



# Kirkland Appraisals, LLC

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April 28, 2018

Ms. Chelsea Woodfin  
Strata Solar Development  
50101 Governors Drive, Suite 280  
Chapel Hill, NC 27517

**RE: Flatwood Solar Impact Study**

Ms. Woodfin:

At your request, I have considered the impact of a solar farm proposed to be constructed on a portion of a 46.80-acre tract on Corinth Road, Moncure, North Carolina. Specifically, I have been asked to give my professional opinion on whether the proposed solar farm will “substantially injure the value of adjoining or abutting property” and whether “the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located.”

To form an opinion on these issues, I have researched and visited existing and proposed solar farms in North Carolina, researched articles through the Appraisal Institute and other studies, and discussed the likely impact with other real estate professionals. I have not been asked to assign any value to any specific property.

This letter is a limited report of a real property appraisal consulting assignment and subject to the limiting conditions attached to this letter. My client is Strata Solar Development represented to me by Ms. Chelsea Woodfin. My findings support the conditional use application. The effective date of this consultation is April 28, 2018.

## **Standards and Methodology**

I conducted this analysis using the standards and practices established by the North Carolina Appraisal Board, the Appraisal Institute, and that conform to the Uniform Standards of Professional Appraisal Practice. The analyses and methodologies contained in this report are accepted by all major lending institutions, and they are used in North Carolina and across the country as the industry standard by certified appraisers conducting appraisals, market analyses, or impact studies and are considered adequate to form an opinion of the impact of a land use on neighboring properties. These standards and practices have also been accepted by the courts of North Carolina at the trial and appellate levels and by federal courts throughout the country as adequate to reach conclusions about the likely impact a use will have on adjoining or abutting properties.

The aforementioned standards compare property uses in the same market and generally within the same calendar year so that fluctuating markets do not alter study results. Although these standards do not require a linear study that examines adjoining property values before and after a new use (e.g. a solar farm) is developed, some of these studies do in fact employ this type of analysis. Comparative studies, as used in this report, are considered an industry standard.

Although many of the sales reported in this analysis are directly abutting a solar farm, I also considered nearby properties to be “adjoining” using guidance from the North Carolina Supreme Court in *Heaton v City of Charlotte*, 277 N.C. 506, 523, 178 S.E.2d352, 363 (1971) where the Court defined “adjacent” as “not distant or far off; nearby but not touching.” I also considered *Harrison v. Guilford County*, 218 N.C. 718, 12 S.E.2nd 269 (1940) (“Objects are adjacent when they lie close to each other, but

not necessarily in actual contact ...”), and Webster’s Dictionary, which states that “adjacent” is a synonym for “adjoining.”

### **Determining what is an External Obsolescence**

An external obsolescence is a use of property that, because of its characteristics, might have a negative impact on the value of adjacent or nearby properties because of identifiable impacts. Determining whether a use would be considered an external obsolescence requires a study that isolates that use, eliminates any other causing factors, and then studies the sales of nearby versus distant comparable properties. The presence of one or a combination of key factors does not mean the use will be an external obsolescence, but a combination of these factors tend to be present when market data reflects that a use is an external obsolescence.

External obsolescence is evaluated by appraisers based on several factors. These factors include but are not limited to:

- 1) Traffic. Solar Farms are not traffic generators. The Institute of Transportation Engineers provides that one single family home, on average, generates 9.5 vehicle trips *per day*. A solar farm, on the other hand, generates the same or fewer trips *per month*.
- 2) Odor. Solar farms do not produce odor.
- 3) Noise. Solar farms produce no discernible noise. Although the inverter generates a sound that might be described as a soft hum, this sound is inaudible from the facility boundary.
- 4) Environmental. Solar farms do not produce toxic or hazardous waste or contain hazardous materials or substances. NCDEQ does not consider the panels to be impervious surfaces that impede groundwater absorption or cause runoff.
- 5) Light. Solar farms are completely dark at night.
- 6) Other factors. I have observed and studied many solar farms and have never observed any characteristic about such facilities that prevents or impedes neighbor from fully using their homes or farms or businesses for the use intended.

### **Proposed Use Description**

The proposed solar farm is to be constructed on a portion of a 46.80-acre tract on Corinth Road, Moncure, North Carolina. Adjoining land is a mix of atypical uses, including an RV park, poultry farm and quarry. The solar farm will consist of solar panels less than 15 feet high.

### **Adjoining Properties**

I have considered adjoining uses and included a map to identify each parcel's location. The breakdown of those uses by acreage and number of parcels is summarized below. The western boundary of the project runs along the railroad tracks as shown below. The closest home is 250 feet away from the closest proposed solar panel and the average distance to adjoining residence is 814 feet. These distances are much higher than the distances used to show no impact on adjoining residential uses later in this report at 175 feet in distance.

#### **Adjoining Use Breakdown**

	<b>Acreage</b>	<b>Parcels</b>
Commercial	8.36%	20.00%
Agricultural	12.28%	60.00%
Industrial	79.36%	20.00%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>



## **I. Market Analysis of the Impact on Value from Solar Farms**

I have researched hundreds of solar farms in numerous states to determine the impact of these facilities on the value of adjoining property. This research has primarily been in North Carolina, but I have also conducted market impact analyses in Virginia, South Carolina, Tennessee, Texas, Oregon, Mississippi, Maryland, New York, and Montana.

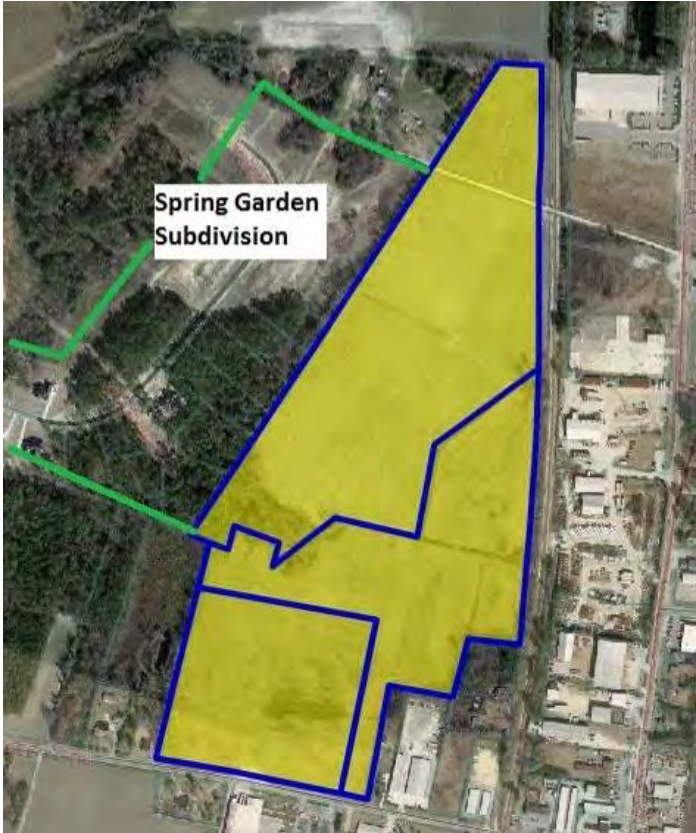
Wherever I have looked at solar farms, I have derived a breakdown of the adjoining uses to show what adjoining uses are typical for solar farms and what uses would likely be considered consistent with a solar farm use similar to the breakdown that I've shown for the subject property on the previous page. A summary showing the results of compiling that data over hundreds of solar farms is shown later in the Harmony of Use section of this report.

While compiling that data, I have been looking for matched pairs for analysis. A matched pair analysis considers two similar or comparable properties that are distinguished only by proximity to the use that is being studied to determine whether or not that type of land use (here, a solar farm) has any impact on the abutting or adjoining property's value. Within the appraisal profession, matched pair analysis is a standard and widely-recognized method of measuring impact on value. In this case, I have considered residential properties abutting or adjoining a solar farm versus similar residential properties that do not adjoin a solar farm. I have also considered matched pairs of vacant residential and agricultural land. It is important to note that "similar" and "comparable" in the appraisal profession do not mean "identical." In each of the studies in this analysis I have prudently followed appraisal standards for determining similarity and for making appropriate adjustments for properties of differing age, size, and location.

I also consider whether the properties adjoining a solar farm in one location have characteristics similar to the properties abutting or adjoining the proposed site so that I can make an assessment of market impact on each proposed site. Notably, in most cases solar farms are placed in areas very similar to the site in question, which is surrounded by low density residential and agricultural uses. In my more than 300 studies, I have found a striking repetition of that same typical adjoining use mix in over 90% of the solar farms I have looked at. Additional matched pair results in multiple states are strikingly similar, and all indicate that solar farms – which generate very little traffic, and do not generate noise, dust or have other harmful effects – do not negatively impact the value of adjoining or abutting properties.

**1. Matched Pair – AM Best Solar Farm, Goldsboro, NC**

This solar farm adjoins Spring Garden Subdivision which had new homes and lots available for new construction during the approval and construction of the solar farm. The recent home sales have ranged from \$200,000 to \$250,000. This subdivision sold out the last homes in late 2014. The solar farm is clearly visible particularly along the north end of this street where there is only a thin line of trees separating the solar farm from the single-family homes.








