSURFACE EXPLORATION UTILIZING SOIL TEST BORINGS PERFORMED WITH A DRILL RIG IN ACCORDANCE WITH ASTM D 1586 UTILIZING HOLLOW STEM AUGER DRILLING.

GENERAL NOTES

1. THE NUMBER OF AVERAGE TRIPS TO THE SITE PER MONTH WILL BE APPROXIMATELY TWICE A MONTH.
2. THERE ARE NO UTILITY EASEMENTS WITHIN THE LIMITS OF THE PROJECT (FENCE LINE).
3. THE PROJECT MEETS OR EXCEEDS THE SETBACK REQUIREMENTS OF SECTION 3.3 BASE ZONING DISTRICTS - RURAL BUFFER OF THE UDO. THE SETBACK REQUIREMENTS ARE:
  - a. FRONT YARD: 40 FEET
  - b. SIDE YARD: 20 FEET
  - c. REAR YARD: 20 FEET

4. THE PROJECT MEETS OR EXCEEDS THE DIMENSIONAL AND RATIO STANDARDS REQUIREMENTS OF SECTION 3.3 BASE ZONING DISTRICTS - RURAL BUFFER OF THE UDO. THE DIMENSIONAL AND RATIO STANDARDS ARE:
  - a. FLOOR AREA RATIO: REFER TO NOTE 5.
  - b. PEDESTRIAN AND LANDSCAPE RATIO: 0.34 (754459.2 SF)
  - c. OPEN SPACE RATIO: 0.94 (2,060,388 SF)

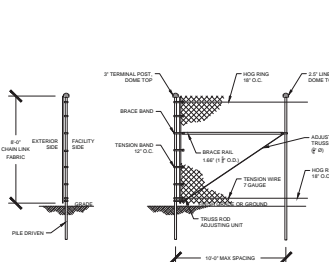
5. THERE WILL BE NO BUILDINGS ON THE PROPERTY.
6. TOTAL AMOUNT OF LAND DISTURBANCE TO BE NO MORE THAN 8.7 ACRES.
7. ALL ON-SITE UTILITY AND TRANSMISSION LINES SHALL BE PLACED, TO THE EXTENT FEASIBLE, UNDERGROUND EXCEPT WHERE TRANSMISSION LINE TRANSITIONS ABOVE GROUND AT INTERCONNECTION POINT.
8. THE TALLEST STRUCTURE SHALL BE LESS THAN 10' IN HEIGHT.
9. ARRAYS ARE DESIGNED TO CAPTURE SUNLIGHT RATHER THAN PRODUCE OR GENERATE GLARE. THE ARRAYS PROPOSED FOR THIS SITE ARE CONSTRUCTED OUT OF ANTI-REFLECTIVE GLASS SURFACES TO AVOID PRODUCTION OF GLARE. IN ADDITION, THE INDIVIDUAL ARRAYS SHALL BE ARRANGED ORIENTED TO PREVENT, TO THE FULLEST EXTENT POSSIBLE, GLARE OR THE REFLECTION OF SUNLIGHT ON ADJACENT PROPERTIES AND/OR ADJACENT RIGHTS-OF-WAY.
10. PER SECTION 5.9.6 (C)(2)(d) OF THE UDO CLEARLY VISIBLE WARNING SIGNS CONCERNING VOLTAGE SHALL BE PLACED AT THE BASE OF ALL PAD-MOUNTED TRANSFORMERS AND SUBSTATIONS. WARNING SIGNS AND NO TRESPASS SIGNS SHALL ALSO BE ERECTED ALONG THE PROPOSED PERIMETER FENCE SURROUNDING THE PROJECT.
11. PER SECTION 5.9.6 (C)(2)(e) OF THE UDO THE PROJECT SHALL BE ENCLOSED BY AN 8 FEET HIGH CHAIN LINK FENCE. PLEASE REFER TO THE ELEVATION DETAIL OF THE PROPOSED FENCE FOR ADDITIONAL DETAIL.
12. ELECTRIC AND MAGNETIC FIELDS ARE A NORMAL PART OF LIFE IN THE MODERN WORLD. PV ARRAYS GENERATE ELECTRIC & MAGNETIC FIELDS (EMF) IN THE SAME EXTREMELY LOW FREQUENCY (ELF) RANGE AS ELECTRICAL APPLIANCES AND WIRING FOUND IN MOST HOMES AND BUILDINGS. THE AVERAGE DAILY BACKGROUND EXPOSURE TO MAGNETIC FIELDS IS ESTIMATED TO BE AROUND ONE MG (MILLIGAUSS - THE UNIT USED TO MEASURE MAGNETIC FIELD STRENGTH), BUT CAN VARY CONSIDERABLY DEPENDING ON A PERSON'S EXPOSURE TO EMF FROM HOUSEHOLD ELECTRICAL DEVICES AND WIRING. THE LOWEST EXPOSURE LEVEL THAT HAS BEEN POTENTIALLY ASSOCIATED WITH A HEALTH EFFECT IS THREE MG. MEASUREMENTS AT THREE COMMERCIAL PV ARRAYS DEMONSTRATED THAT THEIR CONTRIBUTIONS TO OFF-SITE EMF EXPOSURES WERE LOW (LESS THAN 0.5 MG AT THE SITE BOUNDARY), WHICH IS CONSISTENT WITH THE DROP OFF OF EMF STRENGTH BASED ON DISTANCE FROM THE SOURCE.
13. THE APPLICANT ACKNOWLEDGES THAT, PER SECTION 5.9.6 (C)(2)(f) OF THE UDO, LIABILITY INSURANCE IS REQUIRED TO HAVE A MINIMUM COVERAGE LIMIT OF \$500,000.00 PER OCCURRENCE.
14. APPLICANT AGREES TO ALL APPLICABLE STANDARDS CONTAINED WITHIN 5.9.6 (C) (3) INCLUSIVE WITH RESPECT TO DECOMMISSIONING TO THE SITE.

PARKING DATA

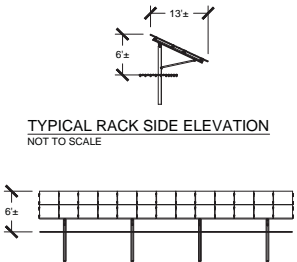
PARKING REQUIREMENTS:

NO VEHICLES WILL BE STORED ON SITE

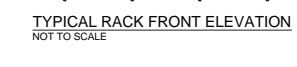
NOTE: THE PROPOSED GRAVEL ACCESS DRIVE WILL BE SUFFICIENT TO MEET THE NEEDS OF VEHICLES SERVICING THE PROPERTY.



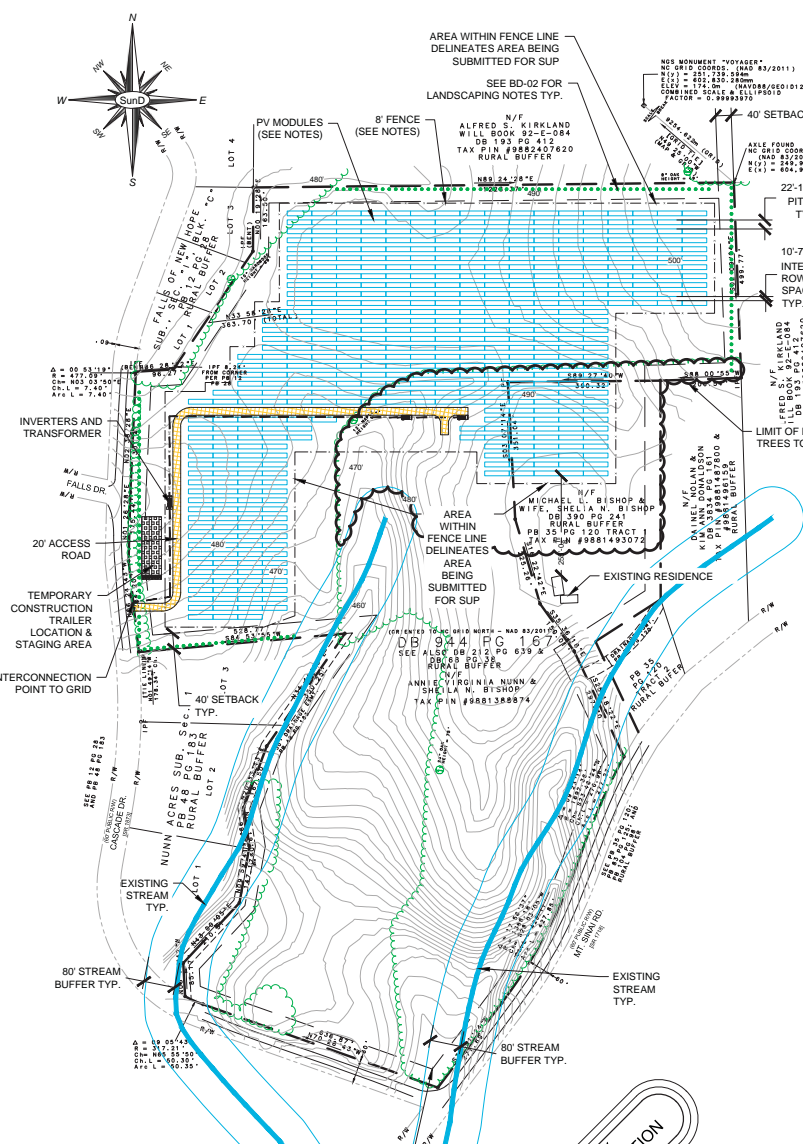
CHAIN LINK FENCE DETAIL  
NOT TO SCALE



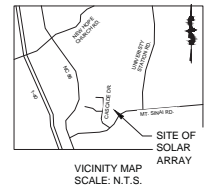
TYPICAL RACK SIDE ELEVATION  
NOT TO SCALE



TYPICAL RACK FRONT ELEVATION  
NOT TO SCALE



PRELIMINARY  
NOT FOR CONSTRUCTION



VICINITY MAP  
SCALE: N.T.S.

**SURVEYOR**  
SACKS SURVEYING & MAPPING, P.C.  
3308-B EDGEFIELD ROAD  
GREENSBORO, NC 27409  
PHONE: (336) 931-0566  
FAX: (336) 931-0558

**DEVELOPER**  
BINKS SOLAR, LLC  
4215 E. MCOWELL ROAD #212  
MESA, AZ 85214  
CONTACT: KEITH COLSON  
(480) 924-5519

**PARCEL ADDRESS**  
2911 MOUNT SINAI ROAD,  
ORANGE COUNTY, NC 27514

**PROJECT ADDRESS**  
(NOT ASSIGNED - APPROXIMATELY)  
CHAPEL HILL, NC 27514

**PROPERTY OWNERS**  
ANNIE VIRGINIA NUNN & SHEILA N. BISHOP  
2911 MOUNT SINAI ROAD  
CHAPEL HILL, NC 27514

MICHAEL L. BISHOP & WIFE, SHEILA N. BISHOP  
2911 MOUNT SINAI ROAD  
CHAPEL HILL, NC 27514

**SITE SUMMARY TABLE**  
TOTAL SITE AREA: 50.30± ACRES  
LIMITS OF SUP/SITE PLAN: 19.93± ACRES  
PARCEL ID#: 9881388874 & 9881493072  
DEED BOOK/PAGE: DB 944 PG 167  
DB 390 PG 241  
UNMANNED SOLAR GENERATION FACILITY  
ORANGE COUNTY  
RURAL BUFFER (RB)  
RURAL BUFFER (RB)

**LEGEND**  
--- BOUNDARY LINE  
--- SET BACK LINE  
[ ] SOLAR PANEL  
--- EX. ROADWAY ESMT.  
--- ABOVE GROUND ELECTRIC LINE 22.8KV AC  
[ ] 1500KW INVERTER STATION  
--- EXISTING CONTOURS  
[ ] EXISTING CONTOURS

SCALE: 1" = 100'

**SUNDURANCE ENERGY**

2045 LINCOLN HWY  
EDISON, NJ 08817

**NOTES:**

1. 5,597.97KW DC / 4M AC GROUND MOUNTED PV SYSTEM.
2. 18,354 JA SOLAR 305W PV MODULES OR EQUIVALENT  
966 STRINGS, 19 MODULES PER STRING.
- AC TRENCH: 1,330 LF  
ACCESS ROAD: 1,435LF  
FENCE: 5,200 LF
- 20° TILT  
180° AZIMUTH

4	REVISED PER COMMENTS FROM PLANNING	10/14	676	AK
3	REVISED PER COMMENTS FROM PLANNING	10/14	676	AK
2	REVISED PER COMMENTS FROM PLANNING	10/14	676	AK
1	SUP PRELIMINARY	10/14	676	AK
0	INITIAL SUP SUBMITTAL	09/10	676	AK
Rev	Description	Date	Drawn	Check

DESIGNER'S SEAL AND SIGN

SYSTEM DESIGNER

**Sundurance Energy**

200 MACKENAN DR.  
CARY, NC 27511

2814 MALVERN AVE P.O. BOX 1399  
HOT SPRINGS, AR 71901

SYSTEM OWNER

**Sunlight PARTNERS**

4215 EAST MCOWELL RD.  
MESA, AZ 85215

PROJECT NAME AND ADDRESS

BINKS SOLAR, LLC  
CHAPEL HILL, NC 27514

SHEET TITLE

PHOTOVOLTAIC  
GROUND MOUNT SITE PLAN

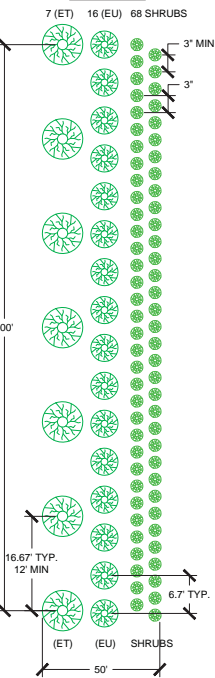
PROJ. NO.	PROJ. NAME
PROJ. NO.	PROJ. NAME

PROJ. NO. 03/21/2014

SCALE AS NOTED

BD-01

# TYPICAL 100' LANDSCAPE SEGMENT



## LANDSCAPE NOTES

- PER SECTION 6.8.4 (B) (1) OF THE UDO, EXISTING TREES, REGARDLESS OF SIZE, SHALL NOT BE CUT OR OTHERWISE DAMAGED OR DESTROYED WITHIN A PRIMARY TREE PROTECTION AREA EXCEPT AS SHOWN ON AN APPROVED LANDSCAPE AND TREE PRESERVATION PLAN, PLOT PLAN, OR SITE PLAN.
- SECTION 6.8.4 (B) (3) OF THE UDO, DURING CONSTRUCTION ACTIVITIES, ADEQUATE PROTECTIVE MEASURES SHALL BE PROVIDED TO MINIMIZE DAMAGE TO EXISTING TREES AND OTHER VEGETATION.
- SECTION 6.8.4 (B) (7) OF THE UDO, SIGNS SHALL BE POSTED IDENTIFYING THE TREE PROTECTION AREAS AND SHALL STATE THE AREA IS NOT TO BE DISTURBED. SUCH PROTECTIVE DEVICES SHALL EFFECTIVELY PROTECT THE CRITICAL ROOT ZONES, TRUNKS, AND TOPS OF TREES TO BE RETAINED AND SHALL BE MAINTAINED UNTIL ALL WORK HAS BEEN COMPLETED.
- NATIVE, NON-INVASIVE, AND DROUGHT TOLERANT SPECIES SHALL BE USED WHERE ADDITIONAL LANDSCAPE AREAS ARE PROPOSED.
- IN AREAS WHERE EXISTING TREES DO NOT ADEQUATELY ACT AS A VISUAL BUFFER FOR NEIGHBORING PROPERTIES ADDITIONAL TYPE D: OPTION 3 LANDSCAPING WILL BE PLANTED.

- IN AREAS WHERE EXISTING TREES DO NOT ADEQUATELY ACT AS A VISUAL BUFFER FOR NEIGHBORING PROPERTIES ADDITIONAL TYPE D: OPTION 3 LANDSCAPING WILL BE PLANTED.
- EXISTING VEGETATION ON SITE INCLUDES 30% CANOPY TREES, 70% UNDERSTORY TREES AND VARIOUS OTHER DECIDUOUS GROUND COVER RANGING IN HEIGHT APPROXIMATELY 50'-70'.

## APPROVAL GENERAL NOTES

- A TREE SURVEY SHALL BE CONDUCTED AND PROVIDED TO THE COUNTY PRIOR TO ISSUANCE OF THE GRADING PERMIT.
- AN APPROVED EROSION CONTROL PLAN AND LAND DISTURBING PERMIT IS REQUIRED.
- IF TREE PROTECTION IS REQUIRED BY THE COUNTY PLANNING DEPARTMENT, TREE PROTECTION CERTIFICATION MUST BE SUBMITTED TO THE COUNTY EROSION CONTROL DIVISION, AND TREE PROTECTION INSPECTION COMPLETED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
- IF MORE THAN FIVE ACRES IS DISTURBED, A SURETY BOND WILL BE REQUIRED.
- APPROVED CDS AND COUNTY OPERATIONS AND MAINTENANCE PERMIT WILL BE REQUIRED.

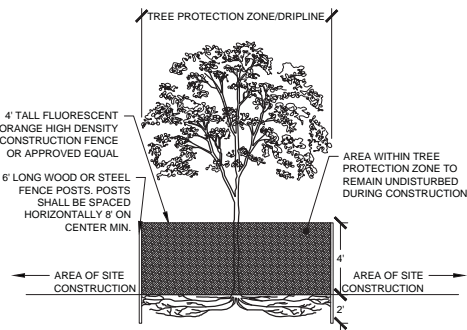
## OTHER GENERAL NOTES

- NO MASS GRADING IS PROPOSED FOR THIS SITE.

U/S SEGMENT & LENGTH	PLANT MATERIAL QUANTITY
NORTH SEGMENT 1030 FT.	OPTION 3: 7 EVERGREEN TREES, 16 EVERGREEN UNDERSTORY, 68 SHRUBS TOTALS: 73 EVERGREEN TREES, 165 EVERGREEN UNDERSTORY, 701 SHRUBS EVERGREEN TREES (ET) SHALL BE A MIN. OF 8' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES EVERGREEN UNDERSTORY (EU) SHALL BE A MIN. OF 6' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES SHRUBS MIN. OF 15' AT PLANTING; MIN. 3' DISTANCE ON CENTER, 20% (1) SPECIE; MIN. 10 SPECIES
EAST SEGMENT 500 FT.	OPTION 3: 7 EVERGREEN TREES, 16 EVERGREEN UNDERSTORY, 68 SHRUBS TOTALS: 35 EVERGREEN TREES, 80 EVERGREEN UNDERSTORY, 340 SHRUBS EVERGREEN TREES (ET) SHALL BE A MIN. OF 8' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES EVERGREEN UNDERSTORY (EU) SHALL BE A MIN. OF 6' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES SHRUBS MIN. OF 15' AT PLANTING; MIN. 3' DISTANCE ON CENTER, 20% (1) SPECIE; MIN. 10 SPECIES
WEST SEGMENT 720 FT.	OPTION 3: 7 EVERGREEN TREES, 16 EVERGREEN UNDERSTORY, 68 SHRUBS TOTALS: 51 EVERGREEN TREES, 116 EVERGREEN UNDERSTORY, 480 SHRUBS EVERGREEN TREES (ET) SHALL BE A MIN. OF 8' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES EVERGREEN UNDERSTORY (EU) SHALL BE A MIN. OF 6' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES SHRUBS MIN. OF 15' AT PLANTING; MIN. 3' DISTANCE ON CENTER, 20% (1) SPECIE; MIN. 10 SPECIES
SOUTH SEGMENT 400 FT.	OPTION 3: 7 EVERGREEN TREES, 16 EVERGREEN UNDERSTORY, 68 SHRUBS TOTALS: 28 EVERGREEN TREES, 64 EVERGREEN UNDERSTORY, 272 SHRUBS EVERGREEN TREES (ET) SHALL BE A MIN. OF 8' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES EVERGREEN UNDERSTORY (EU) SHALL BE A MIN. OF 6' TALL AT PLANTING; 20% (1) SPECIE; MIN. 7 SPECIES SHRUBS MIN. OF 15' AT PLANTING; MIN. 3' DISTANCE ON CENTER, 20% (1) SPECIE; MIN. 10 SPECIES

TREE/SHRUB	PLANT LIST
EVERGREEN TREES (ET)	DEODAR CEDAR, BURFORD HOLLY, HYBRID HOLLY, BRODIE JUNIPER, SOUTHERN MAGNOLIA, MERRILL MAGNOLIA, LOBLOLLY PINE
EVERGREEN UNDERSTORY (EU)	DWARF BURFORD HOLLY, ANN MANGNOLIA, ALTA MAGNOLIA, BALLERINA MAGNOLIA, BETTY MAGNOLIA, YAUPON HOLLY, LITTLE GEM MAGNOLIA
SHRUBS	CENTURY PLANT, CAST IRON PLANT, WARTY BARBERRY, CHENAUAT BARBERRY, ENGLISH BOXWOOD, COMMON SWEET SHRUB, BUTTONBUSH, PARNEY'S RED CLUSTERBERRY COTONEASTER, SLENDER DEUTZIA, ELAEAGNUS

CONTRACTOR WILL USE LISTED TREES AND SHRUBS OR EQUIVALENT FROM THE COUNTY APPROVED LIST AND AS APPROVED BY THE COUNTY.

