# Tab 5

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June 28, 2016

Ms. Amy Berg Pickett
Cypress Creek Renewables
2660 NE Hwy 20, Suite 610 - #30
Bend, OR 97701

**RE: Portage Solar Impact Study**

Dear Ms. Pickett:

At your request, I have considered the impact of a solar farm proposed to be constructed on 30 acres out of a parent tract of 159.27 acres located at 915 33rd Avenue S, Great Falls, Montana. Specifically, I have been asked to give my professional opinion on whether the proposed solar farm will "substantially injure the value of abutting properties," and whether "the proposed development 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, 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 study began in North Carolina where I have inspected over 200 solar farm sites and analyzed adjoining uses as well as searching for matched pairs. Over the last five years I have expanded that search into Tennessee, Virginia, Mississippi, Texas, South Carolina, and Oregon.

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 Cypress Creek Renewables, represented to me by Ms. Amy Berg Pickett. My findings support the Special Use Permit application. The effective date of this consultation is June 28, 2016.

**Proposed Use Description**

The proposed solar farm will be located on 30 acres out of a parent tract of 159.27 acres located at 915 33rd Avenue S, Great Falls, Montana.

Adjoining land is primarily a mix of agricultural and residential uses, which is common for solar farms as shown later in this report. The solar farm will consist of fixed solar panels that will generate minimal noise, no odor, and less traffic than a single residential home. The panels less than 12 feet in height and will be located behind a chain link fence.

The adjoining uses are shown on the map from GoogleEarth on the following page.

Portage POI
33rd Ave S
8th St S
9th St S
Parkview Dr S
10th St S
18th St S

# I. Solar Farms in Oregon

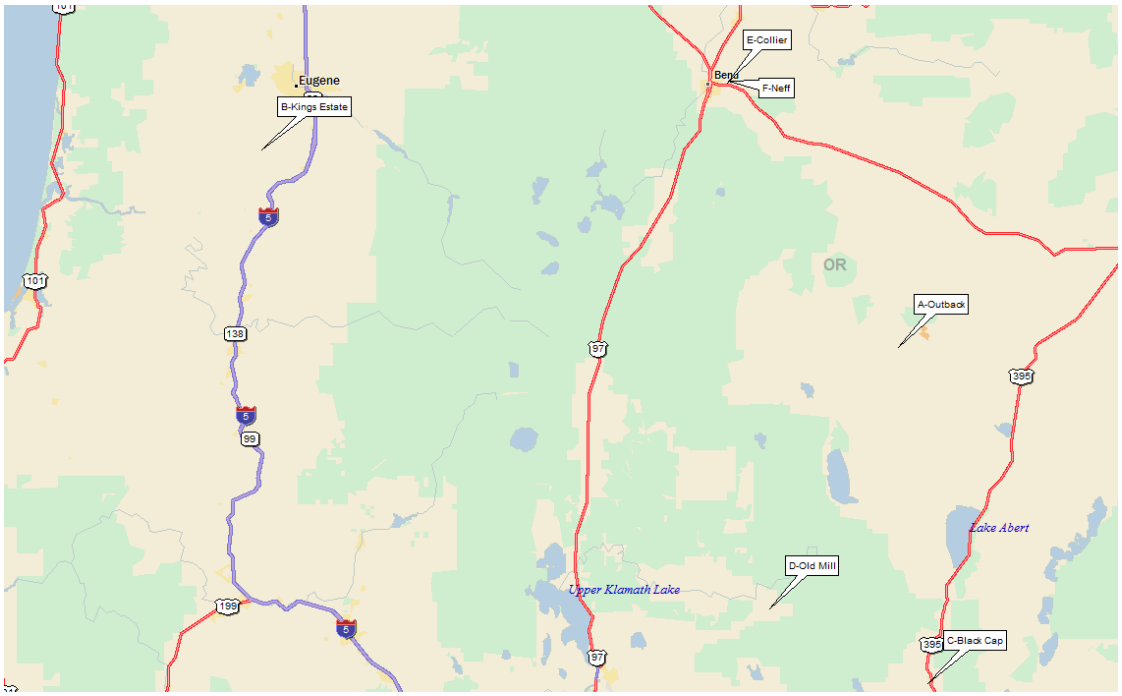
I have researched the following solar farms in Oregon to consider the adjoining uses. This data shows a strong similarity to solar farm construction activity in the other states at which I have looked. The similarity in construction patterns and adjoining uses supports the use of matched pairs from other states as well as supports the harmony of use section noted later in this report. I have found consistent development locations for solar farms in all of the states that I have considered with only one notable exception in Texas. Texas has a number of solar farms that are similar to the other states, but there was one solar farm that I looked at, Alamo 2, that was located in a dense residential area with single family homes on small lots on three of the four sides of the solar farm. However, that is atypical and the vast majority of the solar farms are located in residential/agricultural areas similar to the proposed site for Fox Solar.

I have focused on Oregon in this section as these solar farms are most similar to Montana.

I have shown a summary of the Oregon Solar Farms over 1 MW below followed by a more detailed presentation of each of these comparable solar farms. This list includes built and approved solar farms that are under construction or proposed.

The breakdown of adjoining uses for the solar farms in Oregon show an average of 77% of the adjoining uses as being agricultural or residential with only 22% of the adjoining uses having commercial adjoining uses. Furthermore 3 of the 7 solar farms had no commercial adjoining use of any sort and another only had 6% of the adjoining parcels as commercial.

This is very consistent with development patterns in North Carolina, Virginia, Texas, South Carolina, Tennessee, and Mississippi.



**Oregon Solar Farm Adjoining Use Breakdown By Parcel**

| | | | Adjoining Uses | | | | | All Res Uses | All Comm Uses |
|---|---|---|---|---|---|---|---|---|---|
| **Solar Farm** | **Acres** | **MW** | **Res** | **Ag** | **Res/Ag** | **Comm** | **Ind** | | |
| Outback | 58 | 5 | 0% | 43% | 14% | 0% | 43% | 57% | 43% |
| Kings Estate | 12 | 1 | 10% | 40% | 40% | 0% | 0% | 90% | 0% |
| Black Cap | 16 | 2 | 0% | 100% | 0% | 0% | 0% | 100% | 0% |
| Old Mill | 40 | 5 | 0% | 43% | 14% | 0% | 43% | 57% | 43% |
| Collier | 72 | 10 | 63% | 25% | 6% | 0% | 6% | 94% | 6% |
| Neff | 70 | 10 | 72% | 21% | 7% | 0% | 0% | 100% | 0% |
| Pendleton | 92 | 10 | 0% | 40% | 0% | 0% | 60% | 40% | 60% |
| **Average** | **51** | **6** | **21%** | **45%** | **12%** | **0%** | **22%** | **77%** | **22%** |