Homes backing up to the solar farm are selling at the same price for the same floor plan as the homes that do not back up to the solar farm in this subdivision. According to the builder, the solar farm was a complete non-factor.<sup>1</sup> Not only do the sales show no difference in the price paid for the various homes adjoining the solar farm versus not adjoining the solar farm, but the lots backing up to the solar farm sold faster than the other lots when both were available. There is no impact on the sellout rate, or time to sell for the homes adjoining the solar farm.

I spoke with a number of owners who adjoin the solar farm and none of them expressed any concern over the solar farm impacting their property value.

The data presented on the following page shows multiple homes that have sold since 2013 adjoining the solar farm at prices similar to those not along the solar farm. These series of sales indicate that the solar farm has no impact on the adjoining residential use.

The homes that were marketed at Spring Garden are shown below.

	<b>Americana</b> SqFt: 3,194 Bed / Bath: 3 / 3.5	Price: \$237,900 <a href="#">View Now »</a>		<b>Washington</b> SqFt: 3,292 Bed / Bath: 4 / 3.5	Price: \$244,900 <a href="#">View Now »</a>
	<b>Presidential</b> SqFt: 3,400 Bed / Bath: 5 / 3.5	Price: \$247,900 <a href="#">View Now »</a>		<b>Kennedy</b> SqFt: 3,494 Bed / Bath: 5 / 3	Price: \$249,900 <a href="#">View Now »</a>
	<b>Virginia</b> SqFt: 3,449 Bed / Bath: 5 / 3	Price: \$259,900 <a href="#">View Now »</a>			

<sup>1</sup> It is standard practice, and in some instances, a necessary practice, for an appraiser to interview people with direct knowledge of a local subdivision, house, or real estate market. When such interviews are deemed helpful to shed light on a subject, they are incorporated into a report.

**Matched Pairs**

As of Date: 9/3/2014

**Adjoining Sales After Solar Farm Completed**

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600195570	Helm	0.76	Sep-13	\$250,000	2013	3,292	\$75.94	2 Story
3600195361	Leak	1.49	Sep-13	\$260,000	2013	3,652	\$71.19	2 Story
3600199891	McBrayer	2.24	Jul-14	\$250,000	2014	3,292	\$75.94	2 Story
3600198632	Foresman	1.13	Aug-14	\$253,000	2014	3,400	\$74.41	2 Story
3600196656	Hinson	0.75	Dec-13	\$255,000	2013	3,453	\$73.85	2 Story
	Average	1.27		\$253,600	2013.4	3,418	\$74.27	
	Median	1.13		\$253,000	2013	3,400	\$74.41	

**Adjoining Sales After Solar Farm Announced**

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
0	Feddersen	1.56	Feb-13	\$247,000	2012	3,427	\$72.07	Ranch
0	Gentry	1.42	Apr-13	\$245,000	2013	3,400	\$72.06	2 Story
	Average	1.49		\$246,000	2012.5	3,414	\$72.07	
	Median	1.49		\$246,000	2012.5	3,414	\$72.07	

**Adjoining Sales Before Solar Farm Announced**

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600183905	Carter	1.57	Dec-12	\$240,000	2012	3,347	\$71.71	1.5 Story
3600193097	Kelly	1.61	Sep-12	\$198,000	2012	2,532	\$78.20	2 Story
3600194189	Hadwan	1.55	Nov-12	\$240,000	2012	3,433	\$69.91	1.5 Story
	Average	1.59		\$219,000	2012	2,940	\$74.95	
	Median	1.59		\$219,000	2012	2,940	\$74.95	

**Nearby Sales After Solar Farm Completed**

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600193710	Barnes	1.12	Oct-13	\$248,000	2013	3,400	\$72.94	2 Story
3601105180	Nackley	0.95	Dec-13	\$253,000	2013	3,400	\$74.41	2 Story
3600192528	Mattheis	1.12	Oct-13	\$238,000	2013	3,194	\$74.51	2 Story
3600198928	Beckman	0.93	Mar-14	\$250,000	2014	3,292	\$75.94	2 Story
3600196965	Hough	0.81	Jun-14	\$224,000	2014	2,434	\$92.03	2 Story
3600193914	Preskitt	0.67	Jun-14	\$242,000	2014	2,825	\$85.66	2 Story
3600194813	Bordner	0.91	Apr-14	\$258,000	2014	3,511	\$73.48	2 Story
3601104147	Shaffer	0.73	Apr-14	\$255,000	2014	3,453	\$73.85	2 Story
	Average	0.91		\$246,000	2013.625	3,189	\$77.85	
	Median	0.92		\$249,000	2014	3,346	\$74.46	

**Nearby Sales Before Solar Farm Announced**

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600191437	Thomas	1.12	Sep-12	\$225,000	2012	3,276	\$68.68	2 Story
3600087968	Lilley	1.15	Jan-13	\$238,000	2012	3,421	\$69.57	1.5 Story
3600087654	Burke	1.26	Sep-12	\$240,000	2012	3,543	\$67.74	2 Story
3600088796	Hobbs	0.73	Sep-12	\$228,000	2012	3,254	\$70.07	2 Story
	Average	1.07		\$232,750	2012	3,374	\$69.01	
	Median	1.14		\$233,000	2012	3,349	\$69.13	

**Matched Pair Summary**

	<b>Adjoins Solar Farm</b>		<b>Nearby Solar Farm</b>	
	<b>Average</b>	<b>Median</b>	<b>Average</b>	<b>Median</b>
Sales Price	\$253,600	\$253,000	\$246,000	\$249,000
Year Built	2013	2013	2014	2014
Size	3,418	3,400	3,189	3,346
Price/SF	\$74.27	\$74.41	\$77.85	\$74.46

**Percentage Differences**

Median Price	-2%
Median Size	-2%
Median Price/SF	0%

The homes adjoining the solar farm were all approximately 280 feet from the closest point on the home to the closest solar panel.

I note that 2308 Granville Drive sold again in November 2015 for \$267,500, or \$7,500 more than when it was purchased new from the builder two years earlier (Tax ID 3600195361, Owner: Leak). The neighborhood is clearly showing appreciation for homes adjoining the solar farm.

The Median Price is the best indicator to follow in any analysis as it avoids outlying samples that would otherwise skew the results. The median sizes and median prices are all consistent throughout the sales both before and after the solar farm whether you look at sites adjoining or nearby to the solar farm. The average for the homes nearby the solar farm shows a smaller building size and a higher price per square foot. This reflects a common occurrence in real estate where the price per square foot goes up as the size goes down. This is similar to the discount you see in any market where there is a discount for buying larger volumes. So when you buy a 2 liter coke you pay less per ounce than if you buy a 16 oz. coke. So even comparing averages the indication is for no impact, but I rely on the median rates as the most reliable indication for any such analysis.



**AM Best Solar Farm, Goldsboro, NC**



View of home in Spring Garden with solar farm located through the trees and panels – photo taken on 9/23/15.



View from vacant lot at Spring Garden with solar farm panels visible through trees taken in the winter of 2014 prior to home construction. This is the same lot as the photo above.

## 2. Matched Pair – White Cross Solar Farm, Chapel Hill, NC



A new solar farm was built at 2159 White Cross Road in Chapel Hill, Orange County in 2013. After construction, the owner of the underlying land sold the balance of the tract not encumbered by the solar farm in July 2013 for \$265,000 for 47.20 acres, or \$5,606 per acre. This land adjoins the solar farm to the south and was clear cut of timber around 10 years ago. I compared this purchase to a nearby transfer of 59.09 acres of timber land just south along White Cross Road that sold in November 2010 for \$361,000, or \$6,109 per acre. After purchase, this land was divided into three mini farm tracts of 12 to 20 acres each. These rates are very similar and the difference in price per acre is attributed to the timber value and not any impact of the solar farm.

Type	TAX ID	Owner	Acres	Date	Price	\$/Acre	Notes	Conf By
Adjoins Solar	9748336770	Haggerty	47.20	Jul-13	\$265,000	\$5,614	Clear cut	Betty Cross, broker
Not Near Solar	9747184527	Purcell	59.09	Nov-10	\$361,000	\$6,109	Wooded	Dickie Andrews, broker

The difference in price is attributed to the trees on the older sale.

No impact noted for the adjacency to a solar farm according to the broker.

I looked at a number of other nearby land sales without proximity to a solar farm for this matched pair, but this land sale required the least allowance for differences in size, utility and location.

**Matched Pair Summary**

	<b>Adjoins Solar Farm</b>		<b>Nearby Solar Farm</b>	
	<b>Average</b>	<b>Median</b>	<b>Average</b>	<b>Median</b>
Sales Price	\$5,614	\$5,614	\$6,109	\$6,109
Adjustment for Timber	\$500	\$500		
Adjusted	\$6,114	\$6,114	\$6,109	\$6,109
Tract Size	47.20	47.20	59.09	59.09

**Percentage Differences**

Median Price Per Acre 0%

This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

**3. Matched Pair – Wagstaff Farm, Roxboro, NC**



This solar farm is located at the northeast corner of a 594-acre farm with approximately 30 acres of solar farm area. This solar farm was approved and constructed in 2013.

After approval, 18.82 acres were sold out of the parent tract to an adjoining owner to the south. This sale was at a similar price to nearby land to the east that sold in the same time from for the same price per acre as shown below.