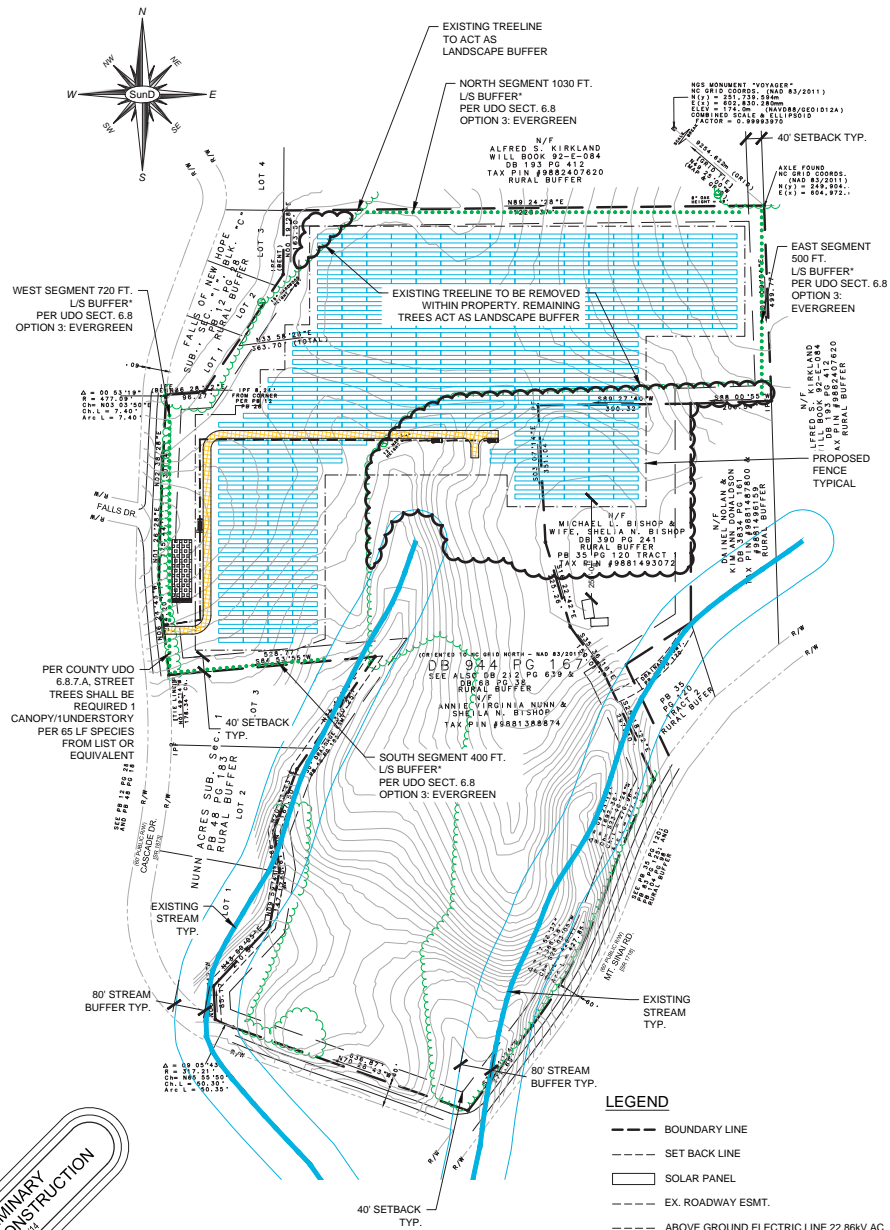


TREE PROTECTION FENCE DETAIL

SCALE: NTS

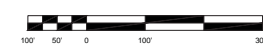
- NOTES:
- TREE PROTECTION FENCE SHALL BE INSTALLED 10' FROM THE EXISTING VEGETATION IN ACCORDANCE TO SECTION 6.8.4 OF THE UDO.
  - CONSTRUCTION VEHICLES TO STAY AS FAR AS POSSIBLE FROM TREE PROTECTION FENCE TO PREVENT COMPACTION OF TREE ROOTS.

PRELIMINARY  
NOT FOR CONSTRUCTION



## LEGEND

- BOUNDARY LINE
- SET BACK LINE
- SOLAR PANEL
- EX. ROADWAY ESMT.
- ABOVE GROUND ELECTRIC LINE 22.86KV AC
- 1500KW INVERTER STATION
- 548' --- EXISTING CONTOURS



SCALE: 1" = 100'

## NOTES

TOTAL SITE AREA: 50.30± ACRES  
SOLAR PROJECT: 19.93± ACRES  
TOTAL AMOUNT OF DISTURBED LAND: 8.7± ACRES

**SUNDURANCE ENERGY**

2045 LINCOLN HWY  
EDISON, NJ 08817

Rev	Description	Date	Drawn	Check
1	DESIGNED PER COMMENTS FROM PLANNING	5/24/14	STB	AK
2	DESIGNED PER COMMENTS FROM PLANNING	6/10/14	AK	AK
3	SUPPLEMENTAL	5/20/14	STB	AK
4	INITIAL SUPPLEMENTAL	8/14/14	STB	AK

DESIGNER'S SEAL AND SIGN

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

SYSTEM DESIGNER  
**IMS**  
200 MACKENAN DR.  
CARY, NC 27511  
2814 MALVERN AVE P.O. BOX 1399  
HOT SPRINGS, AR 71901

SYSTEM OWNER  
**Sunlight PARTNERS**  
4215 EAST MCDOWELL RD.  
MESA, AZ 85215

PROJECT NAME AND ADDRESS  
BINKS SOLAR, LLC  
ORANGE COUNTY, NC 27514

SHEET TITLE  
LANDSCAPE PLAN

PROJ. NO. 03/21/2014  
SHEET NO. BD-02  
AS NOTED

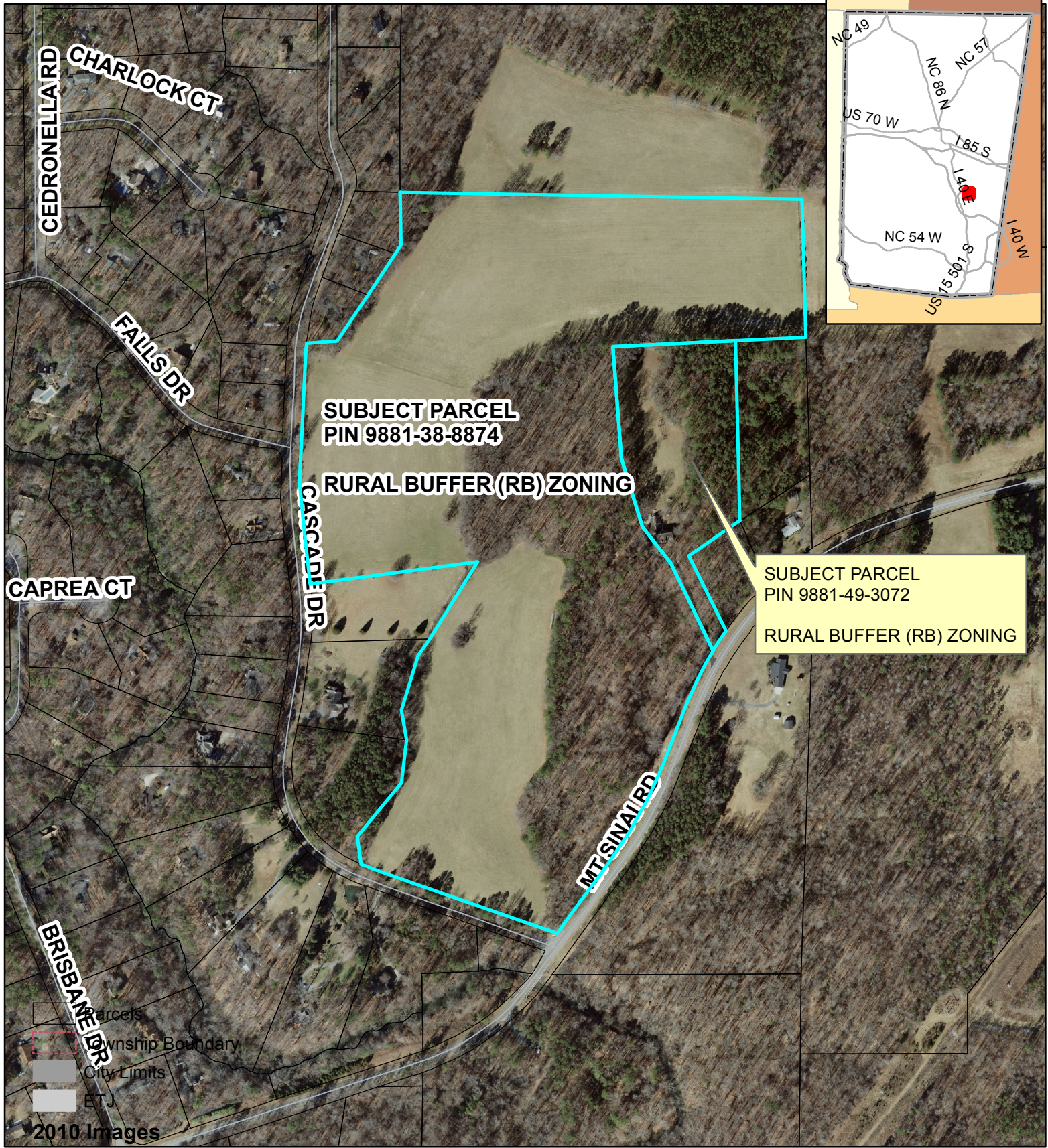
ARCH 0



VICINITY MAP - SUNLIGHT PARTNERS LLC  
CLASS A SPECIAL USE PERMIT REQUEST

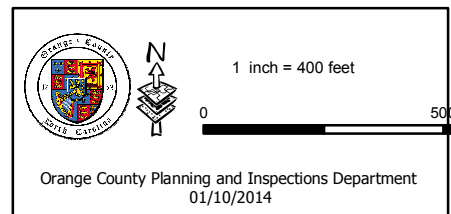
Attachment 2

82



RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





Date: May 13, 2014

To: Michael Harvey  
Orange County Planning & Inspections Department  
Current Planning Supervisor

From: Alan Clapp  
Orange County Health Department  
Environmental Health Director

RE: Sunlight Partners LLC Solar Facility – Mt. Sinai Road  
PIN: 9881-38-8874

Michael,

Environmental Health will not have any involvement in this solar project. It is my understanding that well and septic systems will not be required or utilized for the facility. If you need well or septic information on the adjacent properties, Environmental Health will be glad to provide the records we have.

Let me know if you require anything further.

Alan



## MEMORANDUM

To: Michael Harvey, *Current Planning Supervisor*

From: Rich Shaw, *Land Conservation Manager*  
Peter Sandbeck, *Cultural Resources Coordinator*

Date: February 10, 2014

Re: Proposed 4-Kilowatt Solar Generating Facility – Kinetix Engineering  
Binks Solar (Cascade Drive / Mt. Sinai Road)

---

Thank you the opportunity to review and comment on this application for constructing solar generating facilities. DEAPR comments on such developments are generally to address any concerns with respect to potential impacts on important natural or cultural resources.

This application is for developing a four-megawatt solar facility on two land parcels (PINs: 9881-38-8874 and 9881-49-3072) with access from Mt. Sinai Road in Chapel Hill Township. Both parcels are zoned Rural Buffer.

*Cultural Resources Review Comments:* There are no known identified or mapped cultural resources within the project parcel or on any of the surrounding adjoining parcels. The site plan as now presented appears to locate the majority of the solar panels at the north end of the property, thereby preserving the open fields and rural character visible from the Mt.Sinai Rd. The project appears to be consistent with the historic preservation goals in the Orange County Comprehensive Plan, Goal 4: "Preservation of historic, cultural, architectural and archaeological resources, and their associated landscapes."

*Natural Resources Review Comments:* There are no known identified or mapped natural resource areas of significance (e.g., natural heritage sites, proposed wildlife corridors, prime forest) located on this property; however, there are two streams that originate on the property and drain to the nearby New Hope Creek. The New Hope Creek corridor is an important natural and recreational area, and is host to a variety of significant plant and wildlife species—both terrestrial and aquatic. The solar arrays are contained well outside of the stream corridors; therefore the plan appears consistent with the County's desire to minimize adverse environmental impacts on wetlands, natural areas and wildlife habitat.

The project is also consistent with policies in the Orange County Comprehensive Plan, such as the goal of "Energy conservation, sustainable use of non-polluting renewable energy resources, efficient use of non-renewable energy resources and clean air." [Natural and Cultural Systems Goal 1, Page 6-34] and the County's objective of "Foster[ing] participation in green energy programs such as installation incentives for solar hot water/solar generation/solar tempering in residential and commercial construction." [Objective AE-15]

If you have questions please contact Peter at x-2517 or Rich at x-2514.



**Michael Harvey**

---

**From:** Jason Shepherd  
**Sent:** Monday, May 12, 2014 12:47 PM  
**To:** Michael Harvey; David Sykes  
**Cc:** Patrick R. Mallett  
**Subject:** RE: Binks Solar Facility

Okay to proceed. No issues from FMD.

---

**From:** Michael Harvey  
**Sent:** Monday, May 12, 2014 12:04 PM  
**To:** David Sykes; Jason Shepherd  
**Cc:** Patrick R. Mallett  
**Subject:** Binks Solar Facility

While we have talked about this project we need something in writing from you all indicating there are no issues with the review/approval of the project (memo, e-mail, etc.)

Need by the end of the week to go to the BOCC. Thanks.

Michael D. Harvey AICP, CFO, CZO  
Current Planning Supervisor – Planner III  
Orange County Planning Department  
131 West Margaret Lane  
PO Box 8181  
(919) 245-2597 (phone)  
(919) 644-3002 (fax)

## Michael Kelly

---

**From:** Jeff Scouten  
**Sent:** Friday, April 04, 2014 9:36 AM  
**To:** Michael Kelly  
**Subject:** Binks Solar LLC - Kinetix Solar Site Plan

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Michael:

I have completed my review of the subject Binks Solar LLC - Kinetix Solar site plan.

Please direct them to add our standard notes as indicated below to the site plan (plan sheet BD-01):

### Construction Waste:

1. By Orange County Ordinance, clean wood waste, scrap metal and corrugated cardboard, all present in construction waste, must be recycled.
2. By Orange County Ordinance, all haulers of construction waste must be properly licensed.
3. Prior to any demolition or construction activity on the site the applicant shall hold a pre-demolition/pre-construction conference with the County's Solid Waste staff. This may be the same meeting held with other development officials.
4. The presence of any asbestos containing material ('ACM') or other hazardous materials in construction and demolition waste shall be handled in accordance with any and all local, state, and federal regulations and guidelines.

Once they have made that change I ask that you provide me with a copy of the plan for my records.

Thanks and let me know if you have any questions or wish to discuss this matter further.

Jeff Scouten

Environmental Enforcement Supervisor  
 Orange County Solid Waste Management  
 P.O. Box 17177

Chapel Hill, NC 27516-7177

919-968-2788 x 107 (Office)

919-932-2900 (Facsimile)

[jscouten@orangecountync.gov](mailto:jscouten@orangecountync.gov)

<http://orangecountync.gov/recycling/candd.asp>




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**From:** Michael Kelly  
**Sent:** Thursday, April 03, 2014 4:03 PM  
**To:** Jeff Scouten  
**Cc:** Christine D. Dodd  
**Subject:** RE: Kinetix Solar Site Plan  
**Importance:** High

Jeff & Christine:

See attached...


**OFFICIAL COPY**

North Carolina  
Department of Administration

Pat McCrory, Governor

Bill Daughtridge, Jr., Secretary

June 6, 2013

Ms. Gail Mount  
North Carolina Department of Commerce  
Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

**FILED**

**JUN 06 2013**

Clerk's Office  
N.C. Utilities Commission

**Re: SCH File # 13-E-4600-0417; Application of Binks Solar, LLC for Certificate to construct a 4 MW Solar Photovoltaic Electric Generating Facility in Orange Co. Docket #SP-2679, Sub 0.**

Dear Ms. Mount:

The above referenced environmental impact information has been reviewed through the State Clearinghouse under the provisions of the North Carolina Environmental Policy Act.

Attached to this letter are comments made in the review of this document. Because of the nature of the comments, it has been determined that no further State Clearinghouse review action on your part is needed for compliance with the North Carolina Environmental Policy Act. The attached comments should be taken into consideration in project development.

Sincerely,

*Crystal Best*  
Crystal Best

State Environmental Review Clearinghouse

Attachments

cc: Region J

*(24)  
ab  
Watson/Kuen  
Legal  
Elect.*

Mailing Address:  
1301 Mail Service Center  
Raleigh, NC 27699-1301

Telephone: (919)807-2425  
Fax (919)733-9571  
State Courier #51-01-00  
e-mail [state.clearinghouse@doa.nc.gov](mailto:state.clearinghouse@doa.nc.gov)

Location Address:  
116 West Jones Street  
Raleigh, North Carolina



North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

MEMORANDUM

TO: Crystal Best  
State Clearinghouse

FROM: Lyn Hardison *Lyn*  
Division of Environmental Assistance and Outreach  
Permit Assistance & Project Review Coordinator

RE: 13-0417 Environmental Review  
Application of Binks Solar, LLC for Certificate to construct a 4 MW Solar Photovoltaic  
Electric Generating Facility  
Orange County

Date: May 31, 2013

The Department of Environment and Natural Resources has reviewed the proposal for the referenced project. Based on the information provided, our agencies have identified permits that may be required and the NC Wildlife Resources Commission has provided some general recommendations to the applicant to minimize impacts to aquatic and terrestrial wildlife resources for the referenced project prior to its construction. These comments are attached for the applicant review.

If the applicant needs further guidance on addressing secondary and cumulative impact, please refer the applicant to the Department's guidance manual entitled 'Guidance for Preparing SEPA Documents and Addressing Secondary and Cumulative Impacts'. The purpose of the manual is to assist applicants in preparing their environmental documentation, which leads to better decision-making. The guidance manual can be found on the Department's web page <http://portal.ncdenr.org/web/guest/rules-policies-laws-and-regulations> or a copy can be provided at no cost to the applicant.

To better understand NCDENR permitting processes, please suggest to the applicant to contact David Lee, Permit Assistance Coordinator, in the Department's Raleigh Regional Office, (919) 791-4200. The proposed project is located within their geographic working territory.

Thank you for the opportunity to respond.