## *A. Outback Solar – Christmas Valley Road, Christmas Valley, OR*

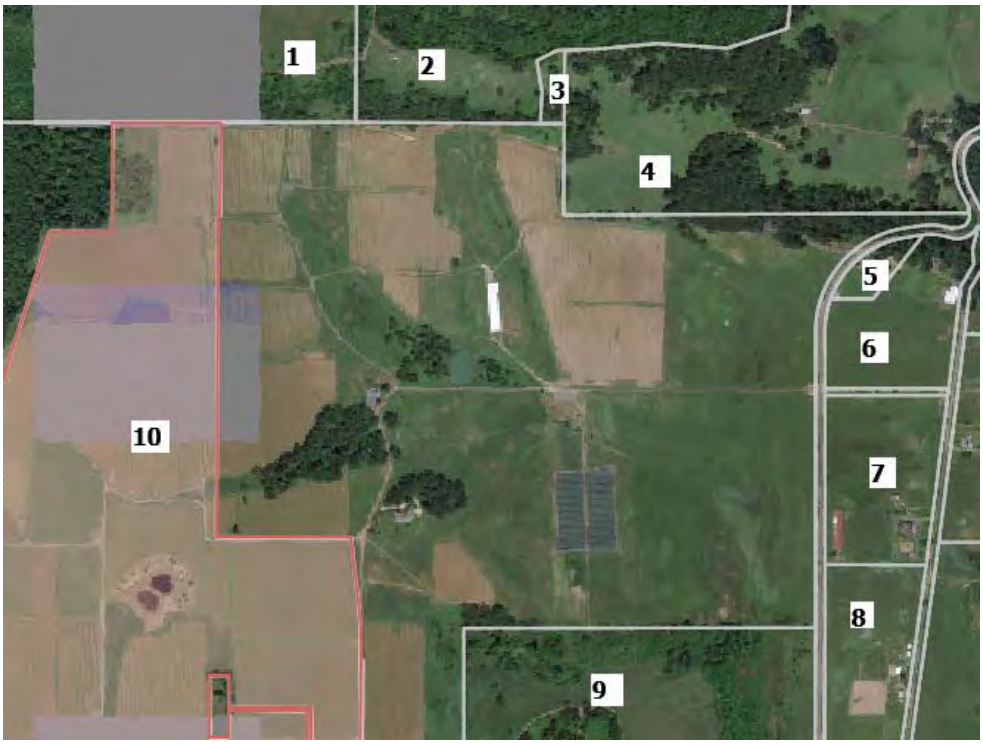
**Surrounding Uses**

| # | Account | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels |
|---|---|---|---|---|---|---|
| 1 | R-3614-00000-04600 | Newman | 634.63 | Agri/Res | 66.73% | 14.29% |
| 2 | R-3614-03400-00100 | Brooks | 72.61 | Agricultural | 7.64% | 14.29% |
| 3 | R-3614-03400-00900 | Brooks | 47.14 | Agricultural | 4.96% | 14.29% |
| 4 | R-3614-03400-00204 | International | 21.68 | Industrial | 2.28% | 14.29% |
| 5 | R-3614-03400-00204 | International | 13.82 | Industrial | 1.45% | 14.29% |
| 6 | R-3614-03400-00301 | Oregon | 3.20 | Industrial | 0.34% | 14.29% |
| 7 | R-3614-03400-00501 | Cowan | 157.92 | Agricultural | 16.61% | 14.29% |
| | | **Total** | **951.000** | | **100.00%** | **100.00%** |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Agri/Res | 66.73% | 14.29% |
| Agricultural | 29.20% | 42.86% |
| Industrial | 4.07% | 42.86% |
| **Total** | **100.00%** | **100.00%** |

## *B. Kings Estate Winery – Territorial Hwy, Eugene, OR*



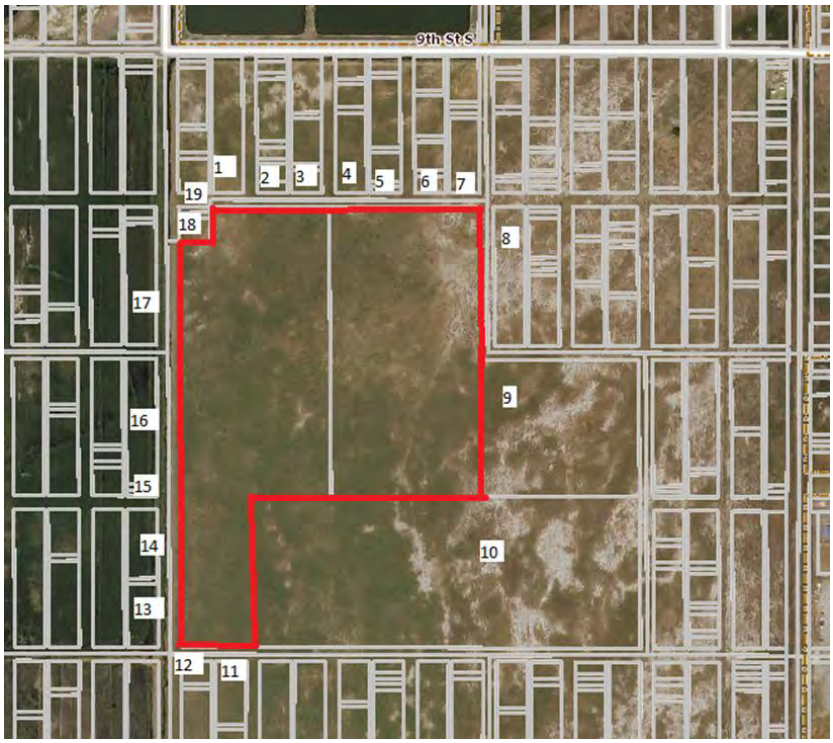

**Surrounding Uses**

| # | Account | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels | Distance in Feet: Home to Panels |
|---|---|---|---|---|---|---|---|
| 1 | 850394 | Iris Hill | 161.54 | Agricultural | 13.28% | 10.00% | N/A |
| 2 | 850469 | Iris Hill | 150.58 | Agricultural | 12.38% | 10.00% | N/A |
| 3 | 850451 | Diess | 1.59 | Agricultural | 0.13% | 10.00% | N/A |
| 4 | 1386943 | Diess | 97.92 | Agri/Res | 8.05% | 10.00% | 2,913 |
| 5 | 850535 | Woods | 2.50 | Residential | 0.21% | 10.00% | 2,080 |
| 6 | 1030889 | Smets | 14.93 | Agri/Res | 1.23% | 10.00% | 2,419 |
| 7 | 1066859 | Singer | 17.75 | Agri/Res | 1.46% | 10.00% | 1,765 |
| 8 | 1066875 | McClure | 17.73 | Agri/Res | 1.46% | 10.00% | 2,009 |
| 9 | 1387362 | Kings Estate | 211.57 | Agricultural | 17.39% | 10.00% | N/A |
| 10 | 1060803 | Kings Estate | 540.41 | Agricultural | 44.42% | 10.00% | N/A |
| | | **Total** | **1216.518** | | **100.00%** | **100.00%** | 2,237 |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Agri/Res | 12.19% | 40.00% |
| Residential | 0.21% | 10.00% |
| Agricultural | 87.60% | 50.00% |
| **Total** | **100.00%** | **100.00%** |