Type	TAX ID	Owner	Acres	Present Use	Date Sold	Price	\$/AC
Adjoins Solar	0918-17-11-7960	Piedmont	18.82	Agricultural	8/19/2013	\$164,000	\$8,714
Not Near Solar	0918-00-75-9812 et al	Blackwell	14.88	Agricultural	12/27/2013	\$130,000	\$8,739

**Matched Pair Summary**

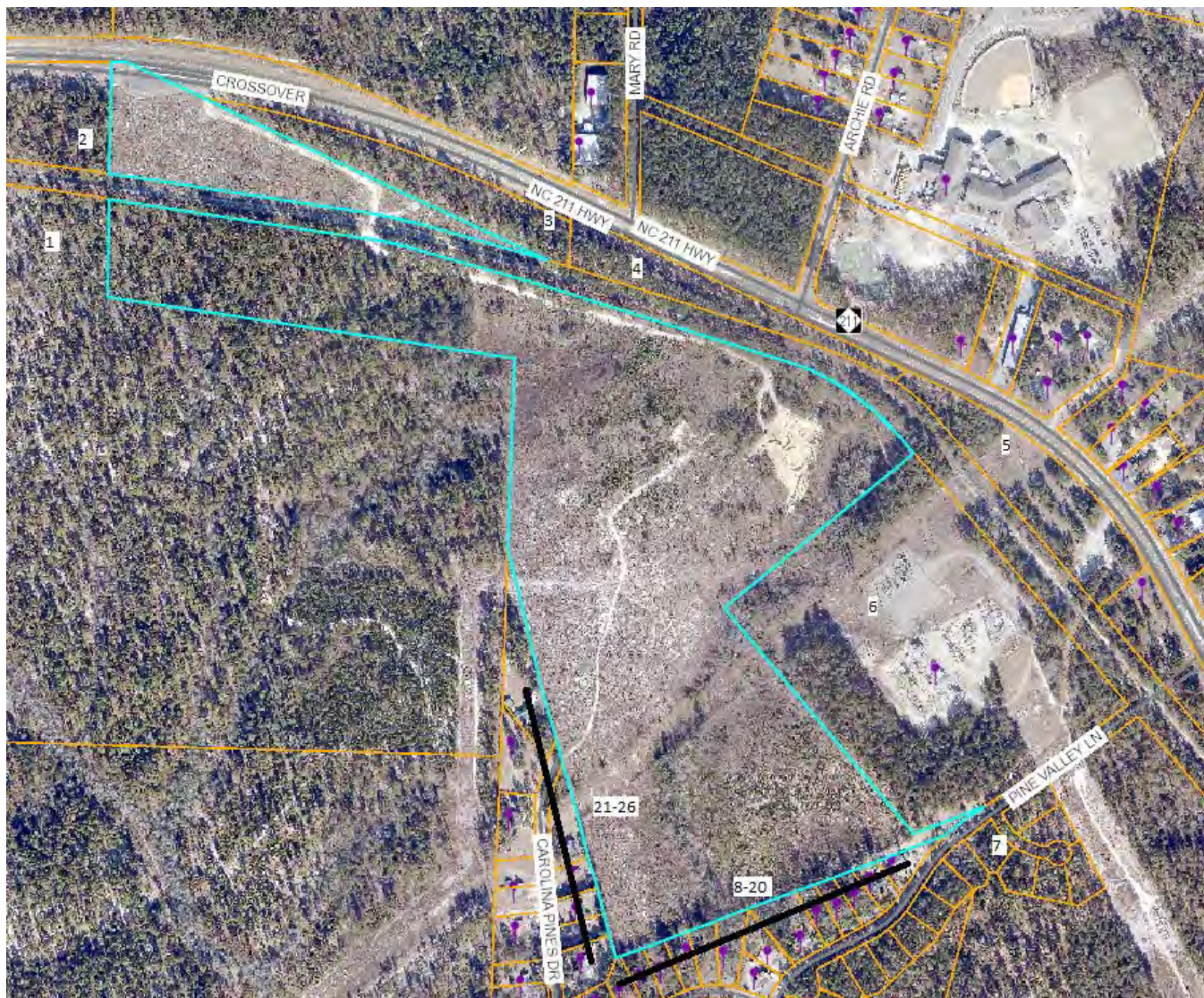
	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$8,714	\$8,714	\$8,739	\$8,739
Tract Size	18.82	18.82	14.88	14.88

**Percentage Differences**

Median Price Per Acre	0%
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This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

**4. Matched Pair – Pine Valley Solar Farm, West End, NC**



This solar farm will adjoin a mix of residential and agricultural uses and is proposed to be completed in 2017. After the solar farm project was approved I discovered an adjoining sale of a manufactured home. I compared it to another similar age and size manufactured home in that same community that did not adjoin the proposed solar farm. The data is presented below and shows no impact on value.

**Adjoining Residential Sales After Solar Farm Announced**

#	TAX ID	Address	Solar Farm	Acres	Date Sold	Sales Price	Assessed	Built	GBA	\$/GBA	Const.	Frontage
9	16893	Pine Valley Lot 46	Adjoins	0.46	8/10/2016	\$66,000	\$54,830	1990	1,350	\$48.89	Manuf.	Interior
	16897	Pine Valley Lot 16	Not	0.57	8/26/2016	\$59,000	\$46,640	1994	1,150	\$51.30	Manuf.	Interior

**Adjoining Sales Adjusted**

Address	Date Sold	Sales Price	Adjustments						Total	
			Time	Acres	YB	GLA	Const.	Frontage		
Lot 46	8/10/2016	\$66,000							\$66,000	
Lot 16	8/26/2016	\$59,000		\$0	\$0	-\$2,360	\$9,800	\$0	\$0	\$66,440

Time adjustment based on 2%/year and 3% downward for listing.

GLA adjustment based on difference in size times \$49.

Year Built based on 1% per year diff

**Percentage Differences**

Lot 46 Vs Lot 16                      -0.67%

This is within typical market friction and supports an indication of no impact on property value.

The home adjoining the solar farm was approximately 175 feet from the closest point on the home to the closest solar panel.

**5. Matched Pair – Neal Hawkins Solar, Gastonia, NC**



This project is located on the south side of Neal Hawkins Road just outside of Gastonia. The property identified above as Parcel 4 was listed for sale while this solar farm project was going through the approval process. The property was put under contract during the permitting process with the permit being approved while the due diligence period was still ongoing. After the permit was approved the property closed with no concerns from the buyer. I spoke with Jennifer Bouvier, the broker listing the property and she indicated that the solar farm had no impact at all on the sales price. She considered some nearby sales to set the price and the closing price was very similar to the asking price within the typical range for the market. The buyer was aware that the solar farm was coming and they had no concerns.

This two-story brick dwelling was sold on March 20, 2017 for \$270,000 for a 3,437 square foot dwelling built in 1934 in average condition on 1.42 acres. The property has four bedrooms and two bathrooms.

The home adjoining the solar farm was approximately 275 feet from the closest point on the home to the closest solar panel.

**6. Matched Pair – Summit/Ranchland Solar, Moyock, NC**



This project is located at 1374 Caritoke Highway, Moyock, NC. This is an 80 MW facility on a parent tract of 2,034 acres. Parcels Number 48 and 53 as shown in the map above were sold in 2016. The project was under construction during the time period of those sales and the permit was approved well prior to that in 2015.

I looked at multiple possible matched pairs for the two sales as shown below. This gives a range of impacts with the most significant impacts shown on the second comparable where matched pairs ranged from plus 6% to 15%. The sales are all in the adjoining mixed community that includes older residential dwellings and generally newer manufactured homes.

These two matched pairs are significantly further from the adjoining solar panels than typical at 1,060 to 2,020 feet.

**Adjoining Residential Sales After Solar Farm Completed**

#	Solar Farm	Address	Acres	Date Sold	Sales Price	Built	GLA	\$/GLA	BR/BA	Style
48	Adjoins	129 Pinto	4.29	4/15/2016	\$170,000	1985	1,559	\$109.04	3/2	MFG
	Not	102 Timber	1.39	4/1/2016	\$175,500	2009	1,352	\$129.81	3/2	MFG
	Not	120 Ranchland	0.99	10/1/2014	\$170,000	2002	1,501	\$113.26	3/2	MFG

**Adjoining Sales Adjusted**

Time	Acres	YB	GLA	BR/BA	Park	Total	% Diff
						\$170,000	
\$0	\$10,000	-\$29,484	\$13,435	\$0	\$0	\$169,451	0%
\$10,200	\$10,000	-\$20,230	\$3,284	\$0	\$0	\$173,254	-2%



#	Solar Farm	Address	Acres	Date Sold	Sales Price	Built	GLA	\$/GLA	BR/BA	Style	Park
53	Adjoins	105 Pinto	4.99	12/16/2016	\$206,000	1978	1,484	\$138.81	3/2	Ranch	Det gar
	Not	111 Spur	1.15	2/1/2016	\$193,000	1985	2,013	\$95.88	4/2	Ranch	Garage
	Not	103 Marshall	1.07	3/29/2017	\$196,000	2003	1,620	\$120.99	3/2	Ranch	N/A
	Not	127 Ranchland	0.99	6/9/2015	\$219,900	1988	1910	\$115.13	3/2	Ranch	Gar +3 det Gar

#### Adjoining Sales Adjusted

Time	Acres	YB	GLA	BR/BA	Park	Total	% Diff
						\$206,000	
\$3,860	\$10,000	-\$6,755	-\$25,359	\$0	\$0	\$174,746	15%
\$1,470	\$10,000	-\$24,500	-\$8,227	\$0	\$5,000	\$179,743	13%
\$9,896	\$10,000	-\$10,995	-\$24,523	\$0	-\$10,000	\$194,278	6%

The homes adjoining the solar farm were (in order) approximately 1,060 and 2,020 feet from the closest point on the home to the closest solar panel.

