Wind Generation Feasibility Study

For

Sac & Fox Tribe
of the Mississippi in Iowa
Meskwaki Nation

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by

Wind Utility Consulting, PC

March 19, 2013

WIND UTILITY CONSULTING, PC
TEL 515 386-3405 FAX 515 386-4763

March 19, 2013

Mr. Larry C. Lasley, Economic Development Director
Sac & Fox Tribe of the Mississippi in Iowa
349 Meskwaki Road
Tama, Iowa 52339

Dear Larry:

Subject: Draft Wind Generation Feasibility Report for Review

Please find attached a review draft of the wind generation feasibility study for the Meskwaki casino and hotel complex. Please let me know if you need any additional information or clarifications in the report. After I incorporate any additional information I will issue the final draft of the report.

I look forward to our meeting with the Meskwaki staff about this report.

Sincerely yours,

Thomas A. Wind

Thomas A. Wind, PE
Wind Utility Consulting, PC

Attachment: Wind Generation Feasibility Study

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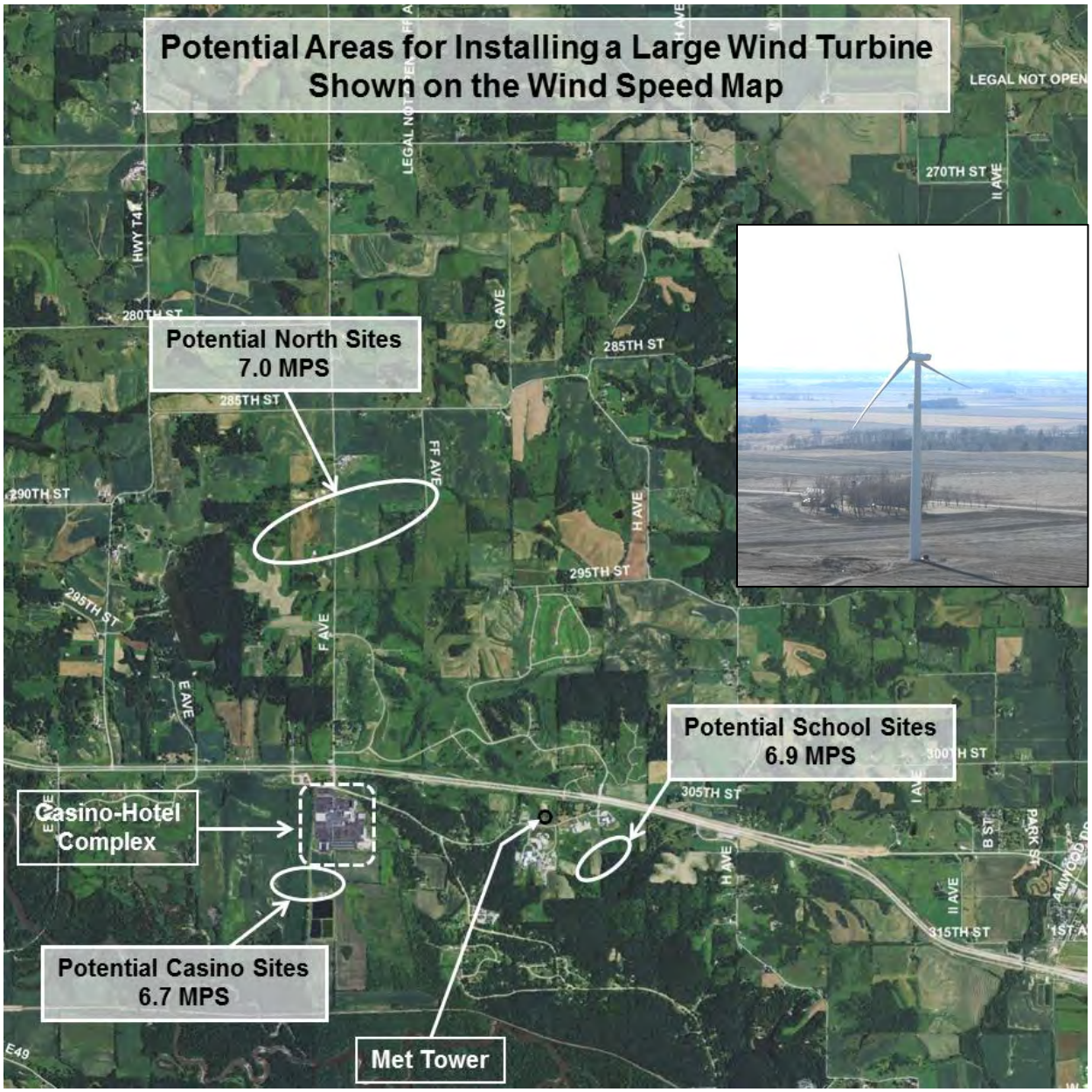
APPENDICES