## C. *Black Cap Solar, 9th Street, Lakeview, OR*




**Surrounding Uses**

| # | Account | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels |
|---|---|---|---|---|---|---|
| 1 | 39S20E21AB00101 | Furtick | 3.49 | Agricultural | 2.80% | 8.33% |
| 2 | 39S20E21AB01400 | Smith | 0.16 | Agricultural | 0.13% | 8.33% |
| 3-7 | 39S20E21AB00100 | Smith | 9.76 | Agricultural | 7.82% | 8.33% |
| 8 | 39S20E21AA01500 | Furtick | 18.61 | Agricultural | 14.92% | 8.33% |
| 9 | 39S20E21A000100 | Obsidian | 9.50 | Agricultural | 7.62% | 8.33% |
| 10 | 39S20E21A000400 | Obsidian | 25.68 | Agricultural | 20.59% | 8.33% |
| 11-12 | 39S20E21DB00101 | Smith | 13.87 | Agricultural | 11.12% | 8.33% |
| 13-16 | 39S20E21BD00200 | Deniz | 21.54 | Agricultural | 17.27% | 8.33% |
| 17 | 39S20E21BA00100 | Deniz | 21.62 | Agricultural | 17.33% | 8.33% |
| 18 | 39S20E21AB00104 | Richardson | 0.33 | Agricultural | 0.26% | 8.33% |
| 19 | 39S20E21AB00102 | Steven | 0.08 | Agricultural | 0.06% | 8.33% |
| 20 | 39S20E21AB00103 | Steven | 0.08 | Agricultural | 0.06% | 8.33% |
| | | **Total** | **124.719** | | **100.00%** | **100.00%** |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Agricultural | 100.00% | 100.00% |
| **Total** | **100.00%** | **100.00%** |

## *D. Old Mill Solar – Bly, OR*

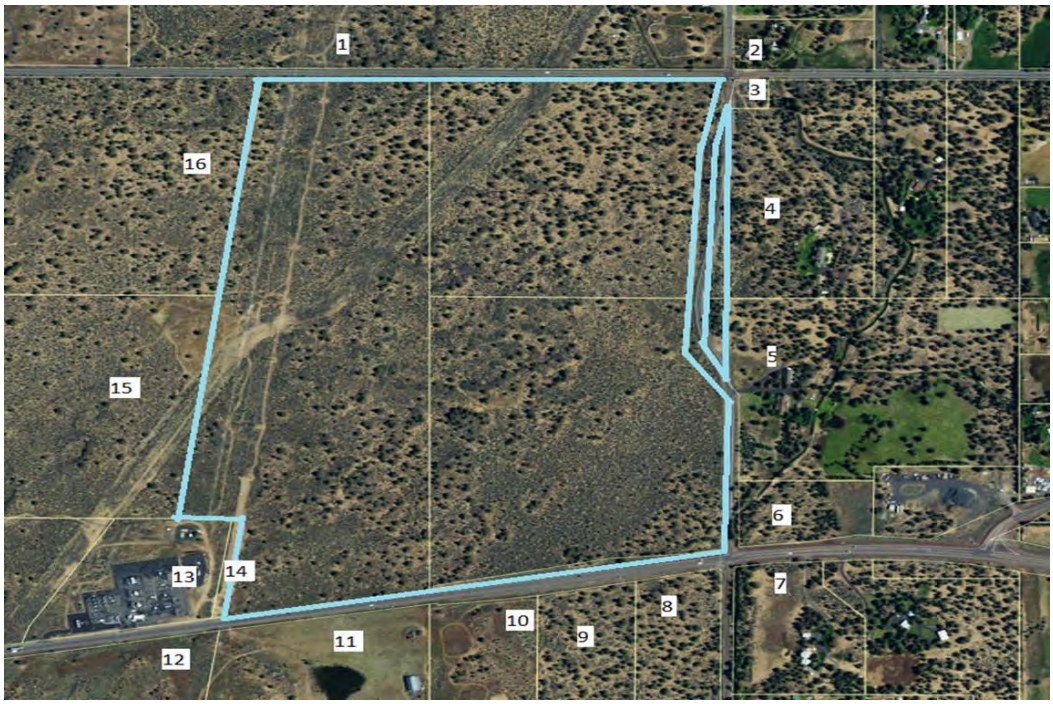
**Surrounding Uses**

| # | Account | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels |
|---|---|---|---|---|---|---|
| 1 | R-3614-00000-04600 | Newman | 634.63 | Agri/Res | 66.73% | 14.29% |
| 2 | R-3614-03400-00100 | Brooks | 72.61 | Agricultural | 7.64% | 14.29% |
| 3 | R-3614-03400-00900 | Brooks | 47.14 | Agricultural | 4.96% | 14.29% |
| 4 | R-3614-03400-00204 | International | 21.68 | Industrial | 2.28% | 14.29% |
| 5 | R-3614-03400-00204 | International | 13.82 | Industrial | 1.45% | 14.29% |
| 6 | R-3614-03400-00301 | Oregon | 3.20 | Industrial | 0.34% | 14.29% |
| 7 | R-3614-03400-00501 | Cowan | 157.92 | Agricultural | 16.61% | 14.29% |
| | | **Total** | **951.000** | | **100.00%** | **100.00%** |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Agri/Res | 66.73% | 14.29% |
| Agricultural | 29.20% | 42.86% |
| Industrial | 4.07% | 42.86% |
| **Total** | **100.00%** | **100.00%** |

## *E. Collier Solar – Hwy 20, Bend,OR*




**Surrounding Uses**

| # | MAP ID | Owner | GIS Data Acres | Present Us | % Adjoining Acres | % Adjoining Parcels | Distance in Feet: Home to Panels |
|---|---|---|---|---|---|---|---|
| 1 | 1712250000501 | Hafter | 117.80 | Agri/Res | 26.39% | 6.25% | 540 |
| 2 | 1713300001100 | Kellogg | 3.93 | Residential | 0.88% | 6.25% | 340 |
| 3 | 1713310000501 | Vankessel | 0.60 | Residential | 0.13% | 6.25% | N/A |
| 4 | 1713310000502 | Vankessel | 18.50 | Residential | 4.14% | 6.25% | 725 |
| 5 | 1713310000600 | Caine | 29.90 | Agricultural | 6.70% | 6.25% | 904 |
| 6 | 171331C000400 | Barnett | 4.83 | Residential | 1.08% | 6.25% | N/A |
| 7 | 171331C000500 | Morrow | 9.29 | Residential | 2.08% | 6.25% | 1875 |
| 8 | 1712360001201 | Holmquist | 8.72 | Residential | 1.95% | 6.25% | N/A |
| 9 | 1712360001202 | Holmquist | 9.29 | Residential | 2.08% | 6.25% | N/A |
| 10 | 1712360001203 | Zinniker | 9.62 | Residential | 2.16% | 6.25% | 1050 |
| 11 | 1712360001200 | Kaiser | 16.30 | Residential | 3.65% | 6.25% | 650 |
| 12 | 1712360001000 | Christian C | 57.70 | Agricultural | 12.93% | 6.25% | N/A |
| 13 | 17123600000101 | Pacific Powe | 10.00 | Industrial | 2.24% | 6.25% | N/A |
| 14 | 1712360001100 | Collier | 0.69 | Residential | 0.15% | 6.25% | N/A |
| 15 | 17123600000700 | Pandian | 95.40 | Agricultural | 21.37% | 6.25% | N/A |
| 16 | 17123600000500 | Holmquist | 53.80 | Agricultural | 12.05% | 6.25% | N/A |
| | | **Total** | **446.370** | | **100.00%** | **100.00%** | 869 |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Residential | 18.32% | 62.50% |
| Agricultural | 53.05% | 25.00% |
| Agri/Res | 26.39% | 6.25% |
| Industrial | 2.24% | 6.25% |
| **Total** | **100.00%** | **100.00%** |