Attachment



## ☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

### MEMORANDUM

TO: Lyn Hardison, Environmental Assistance Coordinator  
NCDENR Division of Environmental Assistance and Outreach

FROM: Shari L. Bryant, Piedmont Region Coordinator *Shari L. Bryant*  
Habitat Conservation Program

DATE: 28 May 2013

SUBJECT: Application of Binks Solar, LLC for a Certificate of Public Convenience and Necessity to Construct a 4 MW Solar Array, Orange County. Docket No. SP-2679, Sub 0. DENR Project No. 13-0417

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the subject document and we are familiar with the habitat values of the area. Our comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667e), and North Carolina General Statutes (G.S. 113-131 et seq.).

The applicant proposes to construct a photovoltaic solar facility. The facility will consist of four, 1.0 MW solar photovoltaic arrays and eight, 500 kW inverters. The facility will interconnect to an existing electrical distribution line and electricity will be sold to Duke Energy Carolinas. The facility will be fenced and located on Cascade Drive in Chapel Hill.

The site drains to an unnamed tributary to New Hope Creek in the Cape Fear River basin. There are records for the federal species of concern and state endangered brook floater (*Alasmidonta varicosa*) and Carolina creekshell (*Villosa vaughaniana*); the state special concern notched rainbow (*Villosa constricta*); and the state significantly rare Eastern creekshell (*Villosa delumbis*) and Chameleon lampmussel (*Lampsilis* sp.) in New Hope Creek. We offer the following general recommendations to minimize impacts to aquatic and terrestrial wildlife resources.

1. Maintain or establish a minimum 100-foot undisturbed, native forested buffer along each side of perennial streams and 50-foot undisturbed, native forested buffer along each side of intermittent streams and wetlands. Forested riparian buffers provide habitat areas for aquatic and terrestrial wildlife species and travel corridors for terrestrial wildlife. In addition, forested riparian buffers protect water quality by stabilizing stream banks and filtering stormwater runoff.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721

Telephone: (919) 707-0220 • Fax: (919) 707-0028

Page 2

28 May 2013  
Binks Solar Array  
DENR Project No. 13-0417

2. Avoid or minimize impacts to wetlands during construction. In addition to providing wildlife habitat, wetland areas perform important functions of flood control and water quality protection. U.S. Army Corps of Engineers Section 404 permits and N.C. Division of Water Quality Section 401 Certifications are needed for any impacts to jurisdictional streams or wetlands. Temporarily disturbed wetland areas should be returned to original soils and contours, and reseeded with annual small grains appropriate for the season (e.g. oats, millet, rye, wheat, or rye grass) and should be allowed to revert to natural wetland vegetation.
3. If additional overhead transmission lines will be installed, then measures to minimize impacts to birds should be implemented. These can include increasing line visibility, insulating wires to cover exposed connections, and increasing the distance between wires so no contact with ground or other energized wire can be made. For more information see <http://www.fws.gov/birds/documents/powerlines.pdf>.
4. Consider establishing vegetative cover on the site that is beneficial to wildlife such as native warm season grasses. We refer the applicant to Jason Allen, District Wildlife Biologist, at (336) 524-9801 or [jason.allen@ncwildlife.org](mailto:jason.allen@ncwildlife.org) for information on developing a site-specific vegetation plan. Although a site-specific plan is preferred, for general information on developing vegetative cover on disturbed soils, please see the attached *Seed Mixes for Re-vegetating Disturbed Sites*. Note: it is important to use all of the components of the Basic Mix. Also, we encourage adding one or more of the native species (found in the table at the end) to the Basic Mix to improve habitat for wildlife species.
5. Mature stands of the Basic Mix are short-statured and will not require mowing. The Basic Mix should persist for many years, but eventually will yield to developing successional species in the seed bank. If site and/or transmission line maintenance is needed, avoid mowing between April 1 and October 1 to minimize impacts to nesting wildlife. We suggest a maintenance schedule that incorporates a portion of the area (e.g., one-third of the area) each year. Pesticides, fertilizers, and other chemicals should not be used in wetland areas or near streams.
6. Where feasible, consider establishing grassland habitats on the site. These are drought tolerant and require minimal mowing maintenance once established. Grasslands provide habitat for migratory and resident birds and small mammals particularly if mowing is done only in late winter/early spring after winter cover needs are reduced and before nesting occurs. For more information on grassland habitats and establishment, please contact Laura Fogo, U.S. Fish and Wildlife Service, at (910) 695-3323 or [laura\\_fogo@fws.gov](mailto:laura_fogo@fws.gov).
7. If pesticides or chemicals will be used for site maintenance, then stormwater runoff from the site should be directed to bio-retention areas prior to discharge to streams or wetlands to provide additional protection for water quality and aquatic and terrestrial wildlife habitats.
8. Sediment and erosion control measures should be installed prior to any land clearing or construction. These measures should be routinely inspected and properly maintained. Excessive silt and sediment loads can have numerous detrimental effects on aquatic resources including destruction of spawning habitat, suffocation of eggs, and clogging of gills of aquatic species.
9. Measures to mitigate secondary and cumulative impacts can be found in NCWRC's *Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality* (August 2002; [http://www.ncwildlife.org/Portals/0/Conserving/documents/2002\\_GuidanceMemorandumforSecondaryandCumulativeImpacts.pdf](http://www.ncwildlife.org/Portals/0/Conserving/documents/2002_GuidanceMemorandumforSecondaryandCumulativeImpacts.pdf)).

Page 3

28 May 2013  
Binks Solar Array  
DENR Project No. 13-0417

Thank you for the opportunity to comment on this project. If we can be of further assistance, please contact our office at (336) 449-7625 or [shari.bryant@uncwildlife.org](mailto:shari.bryant@uncwildlife.org).

cc: Kathy Matthews, USFWS  
Laura Fogo, USFWS  
Jason Allen, NCWRC

Attachment: Seed Mixes for Re-vegetating Disturbed Sites

Page 4

28 May 2013  
 Binks Solar Array  
 DENR Project No. 13-0417

## Seed Mixes for Re-vegetating Disturbed Sites

### Basic Mix

Oats (Mar-Jun), Wheat (Jul-Nov), or Rye Grain (Dec-Feb)	1-2 bags / acre	~ \$ 5-10 bag
Red Clover <i>Trifolium pratense</i>	10 lbs / acre	~ \$ 3 / lb
Creeping Red Fescue <i>Festuca rubra</i>	20 lbs / acre	~ \$ 2-3 / lb

- The Basic Mix can be sown on disturbed sites in the mountains and upper piedmont year round but spring or fall seeding will result in a better stand. **It is important to use all of the components of the Basic Mix. The cover crop grain and legume provide rapid green-up while the creeping red fescue is developing.** These components can be obtained locally.
- Grains like oats, wheat, and rye may be sold by weight (pounds) or by volume (bushels). To simplify things, this mix recommends 1-2 BAGS of grain rather than pounds or bushels. With this mix, 1 bag or about 50 – 60 lbs per acre should be adequate for most sites, but where slope or soil conditions warrant, increase grain amounts to 100 – 120 lbs (use 2 bags).
- The perennial grass will establish within the first year and is the key to good site stabilization. Creeping red fescue has a wide range of adaptation when used for erosion control along roads and highways; cuts, fills, and other disturbed areas; and for stream and channel bank stabilization. It thrives in sun or shade, and is relatively drought-resistant after establishment.

For permanent seeding of harsh dry sites, Hard Fescue <i>Festuca brevipila</i> (syn. <i>trachyphylla</i> ) or Sheep Fescue <i>Festuca ovina</i> can be added to the Basic Mix	10 lbs / acre	~ \$ 3 / lb
---	---------------	-------------

### Application Notes

- Disturbed sites with loose soils can usually be sown without extensive seedbed preparation if seeded as soon as the other work is completed.
- Where necessary, prepare seedbed with conventional farm equipment (tractor and disk), or the soil surface can be bladed and then tracked with a bulldozer. Hydro-seeding can be used with the Basic Mix for slopes where equipment access is difficult.
- Red fescue is adapted to sandy and acid soils so extensive soil amendments are usually not needed. On poor and subsoil sites, a low nitrogen fertilizer such as 5-10-10 may be required.
- If required, apply any necessary soil amendments, then drill or broadcast the seed mix.
- The larger cover crop grains can be sown separately first and covered lightly to prevent loss of seed from wildlife such as turkeys and doves.
- The rest of the seed mix should then be sown, but not covered with soil. It is better to firm the small seed into the soil than to try to cover it.
- Culti-pack conventional seedbeds to ensure good seed-to-soil contact. Tracked sites will fill in on their own from rainfall.
- Apply straw mulch at a minimum of 15 bales per acre to help enhance soil moisture as well as hold the soil in place until the seed germinates. Use higher rates as site conditions warrant.



Page 5

28 May 2013  
Binks Solar Array  
DENR Project No. 13-0417

- If the site calls for it, biodegradable natural fiber matting is recommended over plastic matting or matting that contains strands of plastic that can entrap small animals. Install last, over the seed and straw.
- Monitor the site until the perennial grass component is fully established. Mature stands of the Basic Mix are short-statured and will not require mowing. The seeded mix should persist for many years, but will eventually yield to developing successional species in the seed bank.

### Adding Native Species

- Some projects specify a preference for native plant species or actually require their use. Native wildflowers and grasses can be added to the Basic Mix to beautify and diversify the site, and provide food and cover for wildlife such as wild turkey, bobwhite quail, and songbirds.
- The following table contains native species that are easy, proven performers that have been used successfully on stream restoration areas as well as drier upland sites. The four wildflowers will come on well the first year; the three grasses may take two to three years to develop good sized clumps.
- These seeds are reasonably priced as natives go and can be ordered from a reputable seed dealer. Using all seven will provide maximum diversity as well as added site stabilization but any additions will be beneficial. For a list of sources, please contact Shari Bryant at (336) 449-7625 or [shari.bryant@ncwildlife.org](mailto:shari.bryant@ncwildlife.org).
- Mixes with native seed can be culti-packed or tracked in with a bulldozer; native seeds will not germinate if suspended in hydro-mulch therefore hydro-seeding is not recommended.

Note - when adding native *Panicum* grass seed, sow the mix in late fall, winter, or early spring to subject the seed to cool, moist soil conditions necessary to break seed dormancy. Sowing during the warmer months may delay *Panicum* germination until the following year, and some seed may be lost in the interim. Mixes with mainly wildflowers can be sown in early fall.

- For information on each native species listed here, visit <http://plants.usda.gov/>; type in the scientific name in the search box. Note - adding natives will increase the height of the resulting stands, providing good wildlife habitat. Frequent mowing destroys food and cover and is not recommended. Mow once every few years, in late winter, only if absolutely necessary to remove encroaching woody vegetation.

#### Native species – add to Basic Mix at 1-2 lbs / acre

Lanced-leaved Coreopsis <i>Coreopsis lanceolata</i> – height 8" to 3'	~ \$ 14 / lb
Deertongue <i>Dicanthelium (Panicum) clandestinum</i> 'Tioga' – height 1 to 3'	~ \$ 12 / lb
Black Eyed Susan <i>Rudbeckia hirta</i> – height 1 to 3'	~ \$ 16 / lb
Showy Partridge Pea <i>Chamaecrista (Cassia) fasciculata</i> – height 2 to 3'	~ \$ 14 / lb
Showy Tickseed <i>Bidens aristosa</i> – height 3 to 4'	~ \$ 16 / lb
Switchgrass <i>Panicum virgatum</i> 'Blackwell', 'Cave-in-Rock', 'Kanlow' – height 4 to 6'	~ \$ 8 / lb
Big-Bluestem <i>Andropogon gerardii</i> – height 4 to 6'	~ \$ 10 / lb

NCWRC/2010 Rev 5/12

# Department of Environment and Natural Resources Project Review Form

Project Number: 13-0417

County: Orange

Date Received: 05/09/2013

**Due Date: 5/31/2013**

**Project Description:** Environmental Review - Application of Binks Solar, LLC for Certificate to construct a 4 MW Solar Photovoltaic Electric Generating Facility in Orange Co. Docket #SP-2679, Sub 0. View document at <http://ncuc.commerce.state.nc.us/docksrch.html>; type SP-2679, Sub 0.

View document at <http://ncuc.commerce.state.nc.us/docksrch.html>; type SP-2679, Sub 0.

This Project is being reviewed as indicated below:

Regional Office	Regional Office Area	In-House Review	
<input type="checkbox"/> Asheville	<input checked="" type="checkbox"/> Air <i>OK</i>	<input type="checkbox"/> Air Quality	<input type="checkbox"/> Coastal Management
<input type="checkbox"/> Fayetteville	<input checked="" type="checkbox"/> Water <i>OK</i>	<input type="checkbox"/> Marine Fisheries	<input type="checkbox"/> Military Affairs
<input type="checkbox"/> Mooresville	<input type="checkbox"/> Aquifer Protection	<input checked="" type="checkbox"/> Parks & Recreation	<input type="checkbox"/> Water Quality
<input checked="" type="checkbox"/> Raleigh	<input checked="" type="checkbox"/> Land Quality Engineering <i>OK</i>	<input type="checkbox"/> Waste Mgmt	<input type="checkbox"/> Water Quality - DOT
<input type="checkbox"/> Washington	<input checked="" type="checkbox"/> UST <i>OK</i>	<input type="checkbox"/> Water Resources Mgmt	<input checked="" type="checkbox"/> Wildlife <i>Shari Bryant</i>
<input type="checkbox"/> Wilmington		<input checked="" type="checkbox"/> Water Supply Section	<input type="checkbox"/> Wildlife - DOT
<input type="checkbox"/> Winston-Salem			

Manager Sign-Off/Region:

*James S. Childs*

Date:

5/29/13

In-House Reviewer/Agency:

Response (check all applicable)

- ☐ No objection to project as proposed.  
☐ Insufficient information to complete review

- ☐ No Comment  
☐ Other (specify or attach comments)

MAY 10 2013

If you have any questions, please contact:

Lyn Hardison at [lyn.hardison@ncdenr.gov](mailto:lyn.hardison@ncdenr.gov) or (252) 948-3842  
 943 Washington Square Mall Washington NC 27889  
 Courier No. 16-04-01

State of North Carolina  
Department of Environment and Natural Resources

Reviewing Office: \_\_\_\_\_

**INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS**

Project Number: 13-0417 Due Date: \_\_\_\_\_

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
<input type="checkbox"/>	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
<input type="checkbox"/>	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input type="checkbox"/>	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
<input type="checkbox"/>	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/>	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
<input type="checkbox"/>	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
<input checked="" type="checkbox"/>	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
<input type="checkbox"/>	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
<input type="checkbox"/>	Complex Source Permit required under 15 A NCAC 2D.0800		
<input type="checkbox"/>	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
<input type="checkbox"/>	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
<input type="checkbox"/>	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any acre mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/>	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
<input type="checkbox"/>	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/>	Oil Refining Facilities	N/A	90-120 days (N/A)
<input type="checkbox"/>	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion.	30 days (60 days)

PERMITS			SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.		10 days N/A
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.		10 days N/A
<input type="checkbox"/>	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.		15-30 days N/A
<input type="checkbox"/>	401 Water Quality Certification	N/A		60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$250.00 fee must accompany application		55 days (150 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$50.00 fee must accompany application		22 days (25 days)
<input type="checkbox"/>	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611			
<input type="checkbox"/>	Abandonment of any wells, if required must be in accordance with Title 15A, Subchapter 2C.0100.			
<input checked="" type="checkbox"/>	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.			
<input type="checkbox"/>	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.			45 days (N/A)
<input type="checkbox"/>	Tar Pamlico or Neuse Riparian Buffer Rules required.			
* Other comments (attach additional pages as necessary, being certain to cite comment authority)				
<p><i>PHOTOS - SEDIMENTATION &amp; EROSION CONTROL WILL BE ADDRESSED THROUGH THE ORANGE CO. LOCAL SSK PROGRAM.</i></p>				

### REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**

2090 US Highway 70  
Swannanoa, NC 28778  
(828) 296-4500

☐ **Mooreville Regional Office**

610 East Center Avenue, Suite 301  
Mooreville, NC 28115  
(704) 663-1699

☐ **Wilmington Regional Office**

127 Cardinal Drive Extension  
Wilmington, NC 28405  
(910) 796-7215

☐ **Fayetteville Regional Office**

225 North Green Street, Suite 714  
Fayetteville, NC 28301-5043  
(910) 433-3300

☐ **Raleigh Regional Office**

3800 Barrett Drive, Suite 101  
Raleigh, NC 27609  
(919) 791-4200

☐ **Winston-Salem Regional Office**

585 Woughtown Street  
Winston-Salem, NC 27107  
(336) 771-5000

☐ **Washington Regional Office**

943 Washington Square Mall  
Washington, NC 27889  
(252) 946-6481

NORTH CAROLINA STATE CLEARINGHOUSE  
DEPARTMENT OF ADMINISTRATION  
INTERGOVERNMENTAL REVIEW

97  
*Scott Walton*

COUNTY: ORANGE

H11: ENERGY RELATED  
FACILITIES/ACTIVITIES

STATE NUMBER: 13-E-4600-0417  
DATE RECEIVED: 05/06/2013  
AGENCY RESPONSE: 05/31/2013  
REVIEW CLOSED: 06/05/2013

MS CARRIE ATKINSON  
CLEARINGHOUSE COORDINATOR  
DEPT OF TRANSPORTATION  
STATEWIDE PLANNING - MSC #1554  
RALEIGH NC

REVIEW DISTRIBUTION

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DENR LEGISLATIVE AFFAIRS  
DEPT OF AGRICULTURE  
DEPT OF CULTURAL RESOURCES  
DEPT OF TRANSPORTATION  
TRIANGLE J COG

PROJECT INFORMATION

APPLICANT: N.C. Dept. of Commerce  
TYPE: State Environmental Policy Act  
Environmental Review

DESC: Application of Binks Solar, LLC for Certificate to construct a 4 MW Solar  
Photovoltaic Electric Generating Facility in Orange Co. Docket #SP-2679, Sub 0.  
View document at <http://ncuc.commerce.state.nc.us/docksrch.html>; type SP-2679,  
Sub 0. - Located at 5609 Cascade Drive, Chapel Hill, NC

The attached project has been submitted to the N. C. State Clearinghouse for  
intergovernmental review. Please review and submit your response by the above  
indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☒ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY: *Scott Walton*

DATE: 5/29/13



NORTH CAROLINA STATE CLEARINGHOUSE  
DEPARTMENT OF ADMINISTRATION  
INTERGOVERNMENTAL REVIEW

COUNTY: ORANGE

H11: ENERGY RELATED  
FACILITIES/ACTIVITIESSTATE NUMBER: 13-E-4600-0417  
DATE RECEIVED: 05/06/2013  
AGENCY RESPONSE: 05/31/2013  
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MS CAROLYN PENNY  
CLEARINGHOUSE COORDINATOR  
CC&PS - DIV OF EMERGENCY MANAGEMENT  
FLOODPLAIN MANAGEMENT PROGRAM  
MSC # 4719  
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SIGNED BY: John D. ZentgrafDATE: 20 MAY 2013

Not in SFHA



NORTH CAROLINA STATE CLEARINGHOUSE  
DEPARTMENT OF ADMINISTRATION  
INTERGOVERNMENTAL REVIEW

COUNTY: ORANGE

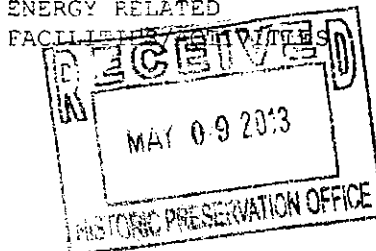
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STATE NUMBER: 13-E-4600-0417

DATE RECEIVED: 05/06/2013

AGENCY RESPONSE: 05/31/2013

REVIEW CLOSED: 06/05/2013



MS RENEE GLEDHILL-EARLEY  
CLEARINGHOUSE COORDINATOR  
DEPT OF CULTURAL RESOURCES  
STATE HISTORIC PRESERVATION OFFICE  
MSC 4617 - ARCHIVES BUILDING  
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If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☒ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY:

*Renee Gledhill-Earley*

DATE: 5.16.13



MAY 10 2013

**ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT**  
**Craig N. Benedict, AICP, Director**

**Administration**  
**(919) 245-2575**  
**(919) 644-3002 (FAX)**  
**www.co.orange.nc.us**



**131 W. Margaret Lane**  
**Suite 201**  
**P O Box 8181**  
**Hillsborough, NC 27278**



**CERTIFICATION OF MAILING**

**ZONING ATLAS AMENDMENT**  
**ORANGE COUNTY, NORTH CAROLINA**

I, Michael D. Harvey, Current Planning Supervisor with Orange County, North Carolina, DO HEREBY CERTIFY that in accordance with the provisions of Section 2.7.5 of the Orange County Unified Development Ordinance (UDO) I have mailed, or have caused to be mailed, a Notice of Public Hearing to be held regarding the processing of a Class A Special Use Permit application submitted by Sunlight Partners LLC and Shelia Bishop, Michael Bishop, and Annie Nunn to allow for the development of a Public Utility Facility – Solar Array on 2 parcels of property, further identified utilizing Orange County Parcel Identification Numbers of 9881-38-8874 and 9881-49-3072, off of Mt. Sinai Road within the Chapel Hill Township of Orange County.