OVERVIEW AND EXECUTIVE SUMMARY

Wind Utility Consulting, PC ("Consultants") has evaluated the financial feasibility of installing a large wind turbine for Meskwaki Casino and hotel complex ("Meskwaki") for the purpose of reducing its purchases of electricity. The GE 1.6 MW wind turbine with a 100-meter rotor blade diameter and an 80-meter hub height was determined to likely be the most economic option for Meskwaki at this time. Figure 1 shows three potential areas where this wind turbine could be installed. The picture inset is of a similar turbine with slightly shorter blades that was recently installed near Grand Junction, Iowa.

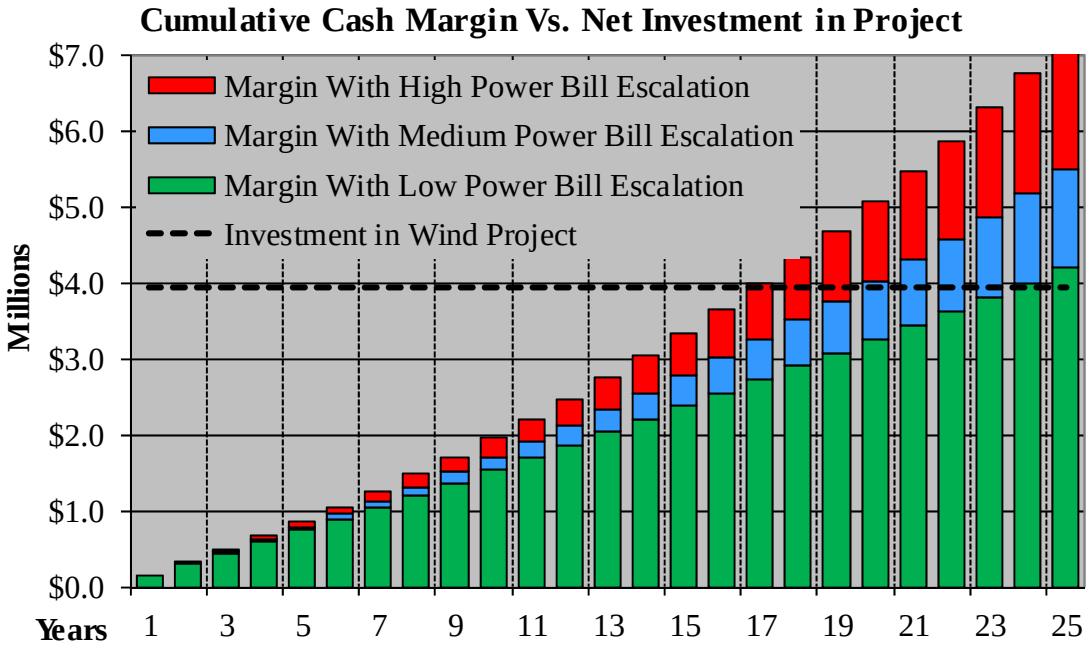
FIGURE 1



The proposed wind turbine is estimated to cost $3.7 to $4.0 million installed, depending upon the location and would stand 427' tall. Based on a comprehensive analysis of the wind speed data from Meskwaki's meteorological test tower, the 80-meter hub height wind speed is estimated to average between 15.0 mph to 15.7 mph. At these average wind speeds, the turbine would typically generate 5.7 to 6.1 million kWh annually, which would supply roughly 42% of the casino's needs, or 28% of the combined needs of the casino, hotel, and power plant. This would reduce Meskwaki's electricity purchases from the TIP Rural Electric Cooperative by about $255,000 per year. Although these power bill savings should generally increase in the future as electricity prices rise, there is considerable uncertainty in the longer-term savings. Therefore, three power bill savings escalation scenarios were evaluated for this feasibility study; 3%, 4%, and 5% annually. This range of rate escalation was based on the judgment of the Consultants. The operating cost for the wind turbine will initially be about $100,000 annually, with gradual escalation over time due to inflation. Initially the operating cash margin will be about $150,000 per year. This margin will increase as the power bill savings escalate over time.