## *F. Neff Solar – Erickson Road, Bend, OR*

**Surrounding Uses**

| # | MAP ID | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels | Distance in Feet: Home to Panels |
|---|---|---|---|---|---|---|---|
| 1 | 171225B003300 | Ruprecht | 2.15 | Residential | 0.60% | 7.14% | 400 |
| 2 | 1712250000205 | Smith | 20.00 | Residential | 5.55% | 7.14% | 290 |
| 3 | 17122500000105 | McPeake | 8.45 | Residential | 2.34% | 7.14% | 400 |
| 4 | 17122500000600 | Britton | 39.50 | Agri/Res | 10.96% | 7.14% | 1000 |
| 5 | 17133000000800 | Figgins | 4.76 | Residential | 1.32% | 7.14% | 1130 |
| 6 | 17133000000900 | McGill | 4.66 | Residential | 1.29% | 7.14% | 945 |
| 7 | 17133000001000 | Lachenmyer | 4.67 | Residential | 1.30% | 7.14% | 1140 |
| 8 | 17133000001100 | Kellogg | 4.33 | Residential | 1.20% | 7.14% | 970 |
| 9 | 1713310000501 | Vankessel | 0.65 | Residential | 0.18% | 7.14% | N/A |
| 10 | 1712360000100 | Collier | 36.56 | Agricultural | 10.14% | 7.14% | N/A |
| 11 | 1712360000400 | Collier | 65.10 | Agricultural | 18.06% | 7.14% | N/A |
| 12 | 1712360000500 | Holmquist | 53.80 | Agricultural | 14.92% | 7.14% | N/A |
| 13 | 1712250000400 | Jenson | 19.70 | Residential | 5.46% | 7.14% | 250 |
| 14 | 1712250000200 | Bend Metro P | 96.20 | Park | 26.68% | 7.14% | N/A |
| | | **Total** | **360.530** | | **100.00%** | **100.00%** | 725 |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Residential | 19.24% | 64.29% |
| Agricultural | 43.12% | 21.43% |
| Agri/Res | 10.96% | 7.14% |
| Park | 26.68% | 7.14% |
| **Total** | **100.00%** | **100.00%** |

## G. *Pendleton Solar – Airport Road, Pendleton, OR*

**Surrounding Uses**

| # | MAP ID | Owner | GIS Data Acres | Present Use | % Adjoining Acres | % Adjoining Parcels |
|---|---|---|---|---|---|---|
| 1 | 2N3206-00-00100 A2 | Round Up | 91.90 | Agricultural | 33.17% | 10.00% |
| 2 | 2N3205BC | N/A | N/A | Agricultural | N/A | 10.00% |
| 3 | 2N3205-BD-00100 A2 | Schubert Diesel | 0.27 | Industrial | 0.10% | 10.00% |
| 4 | 2N3205-BD-00200 A2 | Main Street | 0.27 | Industrial | 0.10% | 10.00% |
| 5 | 2N3205-00-00312 | Pendleton Church | 3.10 | Industrial | 1.12% | 10.00% |
| 6 | 2N3205-00-00308 | Farm Equipment | 7.00 | Industrial | 2.53% | 10.00% |
| 7 | 2N3205-00-00306 | Western States | 7.00 | Industrial | 2.53% | 10.00% |
| 8 | 2N3205-00-00392 | Burns | 2.90 | Industrial | 1.05% | 10.00% |
| 9 | 2N3206-00-00300 | Brogoitti | 128.03 | Agricultural | 46.22% | 10.00% |
| 10 | 1712360000100 | Collier | 36.56 | Agricultural | 13.20% | 10.00% |
| | | **Total** | **277.030** | | **100.00%** | **100.00%** |

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Agricultural | 92.59% | 40.00% |
| Industrial | 7.41% | 60.00% |
| **Total** | **100.00%** | **100.00%** |

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

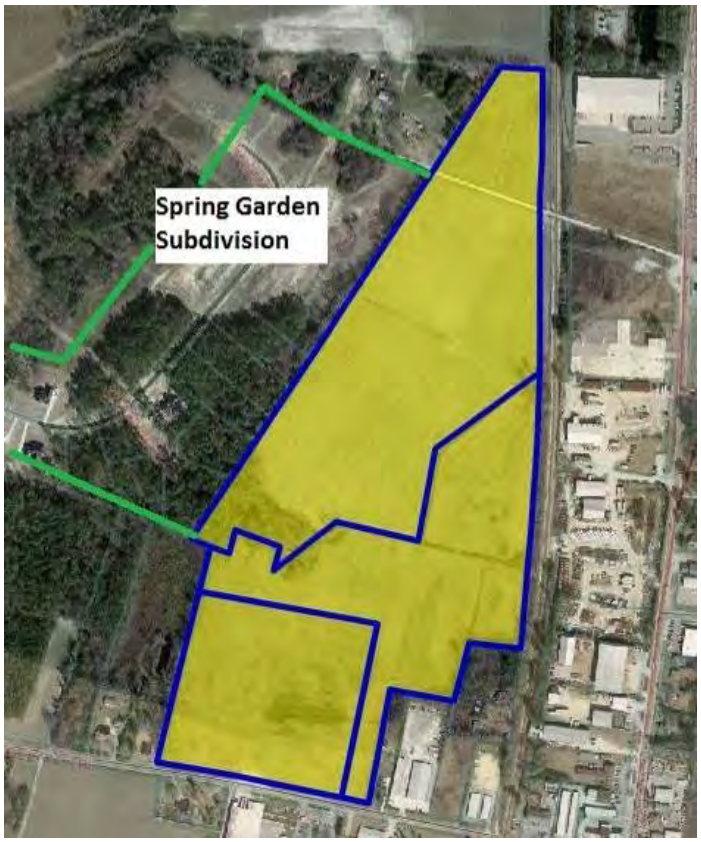
I have researched a number of solar farms to determine the impact of these facilities on the value of adjoining or abutting property. I have provided a breakdown of the adjoining uses to show what adjoining uses are typical for solar farms and which uses would likely be considered consistent with a solar farm use. This breakdown is included in the Harmony of Use section of this report.

I also conducted a series of matched pair analyses. A matched pair analysis considers two similar properties with only one difference of note to determine whether or not that difference has any impact on value. Within the appraisal profession, matched pair analysis is a well-recognized method of measuring impact on value. In this case, I have considered residential properties 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.

As outlined in the discussion of each matched pair, I concluded from the data and my analysis that there has been no impact on sale price for residential, agricultural, or vacant residential land that adjoins or abuts the existing solar farms included in my study.

These solar farms have similar locations to the subject property in terms of proximity to residential and agricultural land.