The owners were identified according to the Tax Records and as required by Section 2.7.5 of the UDO.

The mailed notice specified the date, time, place and subject of the Public Hearing.

WITNESS my hand, this 9<sup>th</sup> day of May, 2014.

A blue ink signature of Michael D. Harvey, AICP, Current Planning Supervisor. The signature is written in a cursive style and is positioned above a horizontal line.

Michael D. Harvey, AICP  
Current Planning Supervisor



# ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT

Craig N. Benedict, AICP, Director

Current Planning  
(919) 245-2575  
(919) 644-3002 (FAX)  
www.co.orange.nc.us



131 West Margaret Lane  
P O Box 8181  
Hillsborough,  
North Carolina, 27278



May 9, 2014

Subject: REVIEW of a Class A Special Use Permit application submitted by Sunlight Partners LLC and Shelia Bishop, Michael Bishop, and Annie Nunn to allow for the development of a **Solar Array/Public Utility Station** on 2 parcels of property located off of Mt. Sinai Road and Cascade Drive (PIN) 9881-38-8874 and 9881-49-3072).

To Whom It May Concern:

This letter is being sent to inform you that the Orange County Board of Commissioners and the Planning Board have scheduled a joint PUBLIC HEARING to review a **Class A Special Use Permit** request, submitted by Sunlight Partners LLC and Shelia Bishop, Michael Bishop, and Annie Nunn (hereafter 'the applicant') to allow for the development of a Public Utility Facility – Solar Array on 2 parcels of property totaling approximately 50 acres in area off of Mt. Sinai Road and Cascade Drive in the Chapel Hill Township of Orange County.

The parcels are further identified utilizing Orange County Parcel Identification Numbers (PIN) 9881-38-8874 and 9881-49-3072 (please see attached vicinity map for additional detail).

As detailed within the application, the applicants are proposing to erect individual solar array panels on the aforementioned parcels. A typical array is 6 to 8 feet in height, with approximately 2 to 4 feet of ground clearance. According to the submitted site plan there shall be no structure erected on the property over 10 feet in height. The arrays shall be screened by existing, and proposed, vegetation and an 8 foot high chain link security fence enclosing the perimeter of the actual leased site to prevent access. Vehicular access to the site shall be restricted to driveway off of Cascade Drive.

The applicant is not proposing to develop a business or other similar office facilities on the property. As a result there is no septic or well system proposed, or required, as part of the project.

Staff has included an 8 ½ x 11 scale site plan providing additional detail on the proposed project.

The properties in question are zoned Rural Buffer (RB) and are located within the Rural Buffer land use category as denoted on the Future Land Use Map of the Comprehensive Plan and the Rural Designated Area as denoted on the Growth Management System Map.

As an adjacent property owner you have the right to address the Board(s) concerning this request. The meeting to review this case is scheduled for **Tuesday May 27, 2014** at 7:00 p.m. in the Department of Social Services, Hillsborough Commons, 113 Mayo St., Hillsborough, North Carolina.

It should be remembered that the review of all special use permit applications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of a application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.

While County regulations and State law do not require that parties be represented by an attorney, it may be in your best interests to secure legal council to represent your interests at the hearing.

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Unified Development Ordinance. Those opposing approval of the application shall have the burden of establishing, also through the submission of competent material and substantial evidence, the specific manner in which the proposal does not satisfy the requirements for approval of the application.

As previously indicated, the Board shall render a decision only on the sworn testimony of all parties and on the competent material and substantial evidence submitted during the hearing.

The full text of the application and staff report for this item may be obtained no later than May 16, 2014 at the County website [www.co.orange.nc.us](http://www.co.orange.nc.us) at the Meeting Agendas link.

If you have any questions concerning this request, please contact staff at (919) 245-2575.

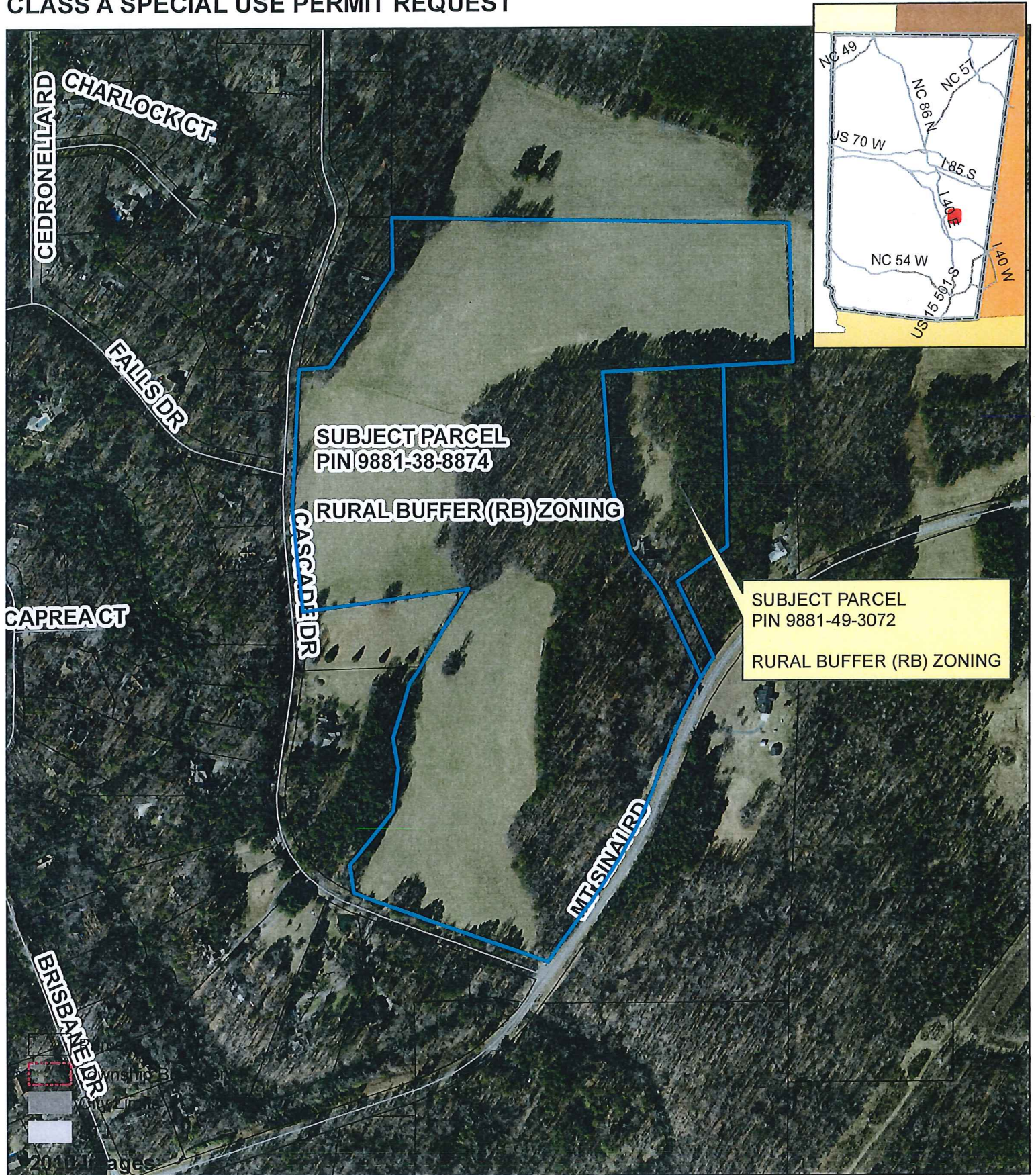
Sincerely,

A handwritten signature in blue ink, appearing to read "Michael D. Harvey", is written over a horizontal line.

Michael D. Harvey, AICP, CFM, CZO  
Current Planning Supervisor  
Planner III  
Orange County



VICINITY MAP - SUNLIGHT PARTNERS LLC  
CLASS A SPECIAL USE PERMIT REQUEST



RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3

1 inch = 400 feet

Orange County Planning and Inspections Department  
01/10/2014











JAMES E SPAINHOUR  
PATRICIA A OLIVER  
5502 CASCADE DR  
CHAPEL HILL, NC27514

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CHARLOTTE H THOMANN  
2521 CHARLOCK CT  
CHAPEL HILL, NC275149609

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CHAPEL HILL, NC27514

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ROBIN M OLSON  
5312 CASCADE DR  
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MILLY S YOUNG  
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JOHN GUNTER PETRANKA  
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SUSAN S MARCHMAN  
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ROBERT SEWELL CANTWELL  
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GINA PASCHALL  
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DAVID LANGHAM  
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CHAPEL HILL, NC27514

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600 COMMERCE DR  
DECATUR, GA300302610

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NANCY T TRUEBLOOD  
5511 CASCADE DR  
CHAPEL HILL, NC27514

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BREVARD, NC28712

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JULIA W BURNS  
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Chapel Hill, NC27514

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5517 CASCADE DR  
CHAPEL HILL, NC27514

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CONSTANZA J DE RADCLIFFE  
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CHAPEL HILL, NC27514

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DAVID PENDER  
2509 CAPREA CT  
Chapel Hill, NC27516

TRIANGLE LAND CONSERVANCY  
1101 HAYNES STREET  
SUITE 205  
RALEIGH, NC27604

TRIANGLE LAND CONSERVANCY  
1101 HAYNES STREET  
SUITE 205  
RALEIGH, NC27604

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BELINDA NOVIK  
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CHAPEL HILL, NC275149620

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ALFRED S KIRKLAND  
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7008 3230 0000 0907 9046

7008 3230 0000 0907 8933

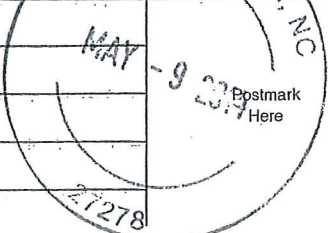
7008 3230 0000 0907 8889



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Certified Fee		
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Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	

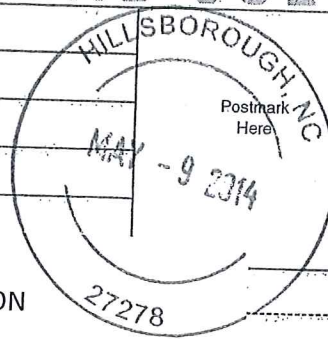
PAMELA MARIE LINDROOS  
CHRIS-ANN CHINCHAR  
73 CRYSTAL OAKS CT  
DURHAM, NC27707

for Instructions

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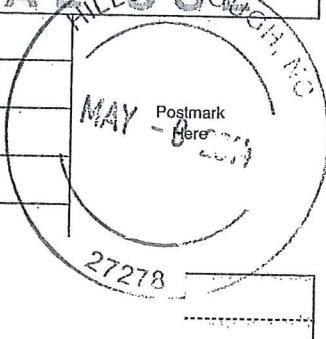
BLAKE A JOHNSON  
JENNIFER M JOHNSON  
5705 CASCADE DR  
CHAPEL HILL, NC275149535

for Instructions

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Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	

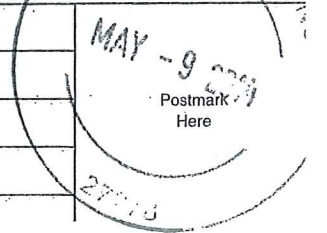
MARGARET PENDER  
DAVID PENDER  
2509 CAPREA CT  
Chapel Hill, NC27516

for Instructions

U.S. Postal Service™ *Planning Harvey*  
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Certified Fee		
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Total Postage & Fees	\$	

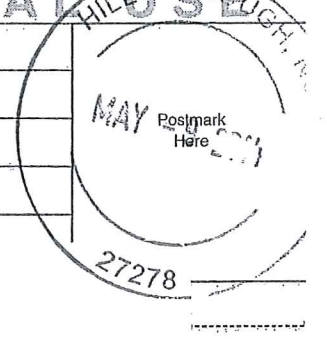
SALLY LYNN GEWALT  
JOHN GUNTER PETRANKA  
2531 FALLS DR  
CHAPEL HILL, NC275149695

See Reverse for Instructions

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Total Postage & Fees	\$	

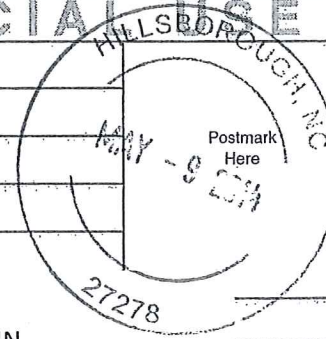
DANIEL NOLAN  
KIM A DONALDSON  
3004 MT SINAI RD  
CHAPEL HILL, NC27514

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SHEILA N BISHOP  
ANNIE VIRGINIA NUNN  
2916 MT SINAI RD  
CHAPEL HILL, NC275149685

for Instructions



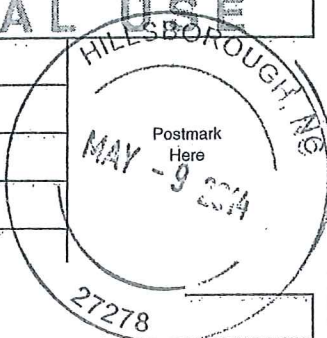
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THOMAS L TRUEBLOOD  
NANCY T TRUEBLOOD  
5511 CASCADE DR  
CHAPEL HILL, NC27514



for Instructions

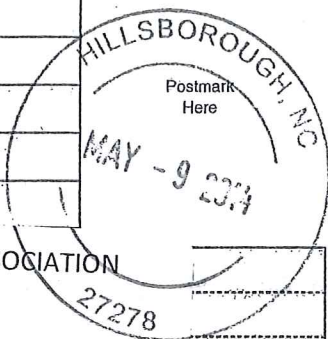
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FALLS OF NEW HOPE ASSOCIATION  
5830 BRISBANE DR  
CHAPEL HILL, NC27514



for Instructions

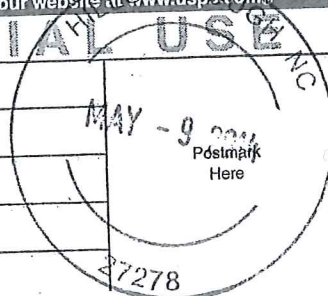
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TRIANGLE LAND CONSERVANCY  
1101 HAYNES STREET  
SUITE 205  
RALEIGH, NC27604



for Instructions

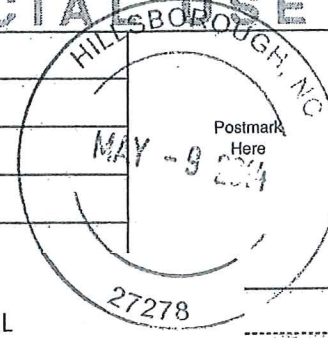
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JOHN W A FINDLAY  
2829 CONNESTEE TRL  
BREVARD, NC28712



for Instructions

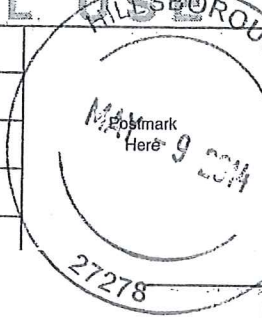
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DONALD WILLIAM BANKS  
600 COMMERCE DR  
DECATUR, GA300302610



for Instructions

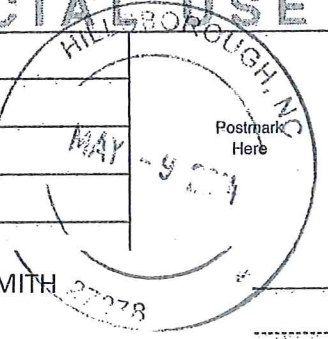
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PATRICIA CAROLE SMITH  
5408 CASCADE DR  
CHAPEL HILL, NC27514



for Instructions



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PATRICIA CAROLE SMITH  
5408 CASCADE DR  
CHAPEL HILL, NC27514

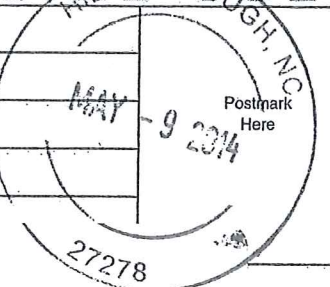
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JEFFREY S PARKIN  
SUSAN J HOERCHER  
2522 CHARLOCK CT  
CHAPEL HILL, NC275149609

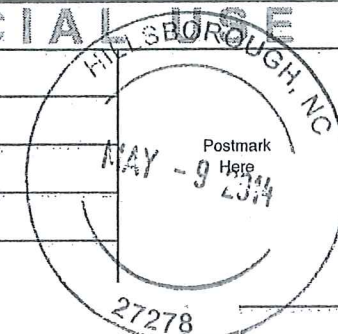
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ROSS E MCKINNEY JR  
HOLLY B MCKINNEY  
2523 CHARLOCK CT  
CHAPEL HILL, NC275149609

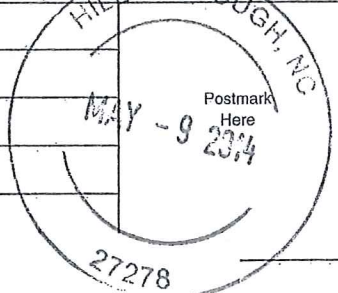
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LARRY MERCER  
LINDA MERCER  
111 BROOK LANE  
DURHAM, NC27712

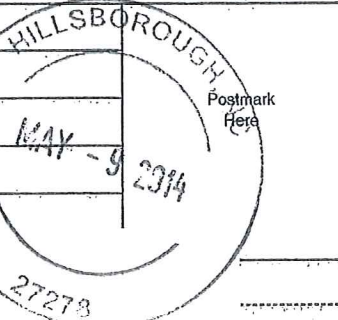
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Total Postage & Fees \$



DAVID B JACKSON  
LAEL W JACKSON  
5721 CASCADE DR  
CHAPEL HILL, NC275149535

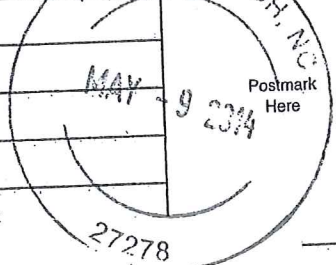
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Restricted Delivery Fee  
(Endorsement Required)  
Total Postage & Fees \$



HOMEGUY INC  
109 RIVER WALK LN  
Carrboro, NC27510

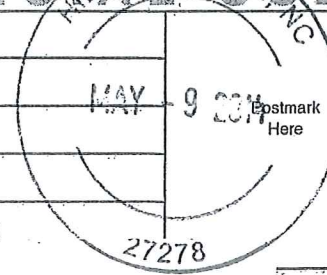
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Postage	\$	
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Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	