**7. Matched Pair – White Cross II, Chapel Hill, NC**



This project is located in rural Orange County on White Cross Road with a 2.8 MW facility. This project is a few parcels south of White Cross Solar Farm that was developed by a different company. An adjoining home sold after construction as presented below.

**Adjoining Residential Sales After Solar Farm Completed**

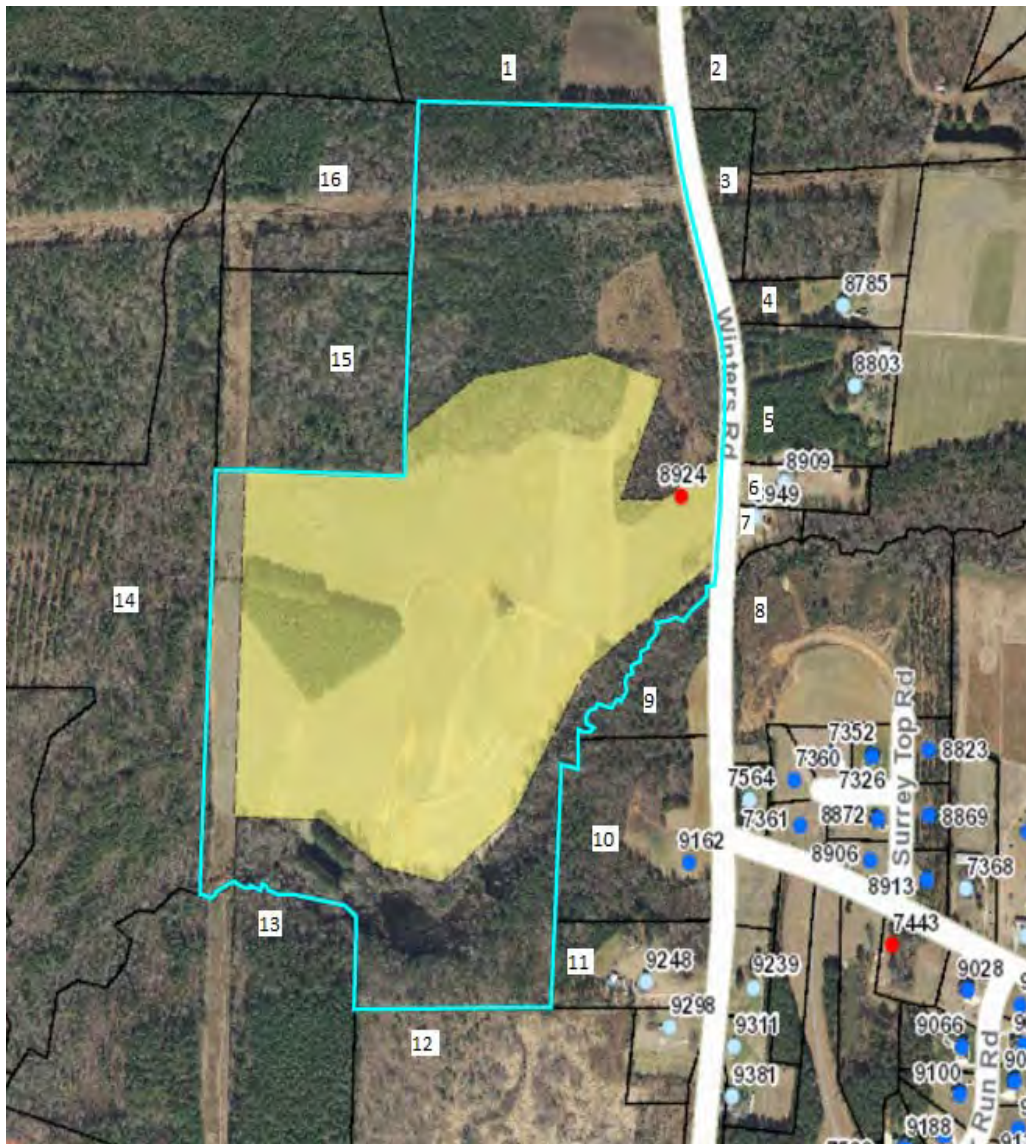
Solar	TAX ID/Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	BR/BA	Park	Style
Adjoins	97482114578	11.78	2/29/2016	\$340,000	1994	1,601	\$212.37	3/3	Garage	Ranch
Not	4200B Old Greensbor	12.64	12/28/2015	\$380,000	2000	2,075	\$183.13	3/2.5	Garage	Ranch

**Adjoining Residential Sales After Solar Farm Adjoining Sales Adjusted**

Solar	TAX ID/Address	Sales Price	Time	Acres	YB	GLA	BR/BA	Park	Total	% Diff
Adjoins	97482114578	\$340,000							\$340,000	
Not	4200B Old Greensbor	\$380,000	\$3,800	\$0	-\$15,960	-\$43,402	\$5,000	\$0	\$329,438	3%

The home adjoining the solar farm was approximately 1,479 feet from the closest point on the home to the closest solar panel.

**8. Matched Pair – Tracy Solar, Bailey, NC**



This project is located in rural Nash County on Winters Road with a 5 MW facility that was built in 2016. A local builder acquired parcels 9 and 10 following construction as shown below at rates comparable to other tracts in the area. They then built a custom home for an owner and sold that at a price similar to other nearby homes as shown in the matched pair data below.

**Adjoining Land Sales After Solar Farm Completed**

#	Solar Farm	TAX ID	Grantor	Grantee	Address	Acres	Date Sold	Sales Price	\$/AC	Other
9 & 10	Adjoins	316003 & 316004	Cozart	Kingsmill	9162 Winters	13.22	7/21/2016	\$70,000	\$5,295	
	Not	6056	Billingsly		427 Young	41	10/21/2016	\$164,000	\$4,000	
	Not	33211	Fulcher	Weikel	10533 Cone	23.46	7/18/2017	\$137,000	\$5,840	Doublewide, structures
	Not	106807	Perry	Gardner	Claude Lewis	11.22	8/10/2017	\$79,000	\$7,041	Gravel drive for sub, cleared
	Not	3437	Vaughan	N/A	11354 Old Lewis Sch	18.73	Listing	\$79,900	\$4,266	Small cemetery, wooded

**Adjoining Sales Adjusted**

<b>Time</b>	<b>Acres</b>	<b>Location</b>	<b>Other</b>	<b>Adj \$/Ac</b>	<b>% Diff</b>
				\$5,295	
\$0	\$400	\$0	\$0	\$4,400	17%
-\$292	\$292	\$0	-\$500	\$5,340	-1%
-\$352	\$0	\$0	-\$1,000	\$5,689	-7%
-\$213	\$0	\$0	\$213	\$4,266	19%
				<b>Average</b>	<b>7%</b>

**Adjoining Residential Sales After Solar Farm Completed**

<b>#</b>	<b>Solar Farm</b>	<b>n</b>	<b>Address</b>	<b>Acres</b>	<b>Date Sold</b>	<b>Sales Price</b>	<b>Built</b>	<b>GLA</b>	<b>\$/GLA</b>	<b>BR/BA</b>	<b>Style</b>	<b>Other</b>
9 & 10	Adjoins	s	9162 Winters	13.22	1/5/2017	\$255,000	2016	1,616	\$157.80	3/2	Ranch	1296 sf wrkshp
	Not	w	7352 Red Fox	0.93	6/30/2016	\$176,000	2010	1,529	\$115.11	3/2	2-story	

**Adjoining Sales Adjusted**

<b>Time</b>	<b>Acres</b>	<b>YB</b>	<b>GLA</b>	<b>Style</b>	<b>Other</b>	<b>Total</b>	<b>% Diff</b>
						\$255,000	
\$0	\$44,000	\$7,392	\$5,007	\$5,000	\$15,000	\$252,399	1%

The comparables for the land show either a significant positive relationship or a mild negative relationship to having and adjoining solar farm, but when averaged together they show no negative impact. The wild divergence is due to the difficulty in comping out this tract of land and the wide variety of comparables used. The two comparables that show mild negative influences include a property that was partly developed as a residential subdivision and the other included a doublewide with some value and accessory agricultural structures. The tax assessed value on the improvements was valued at \$60,000. So both of those comparisons have limitations. The two that show significant enhancement due to adjacency includes a property with a cemetery located in the middle and the other is a tract almost twice as large. Still that larger tract after adjustment provides the best matched pair as it required the least adjustment. I therefore conclude that there is no negative impact due to adjacency to the solar farm shown by this matched pair.

The dwelling that was built on the site was a build-to-suit and was compared to a nearby homesale of a property on a smaller parcel of land. I adjusted for that differenced based on a \$25,000 value for a 1-acre home site versus the \$70,000 purchase price of the larger subject tract. The other adjustments are typical and show no impact due to the adjacency to the solar farm.