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



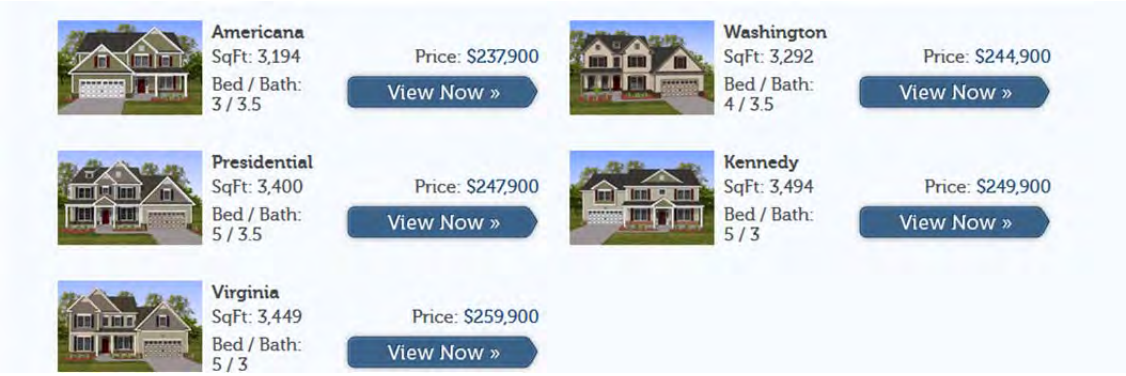

This solar farm adjoins Spring Garden Subdivision which had new homes and lots available for new construction during the approval and construction of the solar farm. The recent home sales have ranged from $200,000 to $250,000. This subdivision sold out the last homes in late 2014. The solar farm is clearly 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 has been a complete non-factor. 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 there are actually more recent sales along the solar farm than not. 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 in 2013 and 2014 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.



## AM Best Solar Farm, Goldsboro, NC

**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**

| | Adjoins Solar Farm | | Nearby Solar Farm | |
|---|---|---|---|---|
| | **Average** | **Median** | **Average** | **Median** |
| 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% |

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**

| | Adjoins Solar Farm | | Nearby Solar Farm | |
|---|---|---|---|---|
| | Average | Median | Average | Median |
| 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 | Agriculatural | 8/19/2013 | $164,000 | $8,714 |
| Not Near Solar | 0918-00-75-9812 et al | Blackwell | 14.88 | Agriculatural | 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% |

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

## 4. Matched Pair – Mulberry, Selmer, TN

This solar farm adjoins two subdivisions with Central Hills having a mix of existing and new construction homes. Lots in this development have been marketed for $15,000 each with discounts offered for multiple lots being used for a single home site. I spoke with the agent with Rhonda Wheeler and Becky Hearnsberger with United County Farm & Home Realty who noted that they have seen no impact on lot or home sales due to the solar farm in this community.

I have included a map below as well as data on recent sales activity on lots that adjoin the solar farm or are near the solar farm in this subdivision both before and after the announced plan for this solar farm facility. I note that using the same method I used to breakdown the adjoining uses at the subject property I show that the predominant adjoining uses are residential and agricultural, which is consistent with the location of most solar farms.

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Commercial | 3.40% | 0.034 |
| Residential | 12.84% | 79.31% |
| Agri/Res | 10.39% | 3.45% |
| Agricultural | 73.37% | 13.79% |
| **Total** | **100.00%** | **100.00%** |

From the above map, I identified four recent sales of homes that occurred adjoining the solar farm both before and after the announcement of the solar farm. I have adjusted each of these for differences in size and age in order to compare these sales among themselves. As shown below after adjustment, the median value is $130,776 and the sales prices are consistent with one outlier which is also the least comparable home considered. The close grouping and the similar price point overall as well as the similar price per square foot both before and after the solar farm.

**Matched Pairs**

| # | TAX ID | Owner | Date Sold | Sales Price | Acres | Built | GBA | $/GBA | Style | Parking |
|---|---|---|---|---|---|---|---|---|---|---|
| 6&7 | 0900 A 011.00 | Henson | Jul-14 | $130,000 | 2.65 | 2007 | 1,511 | $86.04 | 1 Story | 2 Garage |
| 12 | 0900 A 003.00 | Amerson | Aug-12 | $130,000 | 1.20 | 2011 | 1,586 | $81.97 | 1 Story | 2 Garage |
| 15 | 099C A 003.00 | Smallwood | May-12 | $149,900 | 1.00 | 2002 | 1,596 | $93.92 | 1 Story | 4 Garage |
| 16 | 099C A 002.00 | Hessing | Jun-15 | $130,000 | 1.00 | 1999 | 1,782 | $72.95 | 1 Story | 2 Garage |
| | | Average | | $134,975 | 1.46 | 2005 | 1,619 | $83.72 | | |
| | | Median | | $130,000 | 1.10 | 2005 | 1,591 | $84.00 | | |

| | | | | | Adjustments* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| # | TAX ID | Owner | Date Sold | Sales Price | Acres | Built | GBA | Style | Parking | Total |
| 6&7 | 0900 A 011.00 | Henson | Jul-14 | $130,000 | -$7,500 | $2,600 | $6,453 | $0 | $0 | $131,553 |
| 12 | 0900 A 003.00 | Amerson | Aug-12 | $130,000 | $0 | $0 | $0 | $0 | $0 | $130,000 |
| 15 | 099C A 003.00 | Smallwood | May-12 | $149,900 | $0 | $6,746 | -$939 | $0 | -$15,000 | $140,706 |
| 16 | 099C A 002.00 | Hessing | Jun-15 | $130,000 | $0 | $7,800 | -$14,299 | $0 | $0 | $123,501 |
| | | Average | | $134,975 | -$1,875 | $4,286 | -$2,196 | $0 | -$3,750 | $131,440 |
| | | Median | | $130,000 | $0 | $4,673 | -$470 | $0 | $0 | $130,776 |

* I adjusted all of the comparables to a base line 2011 Year Built and 1,586 s.f. based on Lot 12

I also considered a number of similar home sales nearby that were both before and after the solar farm was announced as shown below. These homes are generally newer in construction and include a number of larger homes but show a very similar price point per square foot.

**Nearby Sales Before Solar Farm Announced**

| TAX ID | Owner | Date Sold | Sales Price | Acres | Built | GBA | $/GBA | Style | Parking |
|---|---|---|---|---|---|---|---|---|---|
| 099B A 019 | Durrance | Sep-12 | $165,000 | 1.00 | 2012 | 2,079 | $79.37 | 1 Story | 2 Garage |
| 099B A 021 | Berryman | Apr-12 | $212,000 | 2.73 | 2007 | 2,045 | $103.67 | 1 Story | 2 Garage |
| 090O A 060 | Nichols | Feb-13 | $165,000 | 1.03 | 2012 | 1,966 | $83.93 | 1 Story | 2 Garage |
| | Average | | $180,667 | 1.59 | 2010 | 2,030 | $88.99 | | |
| | Median | | $165,000 | 1.03 | 2012 | 2,045 | $83.93 | | |

**Nearby Sales After Solar Farm Announced**

| TAX ID | Owner | Date Sold | Sales Price | Acres | Built | GBA | $/GBA | Style | Parking |
|---|---|---|---|---|---|---|---|---|---|
| 090N A 040 | Carrithers | Mar-15 | $120,000 | 1.00 | 2010 | 1,626 | $73.80 | 1 Story | 2 Garage |
| 099C A 043 | Cherry | Feb-15 | $148,900 | 2.34 | 2008 | 1,585 | $93.94 | 1 Story | 2 Garage |
| | Average | | $134,450 | 1.67 | 2009 | 1,606 | $83.87 | | |
| | Median | | $134,450 | 1.67 | 2009 | 1,606 | $83.87 | | |