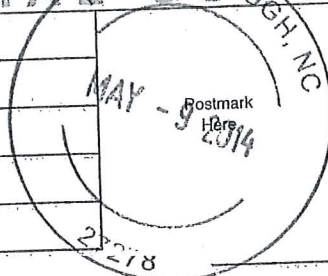
CYNTHIA L VEGA  
5821 CASCADE DR  
CHAPEL HILL, NC27514

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WAYNE R THOMANN  
CHARLOTTE H THOMANN  
2521 CHARLOCK CT  
CHAPEL HILL, NC275149609

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Restricted Delivery Fee (Endorsement Required)		
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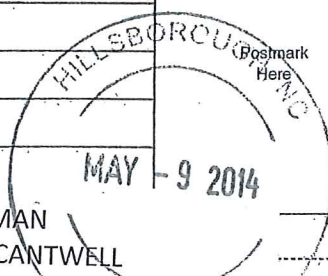
ANNIE VIRGINIA NUNN  
2911 MOUNT SINAI RD  
CHAPEL HILL, NC275149685

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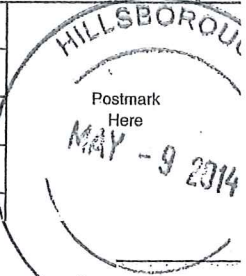
LYDIA NAN WEGMAN  
ROBERT SEWELL CANTWELL  
5704 CASCADE DR  
CHAPEL HILL, NC275149535

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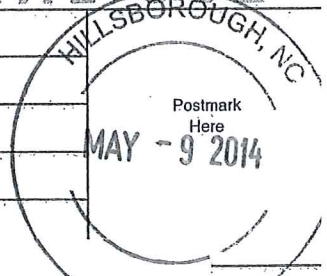
SHARON RYAN  
5701 CASCADE DR  
CHAPEL HILL, NC27514

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MICHAEL L BISHOP  
SHEILA N BISHOP  
2916 MT SINAI  
CHAPEL HILL, NC275149685

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BARRY KATZ  
BELINDA NOVIK  
5801 CASCADE DR  
CHAPEL HILL, NC275149620

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ANDREW C BURNS III  
JULIA W BURNS  
5809 CASCADE DR  
Chapel Hill, NC27514

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GINA PASCHALL  
5505 CASCADE DR  
CHAPEL HILL, NC275149691

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Sent To *Maria Cardani / Columbus*  
Street, Apt. No., or PO Box No. *880 East 11th Ave.*  
City, State, ZIP+4 *Columbus, OH 43211*

PS Form 3800, August 2006

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DONALD KELLUM  
SALLY KELLUM  
5715 CASCADE DR  
CHAPEL HILL, NC275149535

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HARRIETT LU STEVENS  
5517 CASCADE DR  
CHAPEL HILL, NC27514

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MELISSA WALTER  
2518 CHARLOCK CT  
CHAPEL HILL, NC275149609

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ANNIE VIRGINIA NUNN  
2911 MOUNT SINAI RD  
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PS Form 3800, August 2006

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FRED T FOURQUREAN  
ELLEN G FOURQUREAN  
5719 CASCADE DR  
CHAPEL HILL, NC275149535

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27278

JAMES E SPAINHOUR  
PATRICIA A OLIVER  
5502 CASCADE DR  
CHAPEL HILL, NC27514

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ROBERT LEE MARCHMAN IV  
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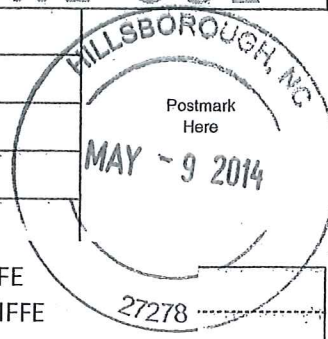
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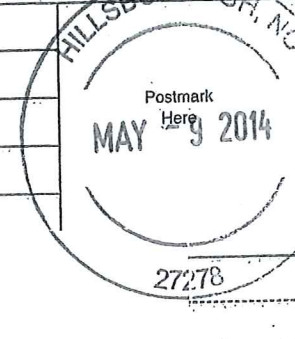
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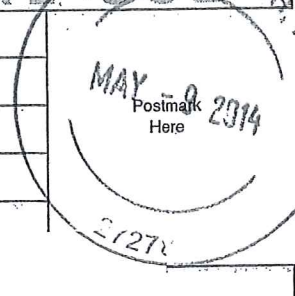
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**ORANGE COUNTY  
BOARD OF COMMISSIONERS AND  
PLANNING BOARD  
QUARTERLY PUBLIC HEARING ACTION AGENDA ITEM ABSTRACT**  
**Meeting Date:** May 27, 2014

**Action Agenda  
Item No.** C.2

**SUBJECT:** Unified Development Ordinance Text Amendment - Public Hearing Process Changes

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**DEPARTMENT:** Planning and Inspections

**PUBLIC HEARING: (Y/N)**

Yes

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**ATTACHMENT(S):**

1. Comprehensive Plan/UDO Amendment Outline Form (UDO/Zoning 2013-07) including Flow Charts of Existing and Proposed Processes
2. Proposed UDO Text Amendments

**INFORMATION CONTACT: (919)**

Perdita Holtz, Planning, 245-2578  
Craig Benedict, Planning, 245-2592

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**PURPOSE:** To hold a public hearing on Planning Director initiated Unified Development Ordinance (UDO) text amendments to change the existing public hearing process for UDO-, Comprehensive Plan-, and Zoning Atlas-related items.

**BACKGROUND:** Please see Section B of Attachment 1 for relevant information.

The "Amendment Outline Form" (Attachment 1) for these amendments was approved by the BOCC at its October 15, 2013 regular meeting.

**FINANCIAL IMPACT:** Existing staff will complete the necessary work required for this project. Changing the public hearing process is not expected to cause financial impacts (negative or positive). Legal ads and mailed notifications, if required, would have to be sent regardless of the process. Internal work flow, both within the Planning Department and in other County Departments that have involvement with agenda setting, will need to be updated/changed. Initial meetings with these departments have indicated that necessary changes can be accommodated.

**RECOMMENDATION(S):** The Planning Director recommends the Board:

1. Receive the proposed amendments to the UDO as detailed in this abstract and attachments.
2. Conduct the public hearing and accept public, BOCC, and Planning Board comment on the proposed amendments.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the BOCC in time for the **September 4, 2014** BOCC regular meeting.
4. Adjourn the public hearing until **September 4, 2014** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

# COMPREHENSIVE PLAN / FUTURE LAND USE MAP AND UNIFIED DEVELOPMENT ORDINANCE (UDO) AMENDMENT OUTLINE

UDO / Zoning-2013-07

Changes to Public Hearing Process

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## A. AMENDMENT TYPE

### Map Amendments

- ☐ Land Use Element Map:  
From: - - -  
To: - - -
- ☐ Zoning Map:  
From: - - -  
To: - - -
- ☐ Other:

### Text Amendments

- ☐ Comprehensive Plan Text:

Section(s):

- ☒ UDO Text:

- ☐ UDO General Text Changes
- ☐ UDO Development Standards
- ☒ UDO Development Approval Processes

Section(s): 2.1, 2.3, 2.7, 2.8, and 5.10.2.

- ☐ Other:

## B. RATIONALE

### • Purpose/Mission

To consider changes to the current public hearing process for Comprehensive Plan, Unified Development Ordinance, and Zoning Atlas amendments. The current public hearing process is comprised of joint quarterly public hearings with the Planning Board and BOCC, which requires a quorum of both Boards.

County staff and elected officials received comments during development of the

Comprehensive Plan (2008) and Unified Development Ordinance (2011) about the perceived need to streamline and speed up decisions on applications.

- **Analysis**

As required under Section 2.8.5 of the Unified Development Ordinance, the Planning Director is required to: ‘cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners’. The following information is offered:

The topic of amending the current quarterly public hearing process was brought up as part of the work on “Agricultural Support Enterprises” (ASE) because the pre-2010 ASE work included a different approval process for ASE-related projects. The September 9, 2013 BOCC work session (held at the end of the quarterly public hearing) materials contain more information about this topic: <http://orangecountync.gov/occlerks/130909.pdf>, including staff’s concern about having a different review process for only certain projects. The purpose of the work session was to obtain BOCC input/direction on the public hearing process, which staff received. There is not total agreement among BOCC members that the current process should be changed. However, a majority of the BOCC directed staff to bring forward proposed changes for public hearing and consideration.

**Proposed Changes**

The following changes to the public hearing process are being proposed:

- End the quarterly hearings for land use and planning-related matters and instead have the BOCC designate a minimum of 8 meetings per year where Comprehensive Plan, UDO, and Zoning Atlas amendments can be heard. The 8 meetings (minimum) would be designated each Fall when the BOCC approves its meeting schedule for the following calendar year; the public hearing dates could occur in conjunction with any type of meeting on the BOCC calendar (regular, work session, etc.) – it would be at the discretion of the BOCC each year.
  - It should be noted that public hearings dates between the 10<sup>th</sup> and the 20<sup>th</sup> of the month would generally provide the greatest level of efficiency from a timing streamlining standpoint. This is because the Planning Board meets on the first Wednesday of each month (with agenda materials distributed the last Wednesday of each month). Designating public hearing dates mid-month means that applications are not “sitting” waiting for further action, as could happen if the public hearing is held early in the month, and it gives staff time to research any issues that arise at the public hearing, something that is not always possible to do when the hearing occurs late in the month since Planning Board agenda distribution must occur on the last Wednesday of each month.
  - When designating meetings each year, the BOCC may wish to consider designating meetings that are filmed and available on Granicus so that interested people, including Planning Board members, can view the public hearing. It should be noted that the existing quarterly public hearings are not

filmed. It is also Planning staff's understanding from the Clerk's office that the BOCC is considering filming more of its meetings in the future (e.g., work sessions) if funding is available.

- Stop holding the public hearings as joint hearings with the Planning Board. The Planning Board is an advisory board comprised of volunteers and there are sometimes issues of having a quorum of members present for hearings/meetings. A joint hearing cannot occur without a quorum of members from both Boards. If the proposed process is adopted, the Planning Board will provide a recommendation to the BOCC after the public hearing. This would allow Planning Board members to either attend the public hearing or view the hearing on the internet (if available) after the hearing occurs but before the Planning Board meeting in order to hear public comments prior to making a recommendation. The proposed process flow charts of the current process and the proposed process are included at the end of this Form.
  - The September 9, 2013 work session materials included flow charts depicting other possible processes. Staff received fairly strong input at the work session that the Planning Board should make its recommendation after the public hearing, so the proposed amendments have been written to implement this process.
- It should be noted that staff is suggesting that the policy of having the BOCC approve the required legal advertisement would be removed as part of the streamlining effort. If the BOCC decides to continue the policy of approving the legal advertisement as a Consent Agenda item, it should be noted that doing so adds approximately 3 weeks to the front-end of the application deadline date. This is due to agenda deadline dates to have a Consent Agenda item.
  - If the BOCC desires to continue to review the legal advertisement prior to publication, the BOCC may wish to discuss whether it needs to be an item on a Consent Agenda or whether the draft legal advertisement can be circulated to BOCC members via e-mail for comment a few days before publication deadlines.

### Background

As staff indicated at the work session, Orange County's typical review timeframe in recent years (4-5 months from application deadline to BOCC decision) compares favorably to other North Carolina local governments. One of the more significant differences is that most local governments in North Carolina have a monthly public hearing cycle rather than the quarterly cycle Orange County adheres to.

It is also notable that the current process was put into place at least 20 years ago and one of the purposes was so residents who took interest in the types of matters heard at the quarterly hearings would know in which months the hearings occur. Dissemination of information was quite different 20+ years ago when compared to today. The availability of agendas and hearing information on the internet makes it easier for interested persons to keep apprised of matters in which they are interested whereas 20+ years ago, interested people likely had to obtain hard copies of

agendas/materials directly from the County Clerk.

### Agenda Process

Internal processes in the Planning Department, Manager's Office, and Clerk's office will need to be updated if the amendments are adopted. Initial meetings between the departments have indicated that necessary adjustments can be made although it will be a change from existing processes. An example of an internal change is that, in order to meet statutory requirements, the first legal advertisement for the public hearing would run on the same day internal departmental agenda review occurs (generally Wednesday afternoon). The current internal agenda setting process allows items to be "bumped" from agendas if necessary; public hearing items could not be "bumped" without incurring costs of running new legal advertisements and running cancellation ads, if necessary. Additionally, for items that require mailed notifications, Planning staff would likely have already prepared the notifications for mailing by the time agenda review occurs, although the actual mail out is on Friday.

If public hearing dates are chosen that do not correspond to a regular BOCC meeting, for example, holding public hearings on BOCC work session dates, the internal agenda process is different. However, staff would have little ability to remove public hearing items that were filed by published application deadline dates.

The existing practice of isolating UDO/Comprehensive Plan-related items on separate meeting agendas (the quarterly public hearings) likely results in more predictable BOCC regular meetings since some planning-related items can generate a great deal of public interest and comment. However, most items in recent years have not had significant public comment at the quarterly public hearings.

Currently, quarterly public hearing agendas are normally posted to the website at least 10 calendar days prior to the public hearing. If land use public hearings become part of the BOCC agendas, the materials for the public hearing would be posted along with the BOCC agenda (generally 4 calendar days prior to the meeting date).

Orange County's practice of holding quarterly public hearings is fairly unique in North Carolina (staff is aware of only one other local government – the Town of Hillsborough – that limits public hearing dates to only four times per year). Most local governments in North Carolina have at least one meeting per month where planning-related items can be heard (either as part of a regular meeting or as a meeting completely set aside for planning-related items); some have more than one meeting per month. It should also be noted that having more potential public hearing dates per year would likely spread out the same number of items per year over more meetings (e.g., there would be fewer items per hearing date). The number of items Orange County typically hears in a given year likely does not warrant a monthly meeting set aside only for planning-related items since there have been quarterly public hearing dates with only a small number of "easier" items.

It should be noted that, especially for non-government initiated items, it could be undesirable to limit the number of items on any particular agenda if the applicant has met the application deadline date. Staff's informal polling of local government

processes has indicated that most local governments put all applications that were received by the filing deadline on the designated agenda, even if some must get tabled to a future meeting due to time constraints; some will call a special meeting in months that are particularly busy. A small number of local governments limit the number of items that can be placed on any one agenda or informally work with applicants to get permission to place items on a later agenda if the agenda for a particular meeting has gotten very full.

#### Planning Board Involvement

The existing practice of holding a joint public hearing (governing body/Planning Board) is also fairly unique (although the Town of Hillsborough also operates this way). With a joint hearing, a quorum of members of both boards is necessary in order to legitimately hold the hearing. Some local governments have the Planning Board make a recommendation on items prior to the public hearing while other local governments have the Planning Board make a recommendation after the public hearing. Either process can work well, depending on the desires of the local government. If a recommendation is made before the public hearing, the Planning Board focuses its review on the technical merits of an item. If a recommendation is made after the public hearing, the Planning Board's recommendation can take into consideration comments made at the public hearing. BOCC input at the September 9, 2013 work session leaned strongly toward having the Planning Board make its recommendation after the public hearing and this is how the proposed amendment has been written.

#### Closure of Public Hearings

In April 2014, Planning staff became aware that the BOCC may also wish to discuss the current process related to closing public hearings and/or how the closure of public hearings appears on the BOCC agenda. The current process, which has not proposed for changes at this time, is to keep the public hearing open in order to allow interested persons to submit written comments to the Planning Board and to appear before the Planning Board, so long as the person's oral comments are consistent with their submitted written comments. This has been the process for well over a decade, and possibly since the establishment of zoning in Orange County, because it allows people to address the Planning Board but also ensures that comments made after the oral public hearing are documented and the BOCC is aware of additional comments.

Because the UDO allows written comments to be made after the oral public hearing, the public hearing is held open in order to receive any submitted written comments. Formerly, the public hearing was not necessarily held open to a date-time certain but in the '00s, case law was made in North Carolina which prompted the County Attorney at the time to begin advising the County that public hearings must be adjourned to a specific date/time because failure to do so could result in legal challenges.

If the current process regarding allowing written comments is kept intact, a solution to the potential confusion that might result with a planning-related item being listed on the BOCC agenda under "Public Hearings" but with no additional comment accepted could be that a new Section is added to the BOCC agenda specifically for planning-

related public hearing items. Perhaps “Acceptance of Planning Board Recommendation and Decision on Land Use and Planning-Related Matters,” or similar phrasing, may be appropriate. Since the public hearing process may be changing and “real” planning-related public hearing items (e.g., oral comments accepted) might be listed on the BOCC agenda, it may be even more desirable to add an additional Section to the BOCC agenda to better differentiate oral public hearings from items that are on the agenda to close the public hearing and take action.

Staff has written a document outlining various options for closure of the public hearing. Staff surveyed other jurisdictions in North Carolina to help determine various options for handling the public hearing process. The document is included at the end of this Form.

- **Comprehensive Plan Linkage (i.e. Principles, Goals and Objectives)**

**Land Use Goal 6:** A land use planning process that is transparent, fair, open, efficient, and responsive.

- **New Statutes and Rules**

N/A

## C. PROCESS

### 1. **TIMEFRAME/MILESTONES/DEADLINES**

a. BOCC Authorization to Proceed

October 15, 2013

b. Quarterly Public Hearing

February 24, 2014 – postponed to May 27, 2014 QPH due to time constraints at February QPH

c. BOCC Updates/Checkpoints

January 8, 2014 – Planning Board ORC (agenda materials are available to all interested persons)

February 4, 2014 – approval of legal ad for February quarterly public hearing

May 8, 2014 – approval of legal ad for May quarterly public hearing

September 4, 2014 – receive Planning Board recommendation and make decision

d. Other

### 2. **PUBLIC INVOLVEMENT PROGRAM**

**Mission/Scope:** Public Hearing process consistent with NC State Statutes and

Orange County ordinance requirements.

a. Planning Board Review:

January 8, 2014 – ORC (Ordinance Review Committee)

The ORC had minor questions and comments which have been incorporated into the draft materials. The Summary Notes from the ORC meeting have been included at the end of this form.

June 4, 2014 - recommendation

b. Advisory Boards:



c. Local Government Review:

Proposed text amendments were sent to JPA partners (Towns of Chapel Hill and Carrboro) on January 13, 2014 in accordance with the JPA Agreement since any project in the Rural Buffer requiring a public hearing would be subject to any new process. To date, no comments have been received from the JPA partners.

Planning staff has worked, and will continue to work, with the County Clerk and Manager's Office to ensure the proposed public hearing process will work as smoothly as possible with the processes/systems used by these Departments.



d. Notice Requirements

Consistent with NC State Statutes – legal ad prior to public hearing

e. Outreach:

☐ General Public:

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☐ Small Area Plan Workgroup:

--

☐ Other:

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### 3. **FISCAL IMPACT**

Consideration and approval will not create the need for additional funding for the provision of County services. Costs for the required legal advertisement will be paid from FY2013-14 Departmental funds budgeted for this purpose. Existing Planning staff included in the Departmental staffing budget will accomplish the work required to process this amendment.

## **D. AMENDMENT IMPLICATIONS**

If adopted, the amendments would change the existing process used by Orange County



to review Comprehensive Plan, Unified Development Ordinance, and Zoning Atlas amendments. See section “B” above for additional information.

## E. SPECIFIC AMENDMENT LANGUAGE

See Attachment 2.