The closest solar panel to the home is 780 feet away.

I spoke with a representative of Kingsmill Builders regarding the purchase of the lot and the sale of the finished home. They indicated that the solar farm was not considered in any way in either purchase.

**9. Matched Pair – McBride Place Solar Farm, Midland, NC**



This project is located on Mount Pleasant Road, Midland, North Carolina. The property is on 627 acres on an assemblage of 974.59 acres. The solar farm was approved in early 2017 for a 74.9 MW facility.

I have considered the sale of 4380 Joyner Road which adjoins the proposed solar farm near the northwest section. This property was appraised in April of 2017 for a value of \$317,000 with no consideration of any impact due to the solar farm in that figure. The property sold in November 2018 for \$325,000 with the buyer fully aware of the proposed solar farm.

I have considered the following matched pairs to the subject property.

**Adjoining Residential Sales After Solar Farm Approved**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	BR/BA	Park	Style	Other
Adjoins	4380 Joyner	12.00	11/22/2017	\$325,000	1979	1,598	\$203.38	3/2	2xGar	Ranch	Outbldg
Not	3870 Elkwood	5.50	8/24/2016	\$250,000	1986	1,551	\$161.19	3/2.5	Det 2xGar	Craft	
Not	8121 Lower Rocky	18.00	2/8/2017	\$355,000	1977	1,274	\$278.65	2/2	2xCarppt	Ranch	Eq. Fac.
Not	13531 Cabarrus	7.89	5/20/2016	\$267,750	1981	2,300	\$116.41	3/2	2xGar	Ranch	

**Adjoining Sales Adjusted**

<b>Time</b>	<b>Acres</b>	<b>YB</b>	<b>Condition</b>	<b>GLA</b>	<b>BR/BA</b>	<b>Park</b>	<b>Other</b>	<b>Total</b>	<b>% Diff</b>
								\$325,000	
\$7,500	\$52,000	-\$12,250	\$10,000	\$2,273	-\$2,000	\$2,500	\$7,500	\$317,523	2%
\$7,100	-\$48,000	\$4,970		\$23,156	\$0	\$3,000	-\$15,000	\$330,226	-2%
\$8,033	\$33,000	-\$3,749	\$20,000	-\$35,832	\$0	\$0	\$7,500	\$296,702	9%
								<b>Average</b>	3%

After adjusting the comparables, I found that the average adjusted value shows a slight increase in value for the subject property adjoining a solar farm. As in the other cases, this is a mild positive and within the typical range of real estate transactions. I therefore conclude that these matched pairs show no impact on value.

I note that the home at 4380 Joyner Road is 275 feet from the closest proposed solar panel.

I also considered the recent sale of a lot on Kristi Lane that is on the east side of the proposed solar farm. This 4.22-acre lot sold in December 2017 for \$94,000. I spoke with the broker, Margaret Dabbs, who indicated that the solar farm was considered a positive by both buyer and seller as it insures no subdivision will be happening in that area. Buyers in this market are looking for privacy and seclusion. The other lots on Kristi Lane are likely to sale soon at similar prices. Ms. Dabbs indicated that they have had these lots on the market for about 5 years at asking prices that were probably a little high and they are now selling and they have another under contract.

## Conclusion

The solar farm matched pairs shown above have similar characteristics to each other in terms of population, with most of the projects being in areas with a 1-mile radius population under 1,000, but with several outliers showing solar farms in more urban areas.

The median income for the population within 1 mile of a solar farm is \$52,386 with a median housing unit value of \$225,000. Most of the comparables are under \$300,000 in the home price, though I have also confirmed matched pairs in other states with adjoining homes up to \$770,000.

The adjoining uses show that residential and agricultural uses are the predominant adjoining uses.

These figures are in line with the larger set of solar farms that I have looked at with the predominant adjoining uses being residential and agricultural.

<b>Matched Pair Summary</b>				<b>Adj. Uses By Acreage</b>				<b>1 mile Radius (2010-2016 Data)</b>			
<b>Name</b>	<b>City</b>	<b>State</b>	<b>Acres</b>	<b>MW</b>	<b>Res</b>	<b>Ag</b>	<b>Com</b>	<b>Population</b>	<b>Med. Income</b>	<b>Avg. Housing Unit</b>	
<b>1</b>	AM Best	Goldsboro	NC	38	5.00	38%	23%	39%	1,523	\$37,358	\$148,375
<b>2</b>	White Cross	Chapel Hill	NC	45	5.00	5%	95%	0%	213	\$67,471	\$319,929
<b>3</b>	Wagstaff	Roxboro	NC	30	5.00	7%	93%	0%	336	\$41,368	\$210,723
<b>4</b>	Pine Valley	West End	NC	89	5.00	87%	6%	7%	272	\$52,386	\$225,000
<b>5</b>	Neal Hawkins	Gastonia	NC	35	5.00	33%	23%	44%	4,689	\$35,057	\$126,562
<b>6</b>	Summit	Moyock	NC	2034	80.00	4%	94%	2%	382	\$79,114	\$281,731
<b>7</b>	White Cross II	Chapel Hill	NC	34	2.80	25%	75%	0%	213	\$67,471	\$319,929
<b>8</b>	Tracy	Bailey	NC	50	5.00	29%	71%	0%	312	\$43,940	\$99,219
<b>9</b>	McBride	Midland	NC	627	75.00	22%	78%	0%	398	\$63,678	\$256,306
<b>Average</b>				331	20.87	28%	62%	10%	926	\$54,205	\$220,864
<b>Median</b>				45	5.00	25%	75%	0%	336	\$52,386	\$225,000
Flatwood				47	5.00	0%	12%	88%	78	\$55,591	\$371,154

The commercial/industrial uses adjoining Flatwood are entirely within an RV Park and a quarry.

I have pulled the matched pairs from the above referenced solar farms to provide the following summary of home sale matched pairs and land sales next to solar farms. The summary shows that the range of differences is from -1% to +6% with an average and median of +1%. This means that the average and median impact is for a slight positive impact due to adjacency to a solar farm. However, this 1% rate is within the typical variability I would expect from real estate. I therefore conclude that this data shows no negative or positive impact due to adjacency to a solar farm.

Similarly, the land sales show a median upward impact of 6% due to adjacency to a solar farm. This data actually supports an indication of a positive impact to land adjoining a solar farm. Given the wider variability in land values, I remain cautious of that conclusion and will continue looking for additional land matched pairs.

## Residential Dwelling Matched Pairs Adjoining Solar Farms

Pair	Solar Farm	City	State	Area	MW	Approx		Sale Date	Sale Price	Adj. Sale Price	% Diff
						Distance	Tax ID/Address				
1	AM Best	Goldsboro	NC	Suburban	5	280	3600195570	Sep-13	\$250,000		
							3600198928	Mar-14	\$250,000	\$250,000	0%
2	AM Best	Goldsboro	NC	Suburban	5	280	3600195361	Sep-13	\$260,000		
							3600194813	Apr-14	\$258,000	\$258,000	1%
3	AM Best	Goldsboro	NC	Suburban	5	280	3600199891	Jul-14	\$250,000		
							3600198928	Mar-14	\$250,000	\$250,000	0%
4	AM Best	Goldsboro	NC	Suburban	5	280	3600198632	Aug-14	\$253,000		
							3600193710	Oct-13	\$248,000	\$248,000	2%
5	AM Best	Goldsboro	NC	Suburban	5	280	3600196656	Dec-13	\$255,000		
							3601105180	Dec-13	\$253,000	\$253,000	1%
6	AM Best	Goldsboro	NC	Suburban	5	280	3600182511	Feb-13	\$247,000		
							3600183905	Dec-12	\$240,000	\$245,000	1%
7	AM Best	Goldsboro	NC	Suburban	5	280	3600182784	Apr-13	\$245,000		
							3600193710	Oct-13	\$248,000	\$248,000	-1%
8	AM Best	Goldsboro	NC	Suburban	5	280	3600195361	Nov-15	\$267,500		
							3600195361	Sep-13	\$260,000	\$267,800	0%
9	Pine Valley	West End	NC	Rural	5	175	16893	Aug-16	\$66,000		
							16897	Aug-16	\$59,000	\$65,490	1%
10	Neal Hawkins	Gastonia	NC	Suburban	5	275	139179	Mar-17	\$270,000		
							139179	Mar-17	\$270,000	\$270,000	0%
11	Summit	Moyock	NC	Suburban	80	1,060	129 Pinto	Apr-16	\$170,000		
							102 Timber	Apr-16	\$175,500	\$169,451	0%
12	Summit	Moyock	NC	Suburban	80	2,020	105 Pinto	Dec-16	\$206,000		
							127 Ranchland	Jun-15	\$219,900	\$194,278	6%
13	White Cross II	Chapel Hill	NC	Rural	2.8	1,479	2018 Elkins	Feb-16	\$340,000		
							4200B Old Greensbor	Dec-15	\$380,000	\$329,438	3%
14	Tracy	Bailey	NC	Rural	5	780	9162 Winters	Jan-17	\$255,000		
							7352 Red Fox	Jun-16	\$176,000	\$252,399	1%
15	McBride Place	Midland	NC	Rural	75	275	4380 Joyner	Nov-17	\$325,000		
							3870 Elkwood	Aug-16	\$250,000	\$317,523	2%