I then adjusted these nearby sales using the same criteria as the adjoining sales to derive the following breakdown of adjusted values based on a 2011 year built 1,586 square foot home. The adjusted values are consistent with a median rate of $128,665, which is actually lower than the values for the homes that back up to the solar farm.

| Nearby Sales Adjusted | | | | Adjustments* | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **TAX ID** | **Owner** | **Date Sold** | **Sales Price** | **Acres** | **Built** | **GBA** | **Style** | **Parking** | **Total** |
| 099B A 019 | Durrance | Sep-12 | $165,000 | $0 | -$825 | -$39,127 | $0 | $0 | $125,048 |
| 099B A 021 | Berryman | Apr-12 | $212,000 | -$7,500 | $4,240 | -$47,583 | $0 | $0 | $161,157 |
| 090O A 060 | Nichols | Feb-13 | $165,000 | $0 | -$825 | -$31,892 | $0 | $0 | $132,283 |
| 090N A 040 | Carrithers | Mar-15 | $120,000 | $0 | $600 | -$2,952 | $0 | $0 | $117,648 |
| 099C A 043 | Cherry | Feb-15 | $148,900 | -$7,500 | $2,234 | $94 | $0 | $0 | $143,727 |
| | Average | | $165,500 | -$1,875 | $798 | -$30,389 | $0 | $0 | $134,034 |
| | Median | | $165,000 | $0 | -$113 | -$35,510 | $0 | $0 | $128,665 |

* I adjusted all of the comparables to a base line 2011 Year Built and 1,586 s.f. based on Lot 12

If you consider just the 2015 nearby sales, the range is $117,648 to $143,727 with a median of $130,688. If you consider the recent adjoining sales the range is $123,501 to $131,553 with a median of $127,527.

This difference is less than 3% in the median and well below the standard deviation in the sales. The entire range of the adjoining sales prices is overlapped by the range from the nearby sales. These are consistent data sets and summarized below.

**Matched Pair Summary**

| | **Adjoins Solar Farm** | | **Nearby After Solar Farm** | |
|---|---|---|---|---|
| | **Average** | **Median** | **Average** | **Median** |
| Sales Price | $134,975 | $130,000 | $134,450 | $134,450 |
| Year Built | 2005 | 2005 | 2009 | 2009 |
| Size | 1,619 | 1,591 | 1,606 | 1,606 |
| Price/SF | $83.72 | $84.00 | $83.87 | $83.87 |

**Percentage Differences**

| | |
|---|---|
| Median Price | 3% |
| Median Size | 1% |
| Median Price/SF | 0% |

Based on the data presented above, I find that the price per square foot for finished homes is not being impacted negatively by the presence of the solar farm. The difference in pricing in homes in the neighborhood is accounted for by differences in size, building age, and lot size. The median price for a home after adjustments is consistent throughout this subdivision and shows no impact due to the proximity of the solar farm. This is consistent with the comments from the broker I spoke with for this subdivision as well.

**5. Matched Pair – Alamo II, San Antonio, Texas**

This project is located at 8203 Binz-Engleman Road, Converse, Texas, on 98.37 acres with a 4.4 MW output. This project is located with small lot residential development on to the north west and south. There appears to be minimal landscaping along this project. The closest home to the north is 83 feet from the solar panels, while the homes to the west are 110 feet and the homes to the south are 175 feet away from the solar panels.

This solar farm strongly shows an acceptance of nearby residential development and solar farms as the minimal landscaping, close proximity, small adjoining lot sizes, and the development of homes on three sides of the solar farm are all indicators of a harmony of uses.

**Adjoining Use Breakdown**

| **Acreage** | **Parcels** |
|---|---|
| Residential | 94.64% |
| Agricultural | 5.36% |
| **Total** | **100.00%** |

I have considered home sales in the three adjoining subdivisions to look at matched pair data. There are sales and resales of homes in Glenloch and Mustang Valley subdivisions to the south and west of this solar farm.

I have considered multiple matched pairs from these subdivisions to show typical appreciation and no impact on property value both before and after the solar farm was constructed in 2013. I have looked at a

number of home sales and resales in the larger subdivisions, but I have focused on those directly adjoining/facing the solar farm in the examples shown below. These are sales and resales of the homes adjoining the solar farm both before and after the solar farm project in 2013.

The comparables shown below are compared to an earlier sale prior to the solar farm announcement or construction followed by a second sale after the solar farm. The first two have solar farms in the Backyard (B), while the other has the solar farm in the Side yard (S). All of these sales show appreciation that falls within the typical annual appreciation for homes in this area over this time period.

| | 7703 Redstone Mnr (B) | |
|---|---|---|
| | **Date** | **Price** |
| Sale | 10/3/2012 | $149,980 |
| Sale | 3/24/2016 | $166,000 |
| | **Time - YRS** | **% Incr.** |
| | 3.47 | 10.7% |
| | **Per Year** | **3.1%** |
| Years | 3.5 | **10.8%** |

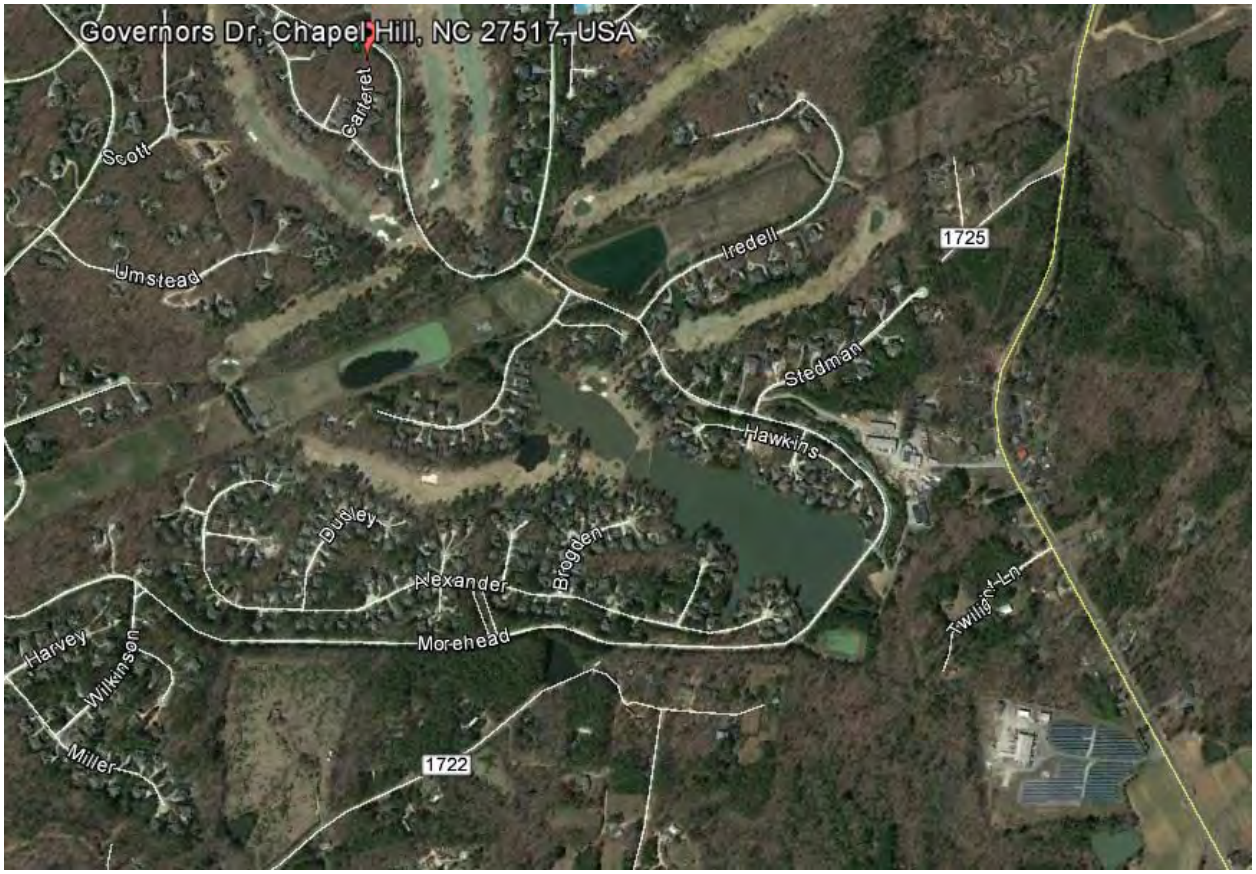
| | 7807 Redstone Mnr (B) | |
|---|---|---|
| | **Date** | **Price** |
| Sale | 5/11/2012 | $136,266 |
| Sale | 8/11/2014 | $147,000 |
| | **Time - YRS** | **% Incr.** |
| | 2.25 | 7.9% |
| | **Per Year** | **3.5%** |
| Years | 2.5 | **8.7%** |