**Primary Staff Contact:**

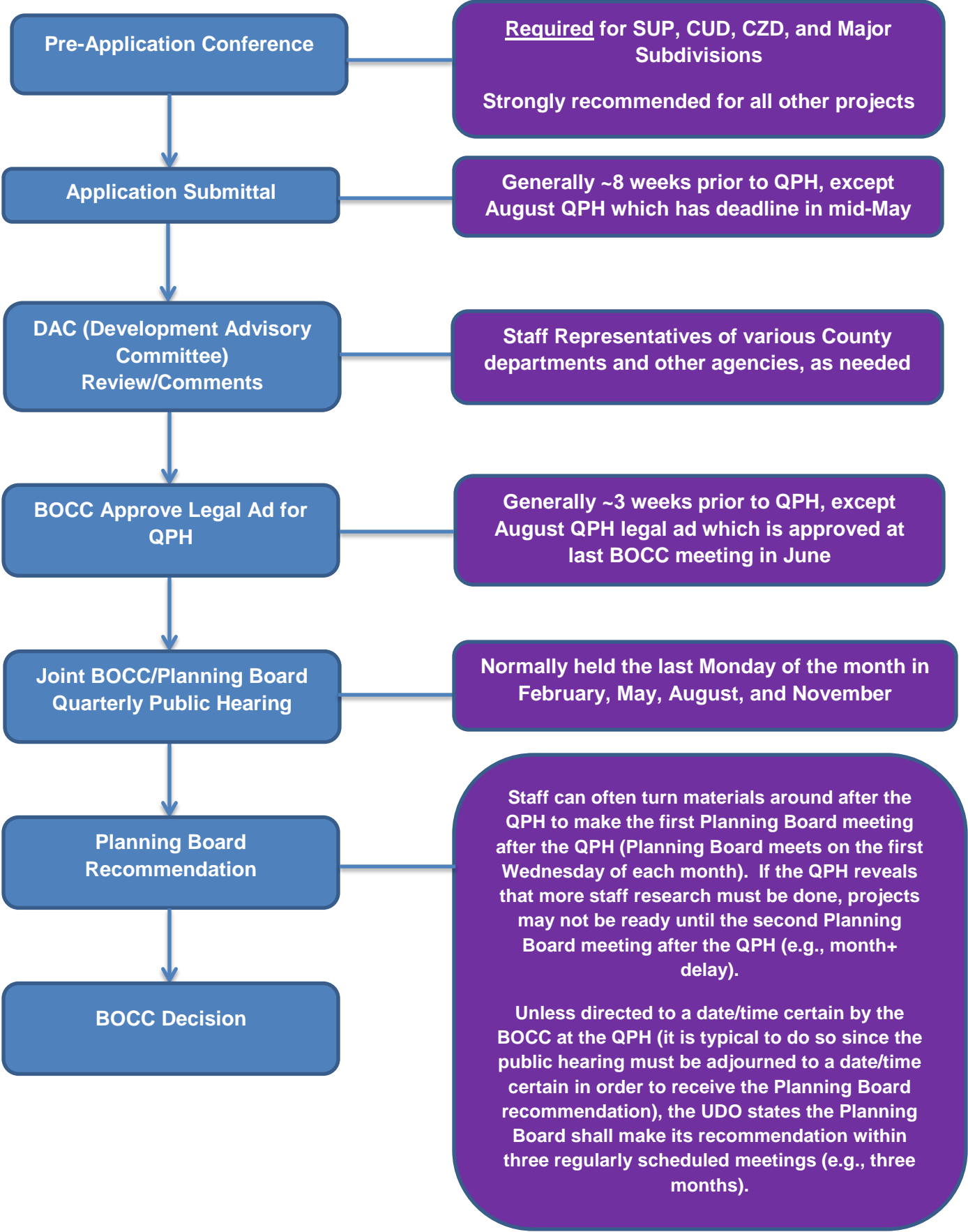
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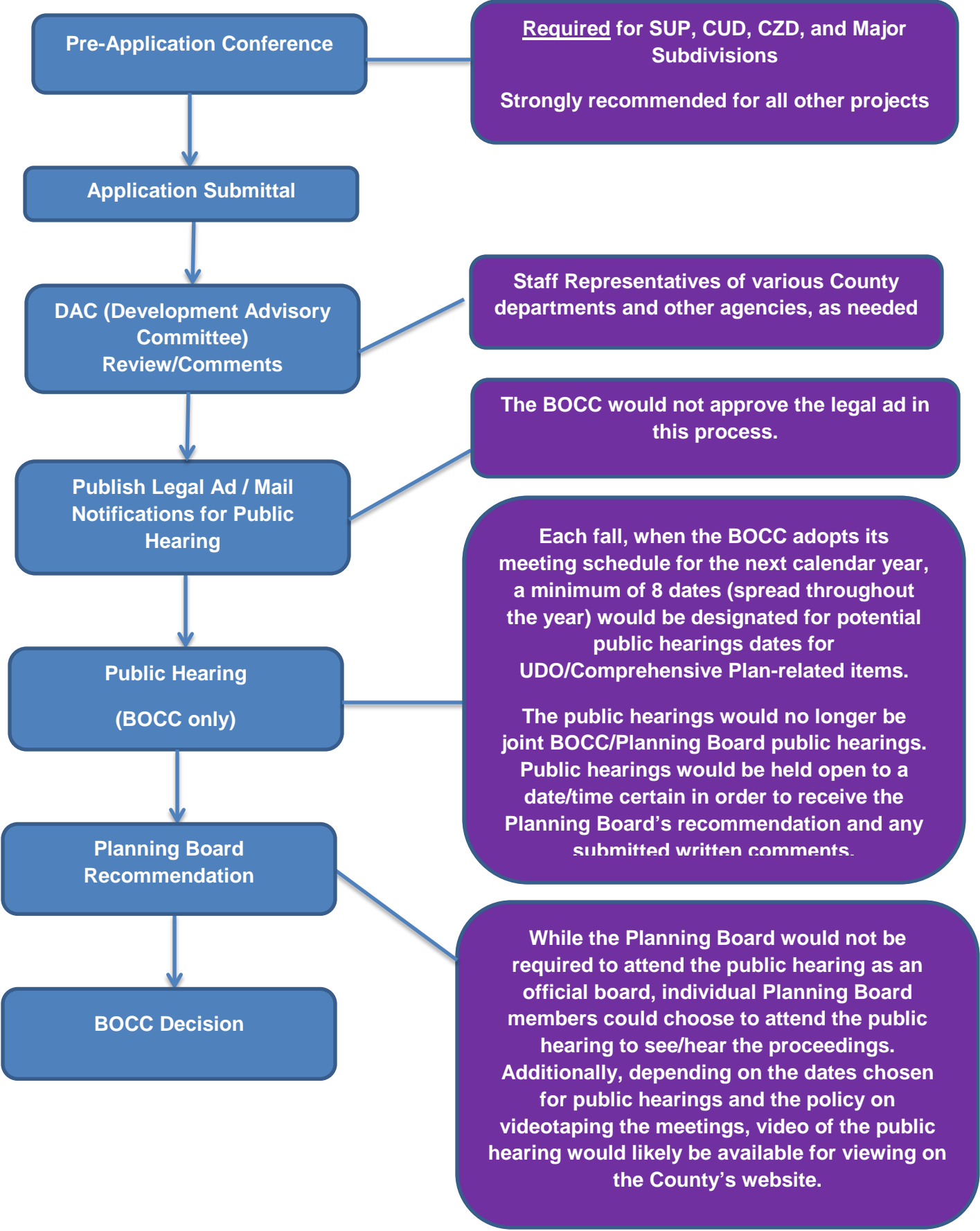
Existing Review Process for non-County-initiated actions that require a BOCC public hearing



The timeframe from Application Submittal to BOCC Decision is similar for the Existing Process and Proposed Process (a minimum of 4-5 months). From a time perspective, the primary difference between the existing process and the proposed process is the greater number of application due dates per year. There are currently 4 due dates per year, which means that if someone is ready to apply and the application due date is still 2 months away, the application can be submitted but action towards a decision would be on hold for 2 months. If there were a more frequent application deadline and public hearing schedule, the process would be more efficient for some applicants.

In recent years, Orange County’s timeframe from application deadline dates to decision compares favorably to most local governments in North Carolina. One of the main differences is that most other local governments have a monthly public hearing cycle rather than the quarterly public hearing cycle Orange County adheres to. Additionally, the practice of having the BOCC approve the legal ad for the public hearings adds additional time (approximately 3 weeks, much more for the August QPH) to the front-end of the schedule since the application deadline date must be early enough to place the legal ad approval item on a BOCC agenda prior to newspaper ad deadline dates.

Proposed Review Process



The timeframe from Application Submittal to BOCC Decision is similar for the Existing Process and Proposed Process (a minimum of 4-5 months). From a time perspective, the primary difference between the existing process and the proposed process is the greater number of application due dates per year. There are currently 4 due dates per year, which means that if someone is ready to apply and the application due date is still 2 months away, the application can be submitted but action towards a decision would be on hold for 2 months. If there were a more frequent application deadline and public hearing schedule, the process would be more efficient for some applicants.

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**Options for Closing Public Hearing**  
**(with salient points included in bullets)**

1. Hold public hearing open until a date/time certain in order to receive written comments made to the Planning Board.
  - This is the existing process which can be kept in place even if the Planning Board no longer attends public hearings as a formal board.
  - This process ensures the BOCC is apprised of all comments made during the project's review.
  - This process should be retained for quasi-judicial matters (special use permits) in order to meet requirements related to quasi-judicial issues.
    - Several jurisdictions in North Carolina have different processes for legislative vs. quasi-judicial projects, including some jurisdictions in which the Planning Board does not make a recommendation on quasi-judicial matters. However, some types of projects require both a rezoning (legislative) and a special use permit (quasi-judicial) so it can be problematic to have the Planning Board review only certain aspects of an overall action. (This was a point of confusion during the Buckhorn Village deliberations, which occurred prior to the UDO making it clear that the Planning Board makes a recommendation on Class A SUPs. The former zoning ordinance was unclear on whether the Planning Board acts on Class A SUPs).
  - Requiring written comments after the oral public hearings helps to ensure that the Planning Board meeting does not become a defacto second public hearing where new oral comments may be made on controversial matters.
  - If the Planning Board were to make a recommendation prior to the oral public hearing, the process could be different.
    - Staff received fairly strong direction at the September 9, 2013 work session that it was desirable for the Planning Board to make its recommendation after the oral public hearing.
  - Confusion related to how items are listed on the BOCC agenda when the public hearing is being closed and no additional comments are accepted could be addressed by adding a new section to the BOCC agenda specifically for these types of items.
    - "Acceptance of Planning Board Recommendation and Decision on Land Use and Planning-Related Matters," or similar phrasing, may be appropriate.
2. Close public hearing the night of the hearing.
  - The Planning Board could not consider any additional comments (oral or written) after the public hearing is held.

- This point is relevant only if the Planning Board makes its recommendation after the public hearing, rather than before the public hearing.
  - Can be problematic if additional information is requested at the public hearing.
    - In instances where additional information is requested at the hearing, the public hearing would have to be held open to a date/time certain in order to receive the additional information.
  - In some NC jurisdictions, the public hearing is closed and a decision is made at the same meeting.
    - This process can function only if the Planning Board makes its recommendation prior to the public hearing or if the Planning Board also attends the public hearing and makes its recommendation the same night.
    - In instances where more information is needed, the hearing would be continued to a date/time certain.
    - Past BOCCs have stated a desire to not make decisions the same night as the hearing.
3. Hold two separate public hearings – one for the Planning Board and one for the BOCC – and close both hearings the same night as the hearing
- This potential process was discussed at the September 9, 2013 work session but was not favored.
    - Would result in the need for advertising both public hearings, thereby doubling advertising costs
      - Orange County already advertises in two publications (State statutes require advertising in only one) so the County's advertising costs are already higher than necessary to meet statutory requirements.
        - Staff notes that a policy decision was made many years ago when developing the fee schedule that the advertising costs for only one publication are included in the application fee applicants pay. The annual Planning Department budget includes covering the costs of advertising in two publications.
  - This hearing process has the potential to result in widely divergent points of view being expressed at the separate public hearings, depending on whether interested persons choose to attend both hearings or only one hearing.



Approved 2/5/14

<p>Excerpt of ORC Meeting Notes</p>
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**SUMMARY NOTES**  
**ORANGE COUNTY PLANNING BOARD**  
**JANUARY 8, 2014**  
**ORDINANCE REVIEW COMMITTEE**

NOTE: A quorum is not required for Ordinance Review Committee meetings.

**MEMBERS PRESENT:** Peter Hallenbeck (Chair), Cheeks Township Representative; James Lea, Cedar Grove Township Representative; Herman Staats, At-Large, Cedar Grove Township; Paul Guthrie, At-Large, Chapel Hill Township; Tony Blake, Bingham Township Representative; Buddy Hartley, Little River Township Representative; Johnny Randall, At-Large Chapel Hill Township;

**STAFF PRESENT:** Craig Benedict, Planning Director; Michael Harvey, Current Planning Supervisor; Perdita Holtz, Special Projects Coordinator; Ashley Moncado, Special Projects Planner; Jennifer Leaf, Planner I; Tina Love, Administrative Assistant II

**AGENDA ITEM 1: CALL TO ORDER AND ROLL CALL**

**AGENDA ITEM 2: UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENTS – CHANGES TO THE PUBLIC HEARING PROCESS**

To continue review and comment upon proposed revisions to the UDO to change the existing public hearing process and to amend other provisions that need to be changed if the public hearing process is amended.

**Presenter:** Perdita Holtz, Special Projects Coordinator

Perdita Holtz: Reviewed abstract.

Pete Hallenbeck: I think the chart on page 11 is really good, it tells you what's going on. I also like the idea of discontinuing the joint BOCC/Planning Board meetings. It seems like the role of the Planning Board during these meetings tends to be just to sit there and there are other opportunities for the Planning Board to voice its concern. There is nothing to keep Planning Board members from attending the public hearing and I would not object if it was decided that the Planning Board Chair was required to be at the public hearing or at least somebody from the Planning Board. I do think it is good and important when you have citizen input to be able to hear it in addition to just reading it. I think not having the joint meeting is good but I'd like to have a mechanism where someone from the Planning Board is there so they can get more than the word. There are comments from both the Commissioners and the public during the hearing and it would be good to have a member present to hear them.

Paul Guthrie: Basically, I think this is a good move for a couple of reason. One is the increased number of hearing opportunities which I think can expedite a lot of the procedure and maybe take a little pressure off the planning staff since it gets spread out. They don't have to dump everything into four quarters. I do have a couple of questions. One is what kind of communication summarizing the public hearing will be transmitted to the Planning Board so that the Planning Board can intelligently consider the topic?

Perdita Holtz: It is unlikely that official quarterly public hearing minutes would be available quick enough for Planning Board meetings. We are envisioning that the Planning Board meeting would occur within two to three weeks after the public hearing and generally meeting minutes take longer than that for the Clerk's office to turn around. It would probably be, if the Planning Board was not going to view the meeting on the internet in the comfort of your own home, similar to what happens now where comments that were made are in the amendment outline form and the abstract and we provide a staff response, as necessary, to those comments. So it would pretty much be a staff report of what took place.

Pete Hallenbeck: I also like the quicker review and more meetings and less time for the public to get something through. That is certainly the number one point of all of this.

Perdita Holtz: I should mention that it is probably not going to be less time from application deadline to decision but there will be more opportunities for someone to submit an application. If they miss a deadline, they don't have to wait as long until the next application deadline.

Paul Guthrie: On page 19, in the new language, Planning Board shall make a recommendation based on information entered into the record at the public hearing but not make the finding required in section 5.3.2A. Does that mean that it is going to be the individual duty of the Planning Board member to look at all the documentation put in the public record at the time of the hearing in order to justify its decision?

Perdita Holtz: No, this is for Special Use Permits. They don't come along that often but for Class A Special Use Permits there is a 15 page form of yes/no answers that staff fills out for the Planning Board on whether it meets the requirements of various sections such as if they have enough landscaping, if they have enough buffer, etc. and we check yes or no in staff's opinion and then the Planning Board either concurs with that opinion or dissents from that opinion. On that form there are four questions that staff does not make a recommendation on and those are things that the Planning Board has to come to its own conclusion about and the BOCC has to come to its own conclusion as well. Those are the section referenced here and if you were not at the hearing it would be legally murky to make those findings if you weren't in attendance so that is what this is in reference to. I should also mention that on page 17, the language of 2.3.10b needs to be revised a little bit before it goes to public hearing so that will be changing from what you see in front of you here.

Paul Guthrie: You have similar language in 2.8.8b. Another question, have you thought about how you would space the 8 mandatory hearing dates?

Perdita Holtz: It is going to be up to the BOCC to decide that but we as staff are going to recommend to them that they probably do hearings in the months of February, March, April, May, September, October, November. January they only have one meeting per year and it is usually very full and in December those are the last meetings before the break so we don't want to put them there plus the agenda deadlines are different due to the holidays. June is off as it is very budget heavy month when they have to adopt the budget by the end of the month. That is our staff recommendation but the BOCC will stagger them however they want.

Paul Guthrie: Again in 2.8.8e, which is existing language, do you think that existing language is a little too restrictive given the new format of not having the joint hearings? Essentially, the first time we'll be exposed to testimony will be in the presentation at the Planning Board meeting and does that mean we cut off verbal testimony.

Perdita Holtz: The reason it was adopted was the BOCC did not want to have oral evidence at the Planning Board meetings that they did not also hear. That is why this language exists. The meeting at the Planning Board is not going to be an official public hearing it is just a regular Planning Board meeting and technically people will not be able to come and speak if they don't also have their comments in writing. If you think that is not desirable, you can make a recommendation to look at that or change the language.

Paul Guthrie: I would encourage you to think about it because, and I'm wondering if that may even need to be elaborated on a little bit, because if somebody wants to come the Planning Board meeting or only knows about it through the Planning Board then we are advising County Commissioners who have already had a hearing. It bothers me a little bit.

103 Pete Hallenbeck: I think that could be mentioned to the Commissioners but it is definitely their call. I see their  
104 concern that the Planning Board meeting would not be a public hearing. If people show to speak all of a sudden it is  
105 a public hearing but the Planning Board is a mechanism for receiving input.  
106

107 Paul Guthrie: Does that mean inversely if someone wants to speak on the subject on our agenda, they cannot  
108 speak.  
109

110 Pete Hallenbeck: The way I read it is if they have something written down they are allowed to come and give it to  
111 the Board. I think the Planning Board could interact with them if they had questions or clarifications. The only thing  
112 I would worry about with someone giving just oral evidence at the Planning Board meeting is that has to be carefully  
113 documented as we certainly don't a scenario where someone says they said something at a meeting and there is  
114 no documentation of it. The public hearing is better equipped for that. Finally, the Commissioners may, for the  
115 same reason that I was, want to have Planning Board member present at the public hearings. I think the  
116 Commissioners get a lot from hearing people talk and how they speak and how passionate they are and that might  
117 be another reason they want to make sure that if somebody's just doing an oral presentation, they hear it. If staff  
118 wanted to bounce that off the Commissioners and verify, yes we want oral presentations only at the County  
119 Commissioners' meetings and anything presented at Planning Board should be written, they can verify that. I am a  
120 little nervous about the Planning Board taking oral presentations we have to be careful of the interactions and  
121 cannot promise anything like they can. The vote we have is not binding and the Commissioners are not at Planning  
122 Board meetings to get all those nuances that come with an oral presentation.  
123

124 Paul Guthrie: I have some concerns in the bigger picture than this topic. Putting that kind of restrictions on  
125 communications to a citizen advisory board. I think it's a road we have to be very careful about how we define  
126 because it could have major implications on the ability of this Board to function in what I perceive is what it's  
127 capacity is. That goes beyond this.  
128

129 Pete Hallenbeck: I do believe it does have to be carefully spelled out. You could have problems if you said all you  
130 can do is come and give us written paper and I think you would have a problem if anyone could just walk in and  
131 start talking and interacting and how the Planning Board would convey that to the Commissioners.  
132

133 Paul Guthrie: I'm done.  
134  
135

\*\*\*\*\*

**Amendment Package to Change Existing Public Hearing Process****Notes**

The pages that follow contain the amendments necessary to the Unified Development Ordinance (UDO) text to adopt changes to the existing public hearing process for Comprehensive Plan- and Unified Development Ordinance-related hearing items.

Proposed additions/changes to existing UDO text are depicted in **red**. Some of the proposed changes utilize footnotes to provide a brief explanation as to rationale. Users are reminded that these excerpts are part of a much larger document (the UDO) that regulates land use and development in Orange County. The full UDO is available online at: <http://orangecountync.gov/planning/Ordinances.asp>

Please note that the page numbers in this amendment packet may or may not necessarily correspond to the page numbers in the adopted UDO because adding text may shift all of the text/sections downward.