	MW	Acres		
<b>Average</b>	19.52	554	<b>Average</b>	1%
<b>Median</b>	5.00	280	<b>Median</b>	1%
<b>High</b>	80.00	2,020	<b>High</b>	6%
<b>Low</b>	2.80	175	<b>Low</b>	-1%

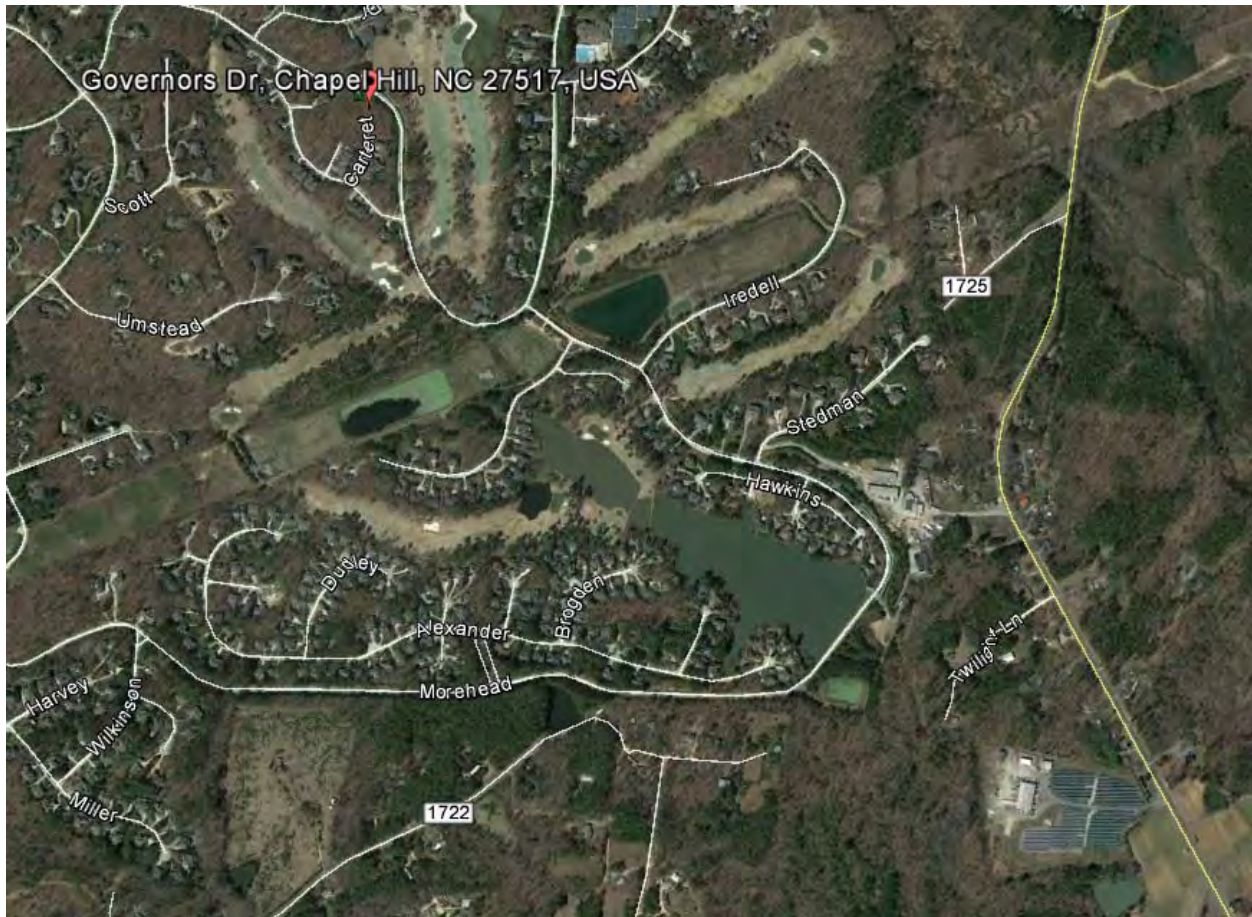


## Land Sale Matched Pairs Adjoining Solar Farms

Pair	Solar Farm	City	State	Area	MW	Tax ID	Sale Date	Sale Price	Acres	\$/AC	Adj. \$/AC	% Diff
1	White Cross	Chapel Hill	NC	Rural	5	9748336770	Jul-13	\$265,000	47.20	\$5,614		
						9747184527	Nov-10	\$361,000	59.09	\$6,109	\$5,278	6%
2	Wagstaff	Roxboro	NC	Rural	5	91817117960	Aug-13	\$164,000	18.82	\$8,714		
						91800759812	Dec-13	\$130,000	14.88	\$8,737	\$8,737	0%
3	Tracy	Bailey	NC	Rural	5	316003	Jul-16	\$70,000	13.22	\$5,295		
						6056	Oct-16	\$164,000	41.00	\$4,000	\$4,400	17%
				<b>Average</b>	5.00					<b>Average</b>	8%	
				<b>Median</b>	5.00					<b>Median</b>	6%	
				<b>High</b>	5.00					<b>High</b>	17%	
				<b>Low</b>	5.00					<b>Low</b>	0%	

## II. Harmony of Use/Compatibility

I have visited over 300 solar farms and sites on which solar farms are proposed in North Carolina and Virginia as well as other states to determine what uses and types of areas are compatible and harmonious with a solar farm. The data I have collected and provide in this report strongly supports the compatibility of solar farms with adjoining agricultural and residential uses. While I have focused on adjoining uses, I note that there are many examples of solar farms being located within a quarter mile of residential developments, including such notable developments as Governor's Club in Chapel Hill, which has a solar farm within a quarter mile as you can see on the following aerial map. Governor's Club is a gated golf community with homes selling for \$300,000 to over \$2 million.



The subdivisions included in the matched pair analysis also show an acceptance of residential uses adjoining solar farms as a harmonious use.

Beyond these anecdotal references, I have quantified the adjoining uses for a number of solar farm comparables to derive a breakdown of the adjoining uses for each solar farm. The chart below shows the breakdown of adjoining or abutting uses by total acreage.

### Percentage By Acreage of Adjoining Uses

	Output	Acres	Avg. Dist Closest		Adjoining Use by Acreage		
			to home	Home	Res	Agri	Com
<b>Average</b>	8.77	143.19	804	348	19%	73%	9%
<b>Median</b>	5.00	55.45	641	218	11%	84%	0%
<b>High</b>	140.00	2034.00	3,596	3,150	100%	100%	96%
<b>Low</b>	0.80	4.30	90	25	0%	0%	0%

**Total Number of Solar Farms** 334

I have also included a breakdown of each solar farm by number of adjoining parcels rather than acreage. Using both factors provides a more complete picture of the neighboring properties.

### Percentage By Total Number of Adjoining Parcels

	Output	Acres	Avg. Dist Closest		Adjoining Use by Parcel		
			to home	Home	Res	Agri	Com
<b>Average</b>	8.77	143.19	804	348	60%	34%	6%
<b>Median</b>	5.00	55.45	641	218	65%	29%	0%
<b>High</b>	140.00	2034.00	3,596	3,150	100%	100%	78%
<b>Low</b>	0.80	4.30	90	25	0%	0%	0%

**Total Number of Solar Farms** 334

Both of the above charts show a marked residential and agricultural adjoining use for most solar farms. Every single solar farm considered included an adjoining residential or residential agricultural use. These comparable solar farms clearly support a compatibility with adjoining residential uses along with agricultural uses.