| | 7734 Sundew Mist (S) | |
|---|---|---|
| | **Date** | **Price** |
| Sale | 5/23/2012 | $117,140 |
| Sale | 11/18/2014 | $134,000 |
| | **Time - YRS** | **% Incr.** |
| | 2.49 | 14.4% |
| | **Per Year** | **5.8%** |
| Years | 2 | **11.6%** |

I therefore conclude that this set of matched pairs shows no impact on property value and that homes in the area are showing typical appreciation consistent with other homes not in the vicinity of solar farms.

# III. Harmony of Use/Compatability

I have visited over 220 solar farms and sites on which solar farms are proposed or built to determine what uses are compatible with a solar farm. The data I have collected and provide in this report 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 adjoining residential subdivisions. Governor's Club in Chapel Hill has a solar farm within a quarter mile of the subdivision as shown on the following aerial map. Governor's Club is a gated community with homes selling from $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. While most of these solar farms were located in North Carolina, the breakdown of adjoining uses is very similar to that shown for Oregon as shown earlier in this report and similar to the proposed location in Montana.

| Percentage By Adjoining Acreage | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Total Solar Farms Reviewed | | 173 | | | | | | | |
| | Res | Ag | Res/AG | Park | Sub | Comm | Ind | All Res Uses | All Comm Uses |
| Average | 13% | 57% | 22% | 1% | 0% | 0% | 5% | 94% | 5% |
| Median | 6% | 63% | 7% | 0% | 0% | 0% | 0% | 100% | 0% |

**Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.**

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 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Solar Farms Reviewed** | | 173 | | | | | | | |
| | **Res** | **Ag** | **Res/AG** | **Park** | **Sub** | **Comm** | **Ind** | **All Res Uses** | **All Comm Uses** |
| **Average** | 58% | 27% | 9% | 0% | 0% | 2% | 4% | 94% | 5% |
| **Median** | 63% | 25% | 4% | 0% | 0% | 0% | 0% | 100% | 0% |

**Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.**

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 use except for one, which included an adjoining residential/agricultural use. These comparable solar farms clearly support a compatibility with adjoining residential uses along with agricultural uses.

I have also included a breakdown of the largest solar farm that I have considered which is located in Moyock in Currituck County, North Carolina and is an 80 MW facility located on 2,034 acres off the Caritoke Highway.

**Adjoining Use Breakdown**

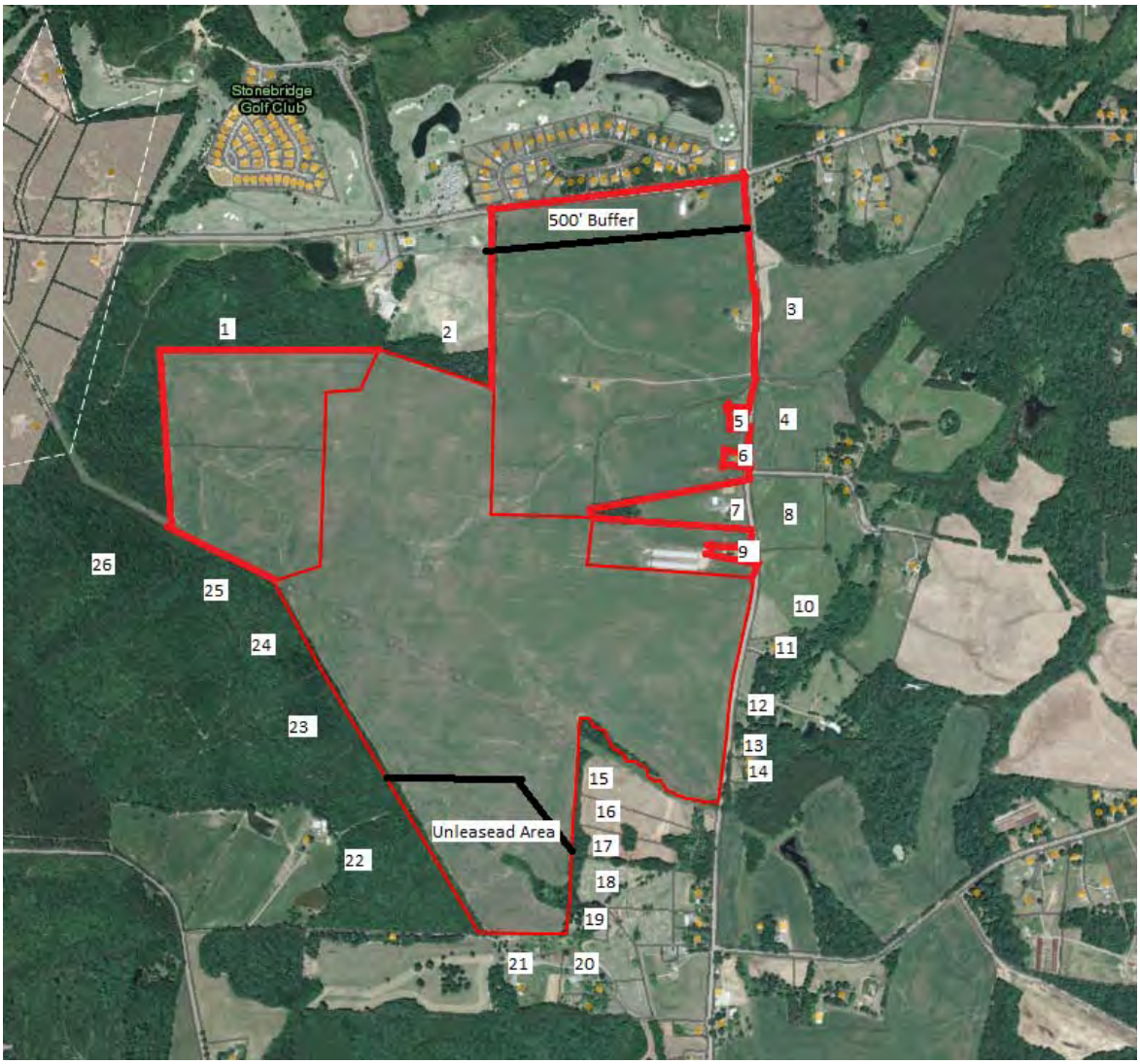
| | **Acreage** | **Parcels** |
|---|---|---|
| Residential | 3.88% | 79.63% |
| Agricultural | 93.68% | 7.41% |
| Industrial | 2.44% | 12.96% |
| **Total** | **100.00%** | **100.00%** |

Residential homes are located to the north and west of this solar farm.