Some text on the following pages has a large "X" through it to denote that these sections are not part of the amendments under consideration. The text is shown only because in the full UDO it is on the same page as text proposed for amendment. Text with a large "X" is not proposed for deletion; proposed deletions are shown in **red strikethrough** text.

## ARTICLE 2: PROCEDURES

### SECTION 2.1: REVIEW AND DECISION MAKING AUTHORITY – SUMMARY TABLE

The following table provides a brief synopsis of the review and decision-making processes for development applications.

TABLE 2.1: REVIEW AND DECISION MAKING AUTHORITIES						
R=REVIEW DM=DECISION MAKER PH=PUBLIC HEARING						
ZONING/DEVELOPMENT REVIEW RELATED PROCEDURES	PLANNING DIRECTOR	EROSION CONTROL OFFICER	DEVELOPMENT ADVISORY COMMITTEE (DAC)	BOARD OF ADJUSTMENT	PLANNING BOARD	BOCC
Zoning Compliance Permits	R and DM	R	R			
Soil Erosion and Sedimentation Control Permits		R and DM				
Stormwater Management Plans		R and DM				
UDO Text Amendments	R		R		R [1]	DM and PH
Zoning Atlas Amendments	R		R		R [1]	DM and PH
Special Use Permits	R	R	R	DM and PH Class B	R [1] Class A	DM and PH Class A
Zoning Variances	R		R	DM and PH		
Conditional Use	R	R	R		R [1]	DM and PH
Appeals/Interpretations	R		R	DM and PH		
Comprehensive Plan Amendments	R				R [1]	DM and PH
Subdivision Related Procedures						
Exempt	R and DM					
Minor	R and DM	R	R			
Major	R	R	R		R and DM [2]	R and DM
Conditional Use	R	R	R		R [1]	R, DM, and PH
Appeal						
NOTES						
[1]	<del>The Planning Board attends a Joint Public Hearing with the BOCC to review all zoning related items requiring a public hearing. The Planning Board will have the item referred to it and shall have up to 90 days to comment on the application.</del> A public hearing is held by the BOCC after which the item is referred to the Planning Board for recommendation. The referral motion shall hold the public hearing open to a date/time certain in order for the BOCC to receive the Planning Board recommendation and any written comments submitted after the public hearing.					
[2]	The Planning Board approves the Concept Plan for a Major Subdivision and then makes a recommendation on the Preliminary Plat to the BOCC.					



### 2.2.8 Effect of Denial on Subsequent Applications

- (A) If the Board of County Commissioners denies an application, or the application is withdrawn subsequent to notice of the public hearing thereon, no application for the same or similar amendment, affecting the same property or a portion of it, may be submitted for a period of one year. Said one year period begins on the date of denial or withdrawal, as appropriate.

## SECTION 2.3: COMPREHENSIVE PLAN AMENDMENTS

### 2.3.1 Review and Approval Flow Chart

The review and approval process for Comprehensive Plan Amendments is shown in the procedure's flowchart.

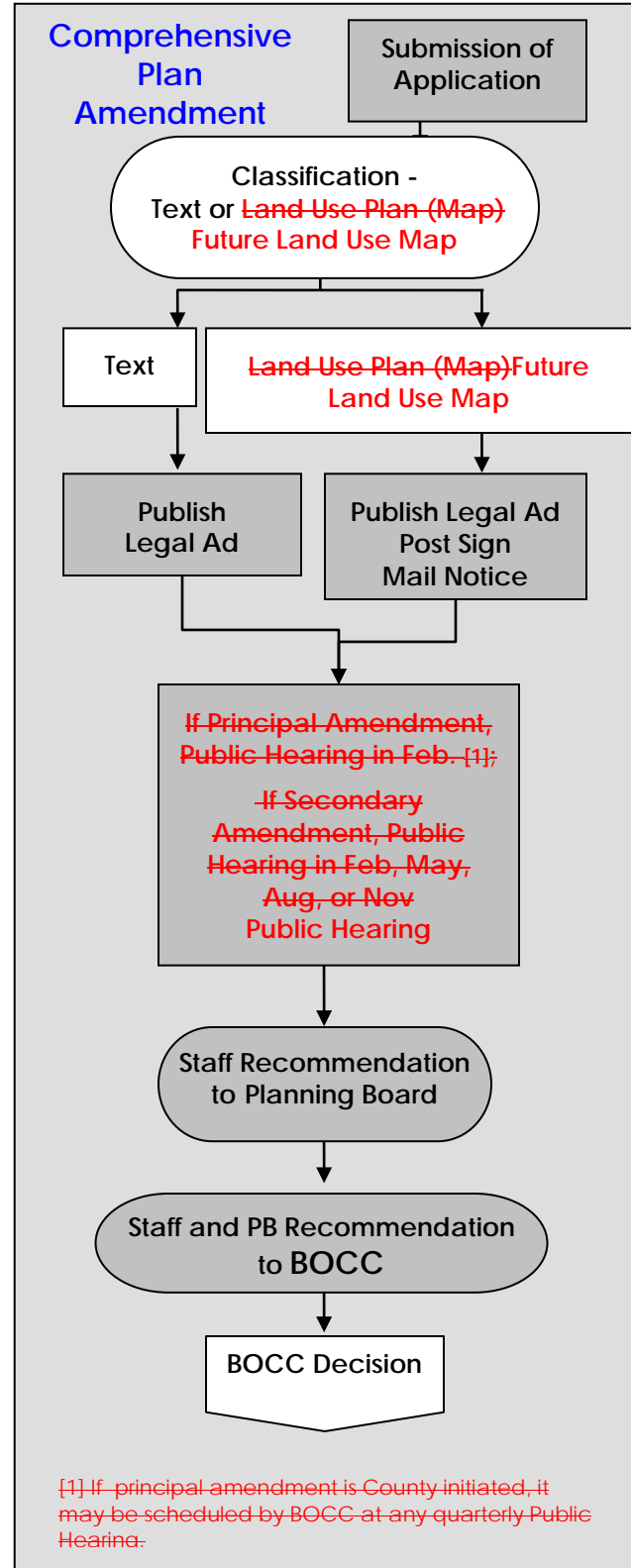
### 2.3.2 Generally

- (A) The Comprehensive Plan shall be so prepared that all or individual elements and parts thereof may be adopted and/or amended by the Board of Commissioners.
- (B) For the purpose of establishing and maintaining sound, stable, and desirable development within Orange County, the Comprehensive Plan or portion thereof shall not be amended except as follows:
- (1) Because of changed or changing conditions in a particular area or areas of the County;
  - (2) To correct an error or omission; or
  - (3) In response to a change in the policies, objectives, principles or standards governing the physical development of the County.

### 2.3.3 Initiation of Amendments

An amendment to the Comprehensive Plan or portion thereof may be initiated by:

- (A) The Board of Commissioners on its own motion;
- (B) The Planning Board;
- (C) Application, by any person or agency, which accurately and completely sets forth the reason(s) for the proposed amendment as



- prescribed in Section 2.3.2(B); or
- (D) The Planning Director.

#### **2.3.4 Classification of Amendments<sup>1</sup>**

~~Amendments to the Comprehensive Plan or portion thereof are classified as "principal" or "secondary" amendments.~~

**(A) Principal Amendments Include**

- ~~(1) Additions to or modifications of policies, objectives, principles or standards;~~
- ~~(2) The creation of new activity nodes or additions to existing activity nodes which exceed ten acres in land area; or~~
- ~~(3) Proposals for new freestanding plan areas or additions to existing areas that exceed 100 acres in land area.~~

**(B) Secondary Amendments Include**

- ~~(1) The expansion of an activity node where the additional area is contiguous to an existing node and does not increase its land area by more than ten acres;~~
- ~~(2) The expansion of a designated plan area where the additional area is contiguous to the existing plan designation and does not increase its land area by more than 100 acres;~~
- ~~(3) A correction of an error or omission; or~~
- ~~(4) Revisions to any factual or descriptive material.~~

#### **2.3.5 Public Hearing Required**

A public hearing shall be held before adoption of any proposed Comprehensive Plan amendment. The Board of County Commissioners ~~and the Planning Board~~ shall hear applications and receive public comment for proposed Comprehensive Plan amendments ~~in a Quarterly Public Hearing at a meeting designated for UDO/Comprehensive Plan-related public hearings.~~ Dates for said meetings shall be designated each year in accordance with Section 2.8.12.

#### **2.3.6 Notice Requirements for Public Hearings**

- (A) Notice of the public hearing shall be given by publishing said notice at least twice in a newspaper of general circulation in the County, stating the time and place of such hearing and the substance of the proposed amendment.
- (B) This notice shall appear in said newspaper for two consecutive weeks with the first notice appearing not less than ten days nor more than 25 days before the date set for the public hearing. In computing the notice period, the day of publication is not to be included, but the day of the hearing is to be included.
- (C) The minimum published size of the notice shall be 25 square inches.
- (D) In the case of amendments to the ~~Land Use Plan (map)~~ Future Land Use Map<sup>2</sup>, the Planning Director shall prominently post a notice of the public hearing on the site proposed for the land use change or on an adjacent public street or highway right of way not less than ten days before the date set for the public hearing.

<sup>1</sup> If the proposed text amendments are adopted, public hearings will no longer be held on only a quarterly basis. Because of this, the text in Section 2.3.7 (A) (B) and (C) becomes obsolete which means that the text in this section (2.3.4) is effectively no longer relevant. Amendments to the Comprehensive Plan could be heard at any of the public hearings that will be designated each year for UDO/Comprehensive Plan-related items. Note that all subsequent subsections on 2.3 will be renumbered with the removal of Section 2.3.4.

<sup>2</sup> The official name of the map was clarified/changed on February 7, 2012.

- (1) When multiple parcels are included within a proposed ~~Land Use Plan (map)~~ **Future Land Use Map** amendment, a posting on each individual parcel is not required, but the county shall post sufficient notices to provide reasonable notice to interested persons.
- (E) In the case of amendments to the ~~Land Use Plan (map)~~ **Future Land Use Map**, written notice of the public hearing shall be sent by first-class mail to all property owners, as listed in the Orange County tax records, whose property is affected (property that is included in the proposed ~~land-use plan~~ **Future Land Use Map** amendment) and all property owners within 500 feet. Said notice shall be mailed at least 14 days, but not more than 25 days, prior to the date of the public hearing.

### 2.3.7 Consideration of Amendments<sup>3</sup>

- (A) ~~Principal amendments shall generally only be considered once each year at the quarterly public hearing in February.~~
- (B) ~~If a principal amendment is scheduled by the Board of County Commissioners for other than the February quarterly public hearing, it shall be scheduled during one of the quarterly public hearings held in May, August, and November.~~
- (C) ~~Secondary amendments may be considered four times each year at the quarterly joint public hearings in February, May, August, and November.~~
- (D) A proposed amendment may be considered in conjunction with a rezoning request for the same property if the requests are in compliance with an adopted small area plan.
- (E) Requests for a rezoning not in compliance with an adopted small area plan, conditional use district, and/or special use permit may only be considered at subsequent hearings or meetings following approval of the proposed amendment to the Comprehensive Plan.

### 2.3.8 Application Requirements

#### (A) Generally

- (1) All applications for amendments to the Comprehensive Plan shall be submitted on forms supplied by the Planning Department and shall be signed.
- (2) Three copies of the application shall be submitted to the Planning Director.
- (3) Before accepting any amendment application, the Planning Director shall ensure that it contains all required information, as specified in this Ordinance. Applications which are not complete, or otherwise do not comply with the provisions of this Ordinance, shall not be accepted by the Planning Director, but shall be returned to the applicant, with a notation by the Planning Director of the deficiencies in the application.

#### (B) Contents of Application

Applications for amendments to the Comprehensive Plan, without limiting the right to file additional material, shall contain at least the following:

- (1) For amendments to the ~~Land Use Plan (map)~~ **Future Land Use Map** within the Land Use Element, a map at a legible scale adequately illustrating the land which would be covered by the proposed map amendment, and a complete list of Property Identification Numbers (PIN) for the properties;

<sup>3</sup> If the proposed text amendments are adopted, public hearings will no longer be held on only a quarterly basis. Because of this, the text in (A) (B) and (C) becomes obsolete. Automatic renumbering of (D) and (E) to (A) and (B) will occur upon deletion.

- (2) For amendments to the Comprehensive Plan text, a copy of the existing text provision(s) which the applicant proposes for amendment, and a written statement which describes in detail changes which the applicant proposes to make to the text of the Comprehensive Plan and the rationale for the proposed amendment consistent with the standards established in this Ordinance; and
- (3) All other circumstances, factors and reasons which the applicant offers in support of the proposed Comprehensive Plan amendment.

### 2.3.9 Analysis and Recommendation

The Planning Director shall cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners.

### 2.3.10 Planning Board Review

- (A) Following the public hearing, all proposed amendments shall be referred to the Planning Board for consideration and recommendation.
- (B) The Board of County Commissioners ~~may~~ shall direct the Planning Board to provide a recommendation by a date certain<sup>4</sup>. ~~The date certain shall not be less than 30 calendar days from the date of referral unless there is reasonable confidence the Planning Board can return a recommendation in less than 30 days<sup>5</sup>. If the Board of County Commissioners does not so direct, the Planning Board shall make its recommendation within three regularly scheduled Planning Board meetings unless the Board of County Commissioners grants an extension.~~
- (C) If the Planning Board fails to make a recommendation within the time allotted in subsection (B), the application shall be forwarded to the Board of County Commissioners without a Planning Board recommendation.
- (D) ~~Amendments initiated by Orange County shall not be subject to time limitations other than those specified by the Board of County Commissioners during the public hearing process.<sup>6</sup>~~
- (E) Evidence not presented at the public hearing may be submitted in writing to the Planning Board for consideration prior to the Planning Board's recommendation to the Board of County Commissioners. The Planning Board may consider additional oral evidence only if it is for the purpose of presenting information also submitted in writing.<sup>7</sup>

<sup>4</sup> It has been the County's practice for several years to hold the public hearing open until a date/time certain in order to receive the Planning Board's recommendation. A determination was made by the former County attorney several years ago that this practice was necessary in order to meet State requirements for the public hearing process since the Planning Board recommendation and any written comments received are technically part of the public hearing.

<sup>5</sup> NCGS §153A-344 states that: Subsequent to initial adoption of a zoning ordinance, all proposed amendments to the zoning ordinance or zoning map shall be submitted to the planning board for review and comment. If no written report is received from the planning board within 30 days of referral of the amendment to that board, the board of county commissioners may proceed in its consideration of the amendment without the planning board report. The board of commissioners is not bound by the recommendations, if any, of the planning board.

<sup>6</sup> This section is irrelevant due to the practice of holding the public hearing open until a date/time certain in order to receive the Planning Board's recommendation. (E) will be renumbered (D).

<sup>7</sup> At the January 8, 2014 ORC (Ordinance Review Committee) meeting, a Planning Board member questioned the practice of requiring comments in writing in order for a resident to address the Planning Board. Staff explained that the purpose of requirement is twofold: 1) to ensure the Planning Board meeting does not become a second unofficial "public hearing," which is a possibility on any controversial actions, and 2) to ensure the Board of County Commissioners (BOCC) receives the same information the Planning Board has in reaching a decision. If residents were not required to also submit in writing any oral comments made to the Planning Board, the BOCC could be unaware of some oral comments.

## SECTION 2.7: SPECIAL USE PERMITS

### 2.7.1 Generally

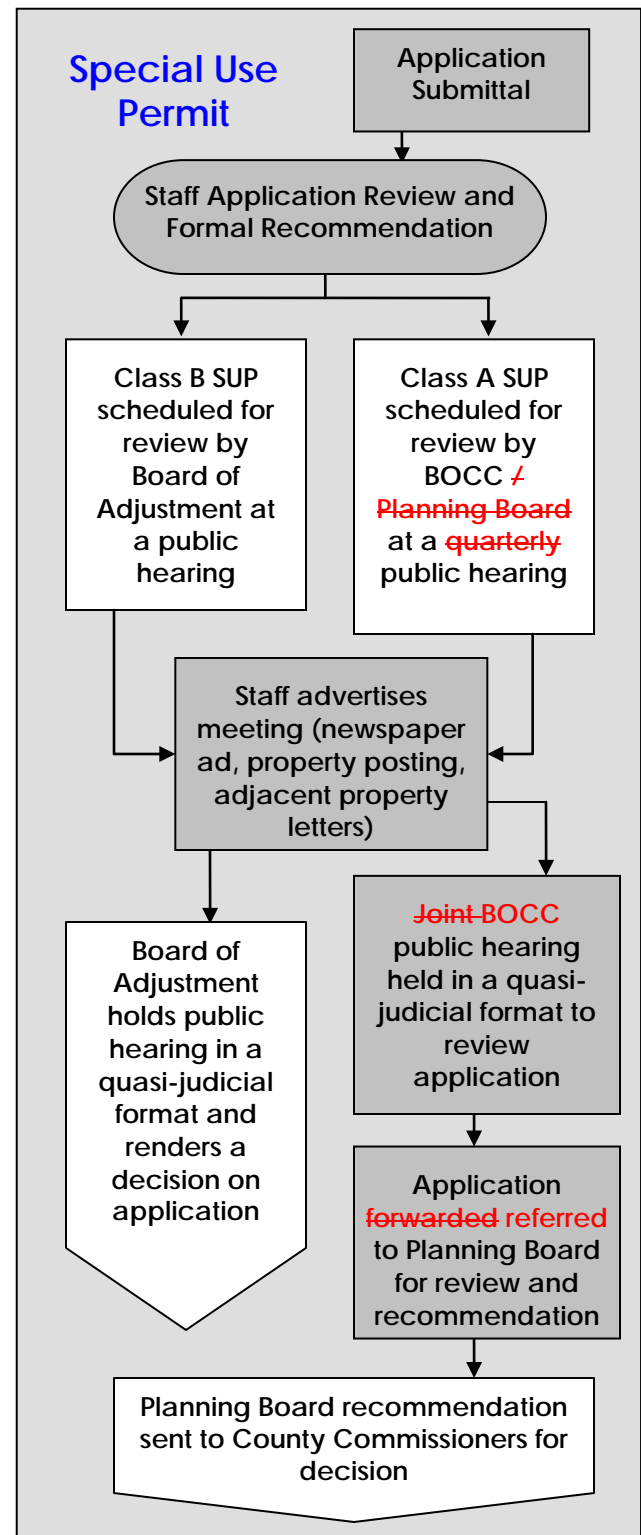
- (A) Any use or development designated by applicable zoning district regulations contained within Article 5 as a special use, or as allowed only pursuant to a special use permit (either Class A or Class B), may be established in that district only after the use or development is authorized by a validly issued and recorded special use permit.
- (B) This section sets forth required review and approval procedures for submittal, review, and approval of applications for special use permit.
- (C) A special use permit authorizes its holder to use or develop a particular parcel of land in a particular way, as specified by the terms and conditions of the special use permit.
- (D) A special use permit imposes on its holder the responsibility of ensuring that the authorized use or development continues to comply with the terms and conditions of approval.
- (E) Issuance of a special use permit does not relieve the holder of the special use permit of the additional responsibility of obtaining a building permit or any other permit or approval required by any other applicable law.

### 2.7.2 Review and Approval Flow Chart

The review and approval process for Special Use Permits is shown in the procedure's flowchart.

### 2.7.3 Application Requirements

- (A) Applications for a Special Use shall be submitted on forms provided by the Planning Department in accordance with Section 2.2 of this Ordinance.
- (B) Applications shall include:
  - (1) A full and accurate description of the proposed use, including its location, appearance, and operational characteristics.
  - (2) The name(s) and address(es) of the owner(s) of the property involved.
  - (3) Relevant information needed to show compliance with the general and specific standards governing the Special Use (See Articles 5 and 6).





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#### **2.7.6 Notice Requirements for Class B Special Use Permits**

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Notice Requirements for Class B Special Use Permits shall follow the procedures in Section 2.12.6.