### III. Summary of Local Solar Farm Projects

#	County	City	Name	Output (MW)	Acres	Avg. Dist Closest Adj Use by Acre					
						to home	Home	Res	Agri	Com	
2	Wake	Wake	Willow Springs	6.4	45			74%	26%	0%	
4	Orange	Chapel Hill	White Cross	5	45			49%	51%	0%	
6	Chatham	Chapel Hill	Strata	1.57	14.154			0%	100%	0%	
19	Chatham	Chapel Hill	Vickers	2	12.6			35%	58%	8%	
20	Orange	Mebane	Stout		52.66			52%	38%	10%	
21	Durham	Rougemont	Mile	6.473	42.99			54%	20%	25%	
22	Wake	Willow Springs	Sun Fish	5	63.94			43%	57%	0%	
28	Harnett	Erwin	Erwin	5				63%	9%	28%	
29	Durham	Durham	Star Solar		49.98			6%	94%	0%	
33	Orange	Chapel Hill	Binks	5.6	50.3			22%	78%	0%	
39	Chatham	Siler City	Pit 64	5	47.92			32%	68%	0%	
50	Harnett	Lillington	McDougald		32.67	924	460	29%	71%	0%	
56	Orange	Mebane	Mattress		26.73	N/A	N/A	22%	0%	78%	
58	Harnett	Coats	Coats		39.23	328	55	5%	95%	0%	
75	Orange	Chapel Hill	White Cross Farm		19.8	994	230	24%	76%	0%	
79	Harnett	Fuquay Varina	Kathleen		102.6	1,095	790	28%	72%	0%	
113	Lee	Sanford	Cohen		164.22	415	180	4%	96%	0%	
114	Lee	Sanford	Boaz		60.62	564	120	47%	53%	0%	
129	Harnett	Dunn	Meadowlark		44.55	N/A	N/A	43%	57%	0%	
142	Moore	West End	Pine Valley	4.996	89.44	830	140	87%	6%	8%	
143	Moore	West End	Pinesage	4.996	53	1,894	1,060	20%	80%	0%	
148	Randolph	Trinity	Trinity		37.48	625	340	38%	29%	33%	
161	Chatham	Carboro	West Siler Suits		195.07	1,174	450	43%	57%	0%	
163	Chatham	Siler City	Siler 421		60.06	545	250	18%	78%	4%	
166	Moore	Aberdeen	Moore I	2.66	25.1	382	205	19%	81%	0%	
167	Moore	Carthage	Moore II	4.998	127.73	1,089	160	86%	14%	0%	
186	Orange	Mebane	Oakwood	4.996	53.74	931	460	72%	28%	0%	
187	Alamance	Graham	Bakatsias	4.996	25.52	347	190	41%	0%	59%	
193	Randolph	Climax	Climax		48.07	661	191	39%	61%	0%	
202	Moore	West End	Highway 211		308.05	1,538	67	4%	96%	0%	
203	Moore	Candor	Spicewood	6.4	40.16	655	331	87%	0%	13%	
207	Harnett	Lillington	Clovelly		55.79	555	555	2%	98%	0%	
210	Moore	Carthage	Sedberry Farm	5	31.38	422	250	49%	51%	0%	
214	Randolph	Liberty	Henry	5	80.2	521	110	45%	50%	4%	
232	Moore	Star	Dabestani	2.496	28.15	328	80	62%	38%	0%	
236	Moore	Robbins	Mustang		49.71	504	95	100%	0%	0%	
286	Chatham	Siler City	Pegasus	2.69	104.9		150	13%	87%	0%	
294	Lee	Sanford	Traveler		35.35	286	120	17%	64%	19%	
307	Randolph	Denton	Hopkins		17	1,528	825	36%	64%	0%	
308	Randolph	Asheboro	Hopewell Friends		16.2	288	255	100%	0%	0%	
309	Randolph	Seagrove	Morning View		102.53	884	205	29%	71%	0%	
313	Alamance	Elon	Manning		67.43	989	205	63%	37%	0%	
326	Randolph	Liberty	Kendall	5	68.16	648	200	25%	75%	0%	
327	Randolph	Asheboro	Old Cedar		45.48			49%	21%	29%	
328	Randolph	New Hope	Zelda		21			10%	90%	0%	
329	Randolph	Asheboro	Spencer		70.83			100%	0%	0%	
376	Harnett	Lillington	Ennis		42.5	493	95	41%	59%	0%	
394	Alamance	Graham	1003 Whitney		142.47			41%	59%	0%	
404	Harnett	Dunn	Cubera		18.7	255	220	44%	56%	0%	
<b>Total Number of Solar Farms</b>					49						
<b>Average</b>				4.58	62.00	732	283	41%	52%	6%	
<b>Median</b>				5.00	48.00	625	205	41%	57%	0%	
<b>High</b>				6.47	308.05	1,894	1,060	100%	100%	78%	
<b>Low</b>				1.57	12.60	255	55	0%	0%	0%	

## **IV. Specific Factors on Harmony with the Area**

I have completed a number of Impact Studies related to a variety of uses and I have found that the most common areas for impact on adjoining values typically follow the following hierarchy with descending levels of potential impact. I will discuss each of these categories and how they relate to a solar farm.

1. Hazardous material
2. Odor
3. Noise
4. Traffic
5. Stigma
6. Appearance

### **1. Hazardous material**

The solar farm presents no potential hazardous waste byproduct as part of normal operation. Any fertilizer, weed control, vehicular traffic, or construction will be significantly less than typically applied in a residential development or even most agricultural uses.

The various solar farms that I have inspected and identified in the addenda have no known environmental impacts associated with the development and operation.

### **2. Odor**

The various solar farms that I have inspected produced no odor.

### **3. Noise**

These are passive solar panels with no associated noise beyond a barely audible sound during daylight hours. The transformer reportedly has a hum similar to a fluorescent light in an office building that can only be heard in close proximity to this transformer and the buffers on the property are sufficient to make emitted sounds inaudible from the adjoining properties. No sound is emitted from the facility at night.

The various solar farms that I have inspected were inaudible from the roadways. I heard nothing on any of these sites associated with the solar farm.

### **4. Traffic**

The solar farm will have no onsite employee's or staff. The site requires only minimal maintenance. Relative to other potential uses of the site (such as a residential subdivision), the additional traffic generated by a solar farm use on this site is insignificant.

### **5. Stigma**

There is no stigma associated with solar farms and solar farms and people generally respond favorably towards such a use. While an individual may express concerns about proximity to a solar farm, there is no specific stigma associated with a solar farm. Stigma generally refers to things such as adult establishments, prisons, rehabilitation facilities, and so forth.

Solar panels have no associated stigma and in smaller collections are found in yards and roofs in many residential communities. Solar panels on a roof are often cited as an enhancement to the property in marketing brochures.

I see no basis for an impact from stigma due to a solar farm.

## 6. Appearance

Although “appearance” has been ruled by NC Courts to be irrelevant to the issue of “harmony with an area,” I note that larger solar farms using fixed or tracking panels are a passive use of the land that is considered in keeping with a rural/residential area. As shown below, solar farms are comparable to larger greenhouses. This is not surprising given that a greenhouse is essentially another method for collecting passive solar energy. The greenhouse use is well received in residential/rural areas and has a similar visual impact as a solar farm.



The solar panels are generally less than 15 feet high, which means that the visual impact of the solar panels will be similar in height to a typical greenhouse and lower than a single story residential dwelling. Were the subject property developed with single family housing, that development would have a much greater visual impact on the surrounding area given that a two-story home with attic could be three to four times as high as these proposed panels.

## 7. Conclusion

On the basis of the factors described above, it is my professional opinion that the proposed solar farm will be in harmony with the area in which it is to be developed. The breakdown of adjoining uses is similar to the other solar farms tracked.

## **V. Market Commentary**

I have surveyed several builders, developers and investors regarding solar farms over the last year. I have received favorable feedback from a variety of sources; below are excerpts from my conversations with different clients or other real estate professionals.

I spoke with Betty Cross with Keller Williams Realty in Chapel Hill, who sold the tract of land adjoining the White Cross Road solar farm. She indicated that the solar farm was not considered a negative factor in marketing the property and that it had no impact on the final price paid for the land.

I spoke with Lynn Hayes a broker with Berkshire Hathaway who sold a home at the entrance to Pickards Mountain where the home exits onto the Pickard Mountain Eco Institute's small solar farm. This property is located in rural Orange County west of Chapel Hill. This home closed in January 2014 for \$735,000. According to Ms. Hayes the buyer was excited to be living near the Eco Institute and considered the solar farm to be a positive sign for the area. There are currently a number of 10 acre plus lots in Pickards Meadow behind this house with lots on the market for \$200,000 to \$250,000.

A new solar farm was built on Zion Church Road, Hickory at the Two Lines Solar Farm on the Punch property. After construction of the solar farm in 2013, an adjoining tract of land with 88.18 acres sold for \$250,000, or \$2,835 per acre. This was a highly irregular tract of land with significant tree cover between it and the solar farm. I have compared this to a current listing of 20.39 acres of land that is located southeast just a little ways from this solar farm. This land is on the market for \$69,000, or \$3,428 per acre. Generally, a smaller tract of land would be listed for more per acre. Considering a size adjustment of 5% per doubling in size, and a 10% discount for the likely drop in the closed price off of the asking price, I derive an indicated value per acre of the smaller tract of \$2,777 per acre. This is very similar to the recently closed sale adjoining the solar farm, which further supports the matched pair analysis earlier in this report.

Rex Vick with Windjam Developers has a subdivision in Chatham County off Mt. Gilead Church Road known as The Hamptons. Home prices in The Hamptons start at \$600,000 with homes over \$1,000,000. Mr. Vick expressed interest in the possibility of including a solar farm section to the development as a possible additional marketing tool for the project.

Mr. Eddie Bacon, out of Apex North Carolina, has inherited a sizeable amount of family and agricultural land, and he has expressed interest in using a solar farm as a method of preserving the land for his children and grandchildren while still deriving a useful income from the property. He believes that solar panels would not in any way diminish the value for this adjoining land.

I spoke with Carolyn Craig, a Realtor in Kinston, North Carolina who is familiar with the Strata Solar Farms in the area. She noted that a solar farm in the area would be positive: "A solar farm is color coordinated and looks nice." "A solar farm is better than a turkey farm," which is allowed in that area. She would not expect a solar farm will have any impact on adjoining home prices in the area.

Mr. Michael Edwards, a broker and developer in Raleigh, indicated that a passive solar farm would be a great enhancement to adjoining property: "You never know what might be put on that land next door. There is no noise with a solar farm like there is with a new subdivision."

These are just excerpts I've noted in my conversations with different clients or other real estate participants that provided other thoughts on the subject that seemed applicable. Although they are not the same form of evidence provided by a matched pair, interviewing reliable people with direct knowledge of local markets provides an extra layer of analysis to confirm the market data. Essentially, this provides some context for the data shown in the matched pairs.