Figure 2 illustrates how this operating cash margin accumulates over time for the three different power bill savings escalation scenarios. The green bars show that for the low power bill escalation rate scenario, the accumulated margin eventually escalates up to the black dotted line, which is the total project cost for installing the wind turbine near the Meskwaki School. The bars cross the line on the 24th year of operation, meaning that the project achieves a simple break-even payback period after 24 years of operation if electric rates go up 3% per year. If electric rates increase at 4% per year, the break-even period drops to 20 years. The red bars show the break-even period drops even more to 17 years with 5% rate escalation.

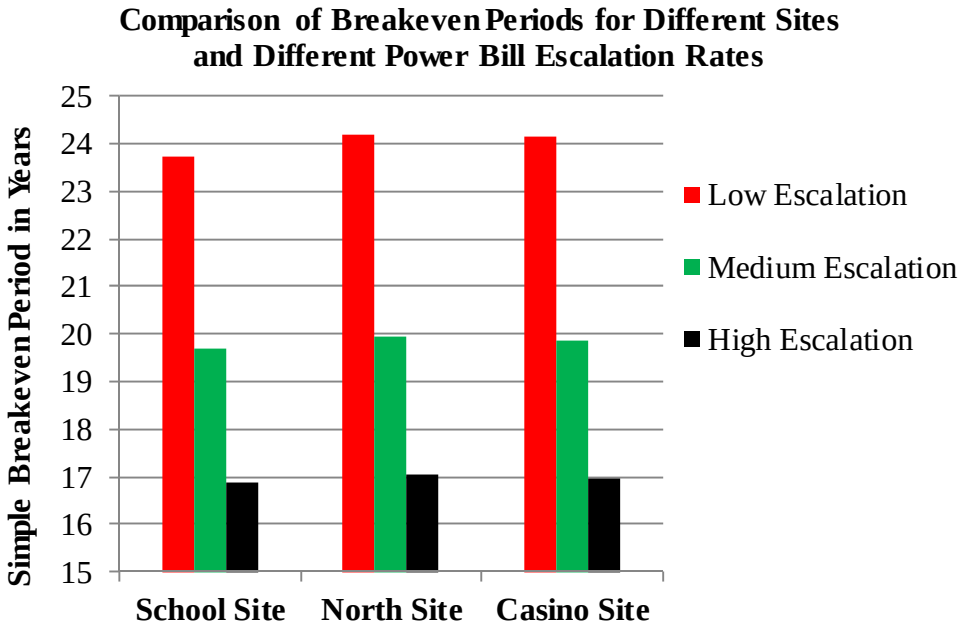
FIGURE 2



The financial analysis for the three potential sites revealed that the simple payback was about the same. The site with the highest wind speed and highest kWh production was the north site. However, the additional power bill savings from the higher production were offset by the higher

up-front capital cost and the extra $6,000 per year that would be paid to the local landowners for the land and wind easement lease. Likewise, the casino site had the lowest wind speed and production, but it also would have the lowest up-front cost. Figure 3 shows how the simple break-even payback period changes for the three different sites and the three power bill escalation rates.

FIGURE 3



There is always some degree of uncertainty in any feasibility study that looks 25 years into the future. The uncertainty associated with five key assumptions has been evaluated, and the change in the break-even period is typically plus or minus 1 to 2 years for most of the key assumptions. However, the assumption having the largest impact on the break-even period is the escalation rate for the power bill savings, as illustrated in Figure 3 above.

Generally, investors have accepted simple paybacks of up to 10 to 15 years for large wind turbines. Paybacks longer than that are not attractive because of the potential negative impact of the many uncertainties in the future. Since the paybacks found in this analysis are longer than that, most investors would not look favorably on this project, unless they were trying to help the environment, or make a public statement about their care for the environment.