Another larger facility near Monroe, Union County, NC is located on 400 acres for a 60 MW facility on South Rocky River Road that has been approved and sold to Duke Energy for construction. That project is shown below. The community to the north of this project is a golf course community.

**Adjoining Use Breakdown**

| | Acreage | Parcels |
|---|---|---|
| Residential | 9.55% | 57.69% |
| Agri/Res | 41.17% | 19.23% |
| Agricultural | 49.28% | 23.08% |
| **Total** | **100.00%** | **100.00%** |



# IV. Specific Factors on Harmony of Use

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 pending environmental impacts associated with the development and operation.

## 2. Odor

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

I have also looked at tracking system arrays and even those projects have minimal noise and then only during daylight hours. In visiting solar farms, I have not detected any problematic noises and I have seen clear evidence that adjoining homeowners are placing hammocks and outdoor furniture up against vegetated buffers adjoining solar farms.

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

Larger solar farms using fixed 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.

Fixed solar panels are all less than 12 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. Tracking systems are even shorter at less than 7 feet. Were the subject property developed with single family housing, it 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. The panels will be located behind a chain link fence.

Typically, there would be a vegetated screen between the solar farm and other uses to filter any view. Given such a scenario, I do not see any negative impact from the solar farm.

## 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 a number of builders, developers and investors regarding solar farms over the last few years. 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 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.

## VI. Distance Between Homes and Solar Panels

I have measured the distance between the homes at Spring Garden Subdivision and the AM Best Solar Farm adjoining solar panels to show distances of 280 to 350 feet. This measurement goes from the closest point on the home to the closest solar panel. Given this is the primary set of matched pairs, this is a strong indication that at this distance there is no impact on adjoining homes at this distance.

However, in tracking other approved solar farms across Oregon, North Carolina, and other states, I have found that it is common for there to be homes within 100 to 150 feet of solar panels. Given the landscaping involved in these there is no sign of negative impact. I do note that the landscaping tends to be larger at time of planting when the panels are closer to homes.

I have also tracked a number of locations where solar panels are between 50 and 100 feet of single family homes. In these cases the landscaping is typically a double row of more mature evergreens at time of planting. This is atypical and most solar farms that have been approved have generally been over 100 feet from solar panels.

## VII. Topography

The solar farms that I have researched are located on a wide variety of topographical areas. Roughly 50% of the solar farms surveyed have been located in fairly flat terrain where row crops had previously been planted. Around 45% of the solar farms have been located in rolling terrain where the land may have been used for row crops or pasture. The method by which the solar farms are constructed allows the panels to be developed with the terrain with minimal to no grading and allows for such rolling terrain sites. The other approximately 5% of the solar farms I have looked at are in the foothills of the mountains with more significant topographic features.

## VIII. Landscaping

Landscaping tends to follow a trend of larger plants the closer a project is to existing homes. Earlier solar farms from 2013 tend to have less landscaped screens than the ones being approved today. Typical landscape screens vary depending on adjoining uses and often use existing mature trees. Where landscaped buffers are needed they typically start at 4 to 6 feet in plant height at time of planting and often have an understory row of shrubs along visible corridors or along existing residential uses. Where adjoining residential uses are closer to the panels the landscaping tends to be taller at time of planting and often have double rows of trees instead of a row of trees and a row of shrubs. Typical spacing on the plants range from 8 to 12 feet on center.

Sometimes there is a third row of low ornamental shrubs near corridors to break up that landscaping screen. In rare occasions near higher priced homes, I have seen 2 to 4 foot berms included with the landscaped plantings, though I have only seen this in approximately 1% of the solar farms that I have observed.

In locations that are primarily agricultural or industrial the screens are typically planted with smaller plants with a period of three years expected to screen the fence line.

This location is mostly agricultural and no significant landscaping needs for screening this site were identified beyond typical screening.

# IX. Conclusion

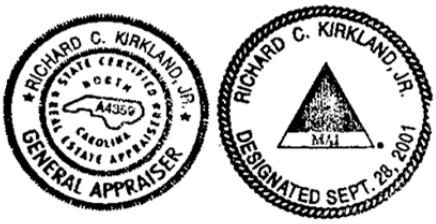
The matched pair analysis shows no impact in home values due to the adjacency to the solar farm as well as no impact to adjacent vacant residential or agricultural land. The criteria for making downward adjustments on property values such as appearance, noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas.

Similar solar farms have been approved adjoining agricultural uses, schools and residential developments. The adjoining residential uses have included single family homes up to $260,000 on lots as small as 0.74 acres. The solar farm at the Pickards Mountain Eco Institute adjoins a home that sold in January 2014 for $735,000 and in proximity to lots being sold for $200,000 to $250,000 for homes over a million dollars. There is a solar farm located outside of Governor's Club, gated community where there are homes over $3 million. There is another solar farm located in Union County adjoining a golf course community as described earlier in this report.

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
NC State Certified General Appraiser #A4359
OR State Certified General Appraiser # C001204
MT Temp. Certified General Appraiser #REA-TPG-LIC-8208

### *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 assignment 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 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 report, 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.

- 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 report, 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 state.

- 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;

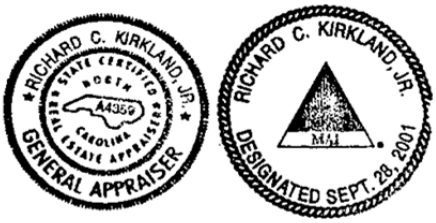
11. No one provided significant real property appraisal assistance to the person signing this certification.

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 appraised 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

Richard C. Kirkland, Jr., MAI
9408 Northfield Court
Raleigh, North Carolina 27603
Mobile (919) 414-8142
rkirkland2@gmail.com
www.kirklandappraisals.com

## *Professional Experience*

**Kirkland Appraisals, LLC**, Raleigh, N.C. — 2003 – Present
Commercial appraiser

**Hester & Company**, Raleigh, N.C.
Commercial appraiser — 1996 – 2003

## *Professional Affiliations*

**MAI** (Member, Appraisal Institute) designation #11796 — 2001
**NC State Certified General Appraiser** # A4359 — 1999
**VA State Certified General Appraiser** # 4001017291
**OR State Certified General Appraiser** # C001204
**MT Temp Certified General Appraiser** # REA-TPG-LIC-8208

## *Education*

**Bachelor of Arts in English**, University of North Carolina, Chapel Hill — 1993

## *Continuing Education*

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|---|---|
| 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 | 2012 |
| Supervisors/Trainees | 2011 |
| 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 | 2011 |
| 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 |

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| 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 |