**VI. Conclusion**

The matched pair analysis shows no impact in home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas and that it would function in a harmonious manner with this area.

Very similar solar farms in very similar areas have been found by hundreds of towns and counties not to have a substantial injury to abutting or adjoining properties, and many of those findings of no impact have been upheld by N.C. Courts or overturned by N.C. Courts when a board found otherwise (see, for example *Dellinger v. Lincoln County*). Similar solar farms have been approved adjoining agricultural uses, schools, churches, and residential developments. Industrial uses rarely absorb negative impacts from adjoining uses.

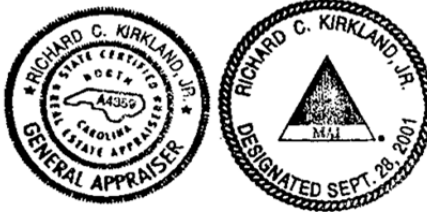
Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will not substantially injure the value of adjoining or abutting property and that the proposed use is in harmony with the area in which it is located.

If you have any further questions please call me any time.

Sincerely,



Richard C. Kirkland, Jr., MAI  
State Certified General Appraiser





### ***Limiting Conditions and Assumptions***

Acceptance of and/or use of this report constitutes acceptance of the following limiting conditions and assumptions; these can only be modified by written documents executed by both parties.

- ❖ The basic limitation of this and any appraisal is that the appraisal is an opinion of value, and is, therefore, not a guarantee that the property would sell at exactly the appraised value. The market price may differ from the market value, depending upon the motivation and knowledge of the buyer and/or seller, and may, therefore, be higher or lower than the market value. The market value, as defined herein, is an opinion of the probable price that is obtainable in a market free of abnormal influences.
- ❖ I do not assume any responsibility for the legal description provided or for matters pertaining to legal or title considerations. I assume that the title to the property is good and marketable unless otherwise stated.
- ❖ I am appraising the property as though free and clear of any and all liens or encumbrances unless otherwise stated.
- ❖ I assume that the property is under responsible ownership and competent property management.
- ❖ I believe the information furnished by others is reliable, but I give no warranty for its accuracy.
- ❖ I have made no survey or engineering study of the property and assume no responsibility for such matters. All engineering studies prepared by others are assumed to be correct. The plot plans, surveys, sketches and any other illustrative material in this report are included only to help the reader visualize the property. The illustrative material should not be considered to be scaled accurately for size.
- ❖ I assume that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. I take no responsibility for such conditions or for obtaining the engineering studies that may be required to discover them.
- ❖ I assume that the property is in full compliance with all applicable federal, state, and local laws, including environmental regulations, unless the lack of compliance is stated, described, and considered in this appraisal report.
- ❖ I assume that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in this appraisal report.
- ❖ I assume that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
- ❖ I assume that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
- ❖ I am not qualified to detect the presence of floodplain or wetlands. Any information presented in this report related to these characteristics is for this analysis only. The presence of floodplain or wetlands may affect the value of the property. If the presence of floodplain or wetlands is suspected the property owner would be advised to seek professional engineering assistance.
- ❖ For this appraisal, I assume that no hazardous substances or conditions are present in or on the property. Such substances or conditions could include but are not limited to asbestos, urea-formaldehyde foam insulation, polychlorinated biphenyls (PCBs), petroleum leakage or underground storage tanks, electromagnetic fields, or agricultural chemicals. I have no knowledge of any such materials or conditions unless otherwise stated. I make no claim of technical knowledge with regard to testing for or identifying such hazardous materials or conditions. The presence of such materials, substances or conditions could affect the value of the property. However, the values estimated in this report are predicated on the assumption that there are no such materials or conditions in, on or in close enough proximity to the property to cause a loss in value. The client is urged to retain an expert in this field, if desired.
- ❖ Unless otherwise stated in this report the subject property is appraised without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the

Americans with Disabilities Act (effective 1/26/92). The presence of architectural and/or communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.

- ❖ Any allocation of the total value estimated in this report between the land and the improvements applies only under the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.
- ❖ Possession of this report, or a copy thereof, does not carry with it the right of publication.
- ❖ I have no obligation, by reason of this appraisal, to give further consultation or testimony or to be in attendance in court with reference to the property in question unless further arrangements have been made regarding compensation to Kirkland Appraisals, LLC.
- ❖ Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the appraiser, or the firm with which the appraiser is connected) shall be disseminated to the public through advertising, public relations, news, sales, or other media without the prior written consent and approval of Kirkland Appraisals, LLC, and then only with proper qualifications.
- ❖ Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in the report.
- ❖ Any income and expenses estimated in this report are for the purposes of this analysis only and should not be considered predictions of future operating results.
- ❖ This report is not intended to include an estimate of any personal property contained in or on the property, unless otherwise stated.
- ❖ This report is subject to the Code of Professional Ethics of the Appraisal Institute and complies with the requirements of the State of North Carolina for State Certified General Appraisers. This report is subject to the certification, definitions, and assumptions and limiting conditions set forth herein.
- ❖ The analyses, opinions and conclusions were developed based on, and this report has been prepared in conformance with, our interpretation of the guidelines and recommendations set forth in the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA).
- ❖ This is a Real Property Appraisal Consulting Assignment.

## **Certification – Richard C. Kirkland, Jr., MAI**

I certify that, to the best of my knowledge and belief:

1. The statements of fact contained in this report are true and correct;
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions;
3. I have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved;
4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment;
5. My engagement in this assignment was not contingent upon developing or reporting predetermined results;
6. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of the appraisal;
7. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute;
8. The reported analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives;
10. I have not made a personal inspection of the property that is the subject of this report and;
11. No one provided significant real property appraisal assistance to the person signing this certification.
12. As of the date of this report I have completed the requirements of the continuing education program of the Appraisal Institute;
13. I have not completed any appraisal related assignment on this property within the last three years.

Disclosure of the contents of this appraisal report is governed by the bylaws and regulations of the Appraisal Institute and the National Association of Realtors.

Neither all nor any part of the contents of this appraisal report shall be disseminated to the public through advertising media, public relations media, news media, or any other public means of communications without the prior written consent and approval of the undersigned.




Richard C. Kirkland, Jr., MAI  
State Certified General Appraiser



# Kirkland Appraisals, LLC

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Raleigh, North Carolina 27603  
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[www.kirklandappraisals.com](http://www.kirklandappraisals.com)

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## **PROFESSIONAL EXPERIENCE**

<b>Kirkland Appraisals, LLC</b> , Raleigh, N.C. Commercial appraiser	2003 – Present
<b>Hester &amp; Company</b> , Raleigh, N.C. Commercial appraiser	1996 – 2003

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## **PROFESSIONAL AFFILIATIONS**

<b>MAI</b> (Member, Appraisal Institute) designation #11796	2001
<b>NC State Certified General Appraiser</b> # A4359	1999
<b>VA State Certified General Appraiser</b> # 4001017291	
<b>OR State Certified General Appraiser</b> # C001204	
<b>SC State Certified General Appraiser</b> # 6209	

## **EDUCATION**

<b>Bachelor of Arts in English</b> , University of North Carolina, Chapel Hill	1993
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## **CONTINUING EDUCATION**

Uniform Standards of Professional Appraisal Practice Update	2016
Forecasting Revenue	2015
Wind Turbine Effect on Value	2015
Supervisor/Trainee Class	2015
Business Practices and Ethics	2014
Subdivision Valuation	2014
Uniform Standards of Professional Appraisal Practice Update	2014
Introduction to Vineyard and Winery Valuation	2013
Appraising Rural Residential Properties	2012
Uniform Standards of Professional Appraisal Practice Update Supervisors/Trainees	2012
Rates and Ratios: Making sense of GIMs, OARs, and DCFs	2011
Advanced Internet Search Strategies	2011
Analyzing Distressed Real Estate	2011
Uniform Standards of Professional Appraisal Practice Update Business Practices and Ethics	2011
Appraisal Curriculum Overview (2 Days – General)	2009
Appraisal Review - General	2009
Uniform Standards of Professional Appraisal Practice Update	2008
Subdivision Valuation: A Comprehensive Guide	2008
Office Building Valuation: A Contemporary Perspective	2008
Valuation of Detrimental Conditions in Real Estate	2007
The Appraisal of Small Subdivisions	2007
Uniform Standards of Professional Appraisal Practice Update	2006
Evaluating Commercial Construction	2005

Conservation Easements	2005
Uniform Standards of Professional Appraisal Practice Update	2004
Condemnation Appraising	2004
Land Valuation Adjustment Procedures	2004
Supporting Capitalization Rates	2004
Uniform Standards of Professional Appraisal Practice, C	2002
Wells and Septic Systems and Wastewater Irrigation Systems	2002
Appraisals 2002	2002
Analyzing Commercial Lease Clauses	2002
Conservation Easements	2000
Preparation for Litigation	2000
Appraisal of Nonconforming Uses	2000
Advanced Applications	2000
Highest and Best Use and Market Analysis	1999
Advanced Sales Comparison and Cost Approaches	1999
Advanced Income Capitalization	1998
Valuation of Detrimental Conditions in Real Estate	1999
Report Writing and Valuation Analysis	1999
Property Tax Values and Appeals	1997
Uniform Standards of Professional Appraisal Practice, A & B	1997
Basic Income Capitalization	1996