#### **2.7.7 Nature of Proceedings**

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- (A) The review of Special Use Permit applications shall be conducted during a public hearing by the decision-making board.
- (B) The review of a Special Use Permit application is a quasi-judicial process, where the Board responsible for rendering a decision acts much like a panel of judges. The Board hears factual evidence and sworn testimony presented at an evidentiary hearing, and then makes findings of fact supported by competent, substantial, and material evidence.
- (C) The chair or presiding officer of the hearing shall swear all parties intending to present evidence or testimony during the hearing.
- (D) The chair or presiding officer may take whatever action is necessary to limit testimony to the presentation of new factual evidence that is material to the application, to ensure fair and orderly proceedings, and to otherwise promote the efficient and effective gathering of evidence. Such actions may include:
  - (1) Barring the presentation of obvious hearsay evidence,
  - (2) Barring the presentation of non-expert opinion,
  - (3) Interrupting digressions into immaterial testimony,
  - (4) Interrupting repetitive testimony,
  - (5) Reasonably limiting the time allotted each witness or cross-examination,
  - (6) Providing for the selection of spokespersons to represent groups of persons with common interests,
  - (7) Interrupting personal attacks, and/or
  - (8) Ordering an end to disorderly conduct.
- (E) Where the Board finds compliance with the general standards, specific rules governing the specific use, and that the use complies with all required regulations and standards, the application must be approved unless the Board shall also find, in some specific manner, that:
  - (1) the use will not maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.
- (F) Those opposing approval of the application on the grounds that the use will not promote the public health, safety and general welfare shall have the burden of establishing, by competent material and substantial evidence, the specific manner in which the proposed use does not satisfy the requirements for approval of the application for a Special Use.

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#### **2.7.8 Review and Decision**

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- (A) For Class A Special Use permits, the following shall apply:
  - (1) The Board of County Commissioners ~~and Planning Board~~ shall review the application during a regularly scheduled public hearing.
  - (2) Following review at a public hearing, the Special Use permit application shall be referred to the Planning Board for its consideration and recommendation.

- (3) The Board of County Commissioners ~~may~~ shall direct the Planning Board to provide a recommendation by a date certain<sup>8</sup>. ~~If the Board of County Commissioners does not so direct, the Planning Board shall make its recommendation within three regularly scheduled meetings.~~
- (4) ~~If the Planning Board fails to make a recommendation within the time allotted within subsection (3) above, the application shall be forwarded to the Board of County Commissioners without a Planning Board recommendation.~~<sup>9</sup> The Planning Board shall make a general recommendation on whether a project should be approved or denied based upon information entered into the record at the public hearing but shall not make the findings required in Section 5.3.2(A).<sup>10</sup>
- (5) After receipt of any Planning Board recommendation and closure of the public hearing, the Board of County Commissioners shall take action upon the application. This action shall be one of the following:
  - (a) Approval;
  - (b) Approval with conditions; or
  - (c) Denial.

~~(B) For Class B Special Use Permits, the following shall apply:~~

- ~~(1) The Board of Adjustment shall review the application during a regularly scheduled public hearing.~~
- ~~(2) The Board of Adjustment shall conduct the hearing in accordance within the provisions detailed in this Section as well as those contained within Section 2.12.~~
- ~~(3) After completion of the public hearing, the Board of Adjustment shall take action upon the application. This action shall be one of the following:
  - ~~(a) Approval;~~
  - ~~(b) Approval with conditions; or~~
  - ~~(c) Denial.~~~~

#### 2.7.9 Standards of Evaluation

The following specific standards shall be used in deciding on an application:

- ~~(A) The project meets all applicable design standards and other requirements of this Ordinance.~~
- ~~(B) The development can reasonably be completed within the vesting period requested, if any.~~

<sup>8</sup> It has been the County's practice for several years to hold the public hearing open until a date/time certain in order to receive the Planning Board's recommendation. A determination was made by the former County attorney several years ago that this practice was necessary in order to meet State requirements for the public hearing process.

<sup>9</sup> This section is irrelevant due to the practice of holding the public hearing open until a date/time certain in order to receive the Planning Board's recommendation.

<sup>10</sup> Because the Planning Board will not officially attend the quasi-judicial public hearing (individual members may choose to attend but a quorum of Planning board members will not be necessary in order to conduct the public hearing), the Planning Board may not make findings. However, the Planning Board may make a general recommendation to the BOCC on whether a project should be approved or denied. Alternatively, the Planning Board could be removed from the approval process for Class A Special Use Permits (and apparently was not part of the process more than 10 years ago, but was made part of the process via procedural policy several years ago which became codified when the UDO was adopted in 2011). However, it could be problematic to implement this idea from a procedural standpoint when a project might require both a rezoning and an SUP (as in the case of Conditional Use). For this reason, staff is recommending that the Planning Board recommendation on Class A SUPs would be a general recommendation rather than one that requires that findings be made.

- (B) For amendments to the Unified Development Ordinance text:
  - (1) A copy of the existing text provision(s) which the applicant proposes for amendment, and
  - (2) A written statement which describes in detail the changes the applicant proposes to make.
- (C) The alleged error in the Zoning Atlas and/or Unified Development Ordinance text that would be corrected by the proposed amendment with a detailed explanation of such error in the Zoning Atlas and/or Unified Development text and detailed reasons how the proposed amendment will correct the alleged error;
- (D) The changed or changing conditions, if any, in the area or in the County generally, which makes the proposed Zoning Atlas and/or Unified Development Ordinance text amendment reasonably necessary to promote the public health, safety and general welfare;
- (E) The manner in which the proposed Zoning Atlas and/or Unified Development Ordinance text amendment will carry out the intent and purpose of the adopted Comprehensive Plan or part thereof; and
- (F) A traffic impact study as required by Section 6.17.
- (G) For amendments to the Special Flood Hazard Area Overlay District, pertaining to a Letter of Map Amendment:
  - (1) An elevation certificate with either an MT-1, MT-2, or MT-EZ (forms available through FEMA), or
  - (2) A "No-Impact" analysis for a Letter of Map Revision.
- (H) All other circumstances, factors and reasons that the applicant offers in support of the proposed Zoning Atlas and/or Unified Development Ordinance text amendment.

#### **2.8.4 Applications for Amendment – Joint Planning Area**

Applications for amendments to the Orange County Unified Development Ordinance and Zoning Atlas for the purpose of incorporating the provisions of the Chapel Hill Land Development Ordinance (and Zoning Maps) and/or the Carrboro Land Use Ordinance (and Zoning Maps) shall be processed as specified herein and as specified in the Joint Planning Agreement adopted November 2, 1987, and as amended from time to time.

Any text amendments adopted by Orange County shall be adopted by reference as though fully set forth herein. Any map amendments adopted by Orange County shall be officially denoted on the County Zoning Atlas. Where there is inconsistency between the amendment procedures contained herein and those contained in the Joint Planning Agreement, the provisions of the Joint Planning Agreement shall apply.

#### **2.8.5 Analysis and Recommendation**

The Planning Director shall cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners.

#### **2.8.6 Public Hearing Required**

A public hearing shall be held before adoption of any proposed Zoning Atlas Amendment and/or text amendment to this Ordinance. The Board of County Commissioners ~~and the Planning Board~~ shall hear applications and receive public comment for Zoning Atlas amendments and/or text amendments to this Ordinance ~~in a Quarterly Public Hearing at a meeting designated for UDO/Comprehensive Plan-related public hearings. Dates for said meetings shall be designated each year in accordance with Section 2.8.12.~~

**2.8.7 Notice of Public Hearings**

- (A) Notice of the public hearing to review the application and receive public comment shall be published at least twice in a newspaper of general circulation in the county, stating the time and place of the hearing and the substance of the proposed amendment.
- (B) Said notice shall appear in said newspaper for two successive weeks with the first notice appearing not less than ten days nor more than 25 days before the date set for the public hearing. In computing the notice period, the day of publication is not to be included, but the day of the hearing is to be included.
- (C) In the case of amendments to the zoning atlas, the Planning Director shall post on the affected property a notice of the public hearing at least ten days prior to the date of said hearing.
- (D) In the case of amendments to the Zoning Atlas, written notice shall be sent by certified mail to the affected property owner and all adjacent property owners at least 15 days, but not more than 25 days, before the public hearing date. Adjacent property owners are those whose names and addresses are currently listed in the Orange County tax records and whose property lies within 500 feet of the affected property.
- (E) If amendments to the Zoning Atlas are proposed by the County, notice shall be sent by first class mail to all affected property owners and to all adjacent property owners within 500 feet as provided in (D) above.
- (F) The Planning Director shall certify the mailing of all notices to the Board of County Commissioners.

**2.8.8 Planning Board Review**

- (A) Following the public hearing, all proposed amendments shall be referred to the Planning Board for consideration and recommendation.
- (B) The Board of County Commissioners ~~may shall~~ direct the Planning Board to provide a recommendation by a date certain. ~~If the Board of County Commissioners does not so direct, the Planning Board shall make its recommendation within three regularly scheduled Planning Board meetings.~~ The date certain shall not be less than 30 calendar days from the date of referral unless there is reasonable confidence the Planning Board can return a recommendation in less than 30 days.<sup>11</sup>
- (C) If the Planning Board fails to make a recommendation within the time allotted in subsection (B) above, the application shall be forwarded to the Board of County Commissioners without a Planning Board recommendation.
- (D) ~~Amendments initiated by Orange County shall not be subject to time limitations other than those specified by the Board of County Commissioners during the public hearing process.~~<sup>12</sup>
- (E) Evidence not presented at the public hearing may be submitted in writing to the Planning Board for consideration prior to the Planning Board's recommendation to the Board of County Commissioners. The Planning Board may consider additional oral evidence only if it is for the purpose of presenting information also submitted in writing.<sup>13</sup>

**2.8.9 Action by Board of County Commissioners**

- (A) The Board of County Commissioners shall not consider enactment of the proposed amendment until the Planning Board either makes its recommendation or takes no action on the application as prescribed in Section 2.8.8(C).

<sup>11</sup> See footnotes 4 and 5 for further explanation.

<sup>12</sup> This section is irrelevant due to the practice of holding the public hearing open until a date/time certain in order to receive the Planning Board's recommendation. (E) will be renumbered (D).

<sup>13</sup> See footnote #7 for additional information about subsection (E).

- (B) In making its decision, the Board of Commissioners shall consider all relevant evidence presented at the public hearing and any submitted written evidence that was considered by the Planning Board in making its recommendation.

#### **2.8.10 Text Revisions Pertaining to Soil Erosion and Sedimentation Control Provisions**

- (A) The Erosion Control Officer shall review all of the North Carolina Sedimentation Control Commission's revisions to the State's Model Soil Erosions and Sedimentation Control Ordinance and, within 90 days of receipt of the recommended revisions, submit draft amendments to the North Carolina Sedimentation Control Commission for its consideration and comments.
- (B) Within 150 days after receipt of the North Carolina Sedimentation Control Commission's comments, Orange County shall formally consider proposed amendments and, to the extent deemed necessary by the Board of County Commissioners, incorporate the amendments into this Ordinance.
- (C) Text amendments to this Ordinance for soil erosion and sedimentation control provisions shall comply with the requirements in effect for any other text amendment.

#### **2.8.11 Text Revisions Pertaining to Stormwater Provisions**

- (A) The Erosion Control Officer shall review all of the State Environmental Management Commission's revisions to the State's Model Stormwater Ordinance and, within 90 days of receipt of the recommended revisions, submit draft amendments to the State Environmental Management Commission for its consideration and comments.
- (B) Within 150 days after receipt of the State Environmental Management Commission's comments, Orange County shall formally consider proposed amendments and, to the extent deemed necessary by the Board of County Commissioners, incorporate the amendments into this Ordinance.
- (C) Text amendments to this Ordinance for stormwater provisions shall comply with the requirements in effect for any other text amendment.

#### **2.8.12 Setting Public Hearing Dates**

- (A) The Board of County Commissioners shall adopt a meeting schedule that designates a minimum of eight dates annually, spread throughout the year, for potential public hearings for UDO/Comprehensive Plan-related items.
- (B) The Planning Director shall establish and publish application due dates for each potential public hearing in a timely manner after the Board of County Commissioners adopts its meeting schedule.

### **SECTION 2.9: CONDITIONAL DISTRICTS**

#### **2.9.1 Conditional Use District (CUD)**

- (A) **Generally**
- (1) Any use permitted under the CUD process shall conform to all applicable development regulations for the corresponding general use zoning district as well as any specific development standards outlined within this Ordinance.
- (2) The Board of County Commissioners, in reviewing a CUD application, may impose such reasonable conditions upon approval of a CUD request as will afford protection of the public health, safety, and general welfare, ensure that substantial justice is done, and ensure equitable treatment.
- (3) Only those conditions mutually agreed to by the applicant and the Board of County Commissioners may be imposed on a CUD application.



### 2.11.6 Notice Requirements

Notice requirements shall follow Section 2.12.6(A). Other subsections of Section ~~2.2.6~~ 2.12.6<sup>14</sup> are not applicable to applications for an appeal of an interpretation.

## SECTION 2.12: BOARD OF ADJUSTMENT

### 2.12.1 General Provisions

- (A) The Board shall act on all applications before it.
- (B) The Board shall act on any appeal of a Stop Work Order issued by the Planning Director at its next regularly scheduled meeting or at a special meeting called for that purpose.

### 2.12.2 Quasi-Judicial Proceedings

- (A) The Board of Adjustment acts in a quasi-judicial capacity. However, it is not intended that its proceedings be conducted as formally as those before courts.
- (B) The rules of procedure and evidence set forth in this Ordinance shall be followed to protect the interests of all parties and the public.
- (C) The presiding officer shall administer oaths to all witnesses and shall make rulings necessary to preserve fairness, order, or proper decorum in any matter before the Board of Adjustment.
- (D) Any member of the Board of Adjustment or any interested party may object to, and the presiding officer may exclude, any evidence, testimony, or statement that is deemed incompetent, irrelevant, immaterial, or unduly repetitious and therefore fails to reasonably address the issues before the Board of Adjustment.

### 2.12.3 Evidence and Testimony

#### (A) Interested Party

- (1) Any interested party may present evidence or testimony, cross-examine witnesses, inspect documents, and offer evidence or testimony in explanation or rebuttal.
- (2) Any member of the Board of Adjustment may question any interested party.
- (3) Persons other than interested parties may make competent, relevant, and material comments.

#### (B) Subpoenas

- (1) The Board of Adjustment may subpoena witnesses and compel the production of evidence.
- (2) If a person fails or refuses to obey a subpoena issued pursuant to this subsection, the Board of Adjustment may apply to the General Court of Justice for an order requiring that its order be obeyed, and the Court will have jurisdiction to issue those orders after notice to all proper parties.
- (3) No testimony of any witness before the Board of Adjustment, pursuant to a subpoena issued in exercise of the power conferred by this subsection, may be used against the witness in any civil or criminal action, other than a prosecution for false swearing committed on the examination.
- (4) Anyone who, while under oath during a proceeding before the Board of Adjustment, willfully swears falsely, is guilty of a Class 1 misdemeanor.

<sup>14</sup> Typographical error that staff recommends correcting as part of this amendment package.

- ~~(c) The facility shall be removed within 12 months from the date the applicant ceases use of the facility.~~
- ~~(d) Once the infrastructure is removed the property, the owner shall obtain the necessary Erosion Control permits to re-stabilize the property. The time frame for completion shall be determined by the Orange County Erosion Control Officer.~~
- ~~(e) The owner shall provide financial security in form and amount acceptable to the County to secure the expense of dismantling and removing said structures.~~
- ~~(f) Upon removal of the facility, the Department shall cause a notice to be recorded within the Orange County Registrar of Deeds office indicating that the Class A Special Use Permit has been revoked.~~

## SECTION 5.10: STANDARDS FOR TELECOMMUNICATION FACILITIES

### 5.10.1 Intent

~~The regulations contained herein are designed to provide for the safe and efficient integration of facilities necessary for the provision of advanced wireless telecommunications services through the community with the goal of establishing reliable wireless service to the public, governmental agencies, and first responders in a manner that provides for the public safety and general welfare of its citizens.~~

### 5.10.2 Master Telecommunications Plan ("Plan")

- (A) The Plan is intended to assist providers in their search for suitable locations to build their service network. The County may develop the Plan (map), which would display locations within the County's zoning jurisdiction where property owners have expressed formal, written, interest in allowing construction of telecommunications equipment.
- (B) Information that may be shown on the base Plan will include, but not limited to:
  - (1) Existing towers,
  - (2) Major transmission lines,
  - (3) County-defined Natural Areas,
  - (4) Historic properties,
  - (5) Scenic corridors,
  - (6) Known bird migratory patterns through the County,
  - (7) Voluntary Agricultural Districts, and
  - (8) Publicly-owned or quasi-public lands.
- (C) In order to participate in the Plan, all owner(s), or their legally binding representatives, shall submit an application on a form prepared by the Planning Department requesting inclusion.
- (D) All telecommunication providers who elect to construct facilities on properties in the Plan shall provide all necessary and requested information to the County's telecommunications consultant.
- (E) Modification of the Plan may be considered ~~annually at the February Quarterly Public Hearing. Any applicant requesting modification of the Plan shall make application to the Planning Director on or before December 1st of each year at any of the meetings~~

designated for UDO/Comprehensive Plan-related public hearings<sup>13</sup>. The fee for modifying the Plan shall be that as set forth in the Orange County Schedule of Fees.

- (F) Withdrawal from the Plan is permitted if any owner submits, to the Planning Director, a notarized statement requesting same. Upon receipt of the request, including any fee for modifying the Plan as set forth in the Orange County Schedule of Fees, the Planning Director shall inform interested parties that the property has been withdrawn from consideration. Removal of the property from the Plan shall be processed as a modification as detailed herein.

### 5.10.3 Annual Telecommunications Projection Meeting (ATPM)

#### (A) Purpose and Outcome

- (1) The purpose of the ATPM meeting is to allow for a complete review of collocation opportunities, address coverage issues, and discuss the location of needed telecommunication support structures with providers who intent on submitting development applications for action by the County. The intended outcome of the meeting is to allow the County and interested parties to develop a plan for facility deployment within the County that provides reasonable coverage based on the needs of the County and its residents, while minimizing the total number of needed telecommunication support facilities, including minimizing the intrusiveness of such facilities, and encouraging the development of a more efficient telecommunication network.
- (2) The intended outcome of the meeting is an understanding amongst the Planning Director and providers on areas of the County where telecommunication support facilities are needed and application request for the year should be focused.

#### (B) Applicability

- (1) By December 31<sup>st</sup> of each calendar year, telecommunication providers shall submit to the Planning Director a plan indicating proposed search rings for anticipated telecommunication support structures. This plan shall identify areas where providers are looking to locate facilities, as well as identify those areas of the County that are underserved by existing facilities.
- (2) As of the effective date of this Ordinance amendment any pending applications that have not received a zoning compliance permit or a special use permit shall meet all requirements of this Ordinance, including, but not limited to submission deadlines, application standards and processing, excluding the ATPM requirement.

#### (C) Meeting Specifics

- (1) The meeting shall occur by the end of January of each calendar year.
- (2) Attendees shall include all carriers and tower companies who have either filed applications the previous year or anyone who has expressed an interest in filing an application to construct a telecommunication support facility within the County.
- (3) The County shall notify each party of the date, time, and place of the meeting no later than 30 days prior to the meeting.
- (4) Those individuals/firms intent on submitting development applications are expected to attend the meeting. While a lack of attendance will not prevent the submittal of an application, it will prevent the applicant's ability to participate in the discussions outlining the areas of concentration for the location of

<sup>13</sup> Since the dates for public hearings may change from year to year if the public hearing process change amendments are adopted, it is not possible to pinpoint a date for hearings. Therefore, staff is suggesting that any entity that would like to modify the Master Telecom Plan be permitted to apply for any of the public hearing dates where UDO/Comprehensive Plan items can be considered.