Appendix 1 contains some maps of Iowa showing the land elevation, land cover types, and a wind speed map with the location of the large wind turbines in Iowa. Appendix 2 shows technical and statistical details of the Consultants' comprehensive analysis of the meteorological test tower data. Appendix 3 contains a 20-year financial pro forma analysis of the wind project.

Thomas A. Wind
Andrew T. Coil
Wind Utility Consulting, PC

ANALYSIS OF MET TOWER DATA

The economics of wind generation projects depend primarily on these two key factors: 1) the wind resource or wind speed at the site of the turbine, and 2) the value of the electricity produced by the wind turbine.

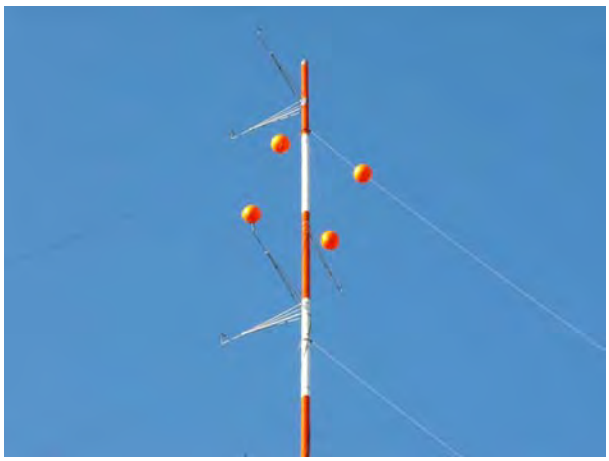
The wind resource assessment is based on an analysis of wind speed data from a meteorological test tower ("met tower") installed by Multiband Engineering and Wireless, Midwest, Inc ("Multiband") in August of 2010. The met tower location is shown in Figure 4 below.

FIGURE 4 – Aerial Photo Showing Met Tower Location

Figure 5 shows the base of the met tower with its logger. Figure 6 shows the top of the met tower with 4 booms, each with an anemometer. The orange balls visually mark the guy wires.

FIGURE 5 – Base of Met Tower

FIGURE 6 – Top of Met Tower



The anemometers on the met tower measure the wind speed at 58.5 meters (192'), 48.5 meters (159'), and 38.5 meters (126') above ground level. Two wind vanes measure the direction of the wind at 52 meters (171') and 37 meters (121'). A temperature sensor on the tower provides data that helps determine if the anemometers are iced over and not measuring the wind speed.

Multiband provided the Consultants with 19 months of usable data from the met tower. The Consultants then cleaned up the data by: 1) removing "zero" wind speed data caused by anemometers that were frozen, and 2) adjusting for anemometers that were directly downwind from the tubular met tower, which shields the anemometer from the wind.

Table 1 presents the monthly average wind speeds starting with the data from the top-level anemometers that have 58.5 meter heights. This data has been cleaned up, adjusted to represent the long-term average, and then finally extrapolated to an 80-meter height, which represents the hub height of a large wind turbine. The monthly wind speeds in Column F are the Consultants' best estimates of the wind speeds at the met tower location. The Consultants project the long-term average wind speed to be 6.93 meters per second ("mps") at an 80-meter height at the met tower location. This is 15.5 mps at 262' high. The last column of the table shows monthly wind speeds the Consultants derived from the Iowa Energy Center's ("IEC") wind resource database. The Consultants have found the IEC data to be fairly accurate for all but the hilly areas of northeastern Iowa. The IEC derived average is 7.10 mps, which is only 2.4% higher than the wind speed derived from the met tower data. This is surprisingly close for comparing different wind speed estimates, and it provides a measure of comfort in the validity of the met tower data.

The notes at the bottom of Table 1 provide some additional details on the derivation of the wind speed estimates.

Appendix 2 shows more details from the met tower data analysis.

TABLE 1

Summary of Meskwaki Met Tower Wind Speed Data

Month	Years of Data	Average Wind speed 58.5 meters in MPS	Average Wind speed 80 meters in MPS	LTA Multipliers 80 Meters % of Normal	LTA Wind Speed 80 Meters in MPS	Estimates Based on IEC Database 80 Meters in MPS
Column A	B	C	D	E	F	G
January	2	6.421	7.141	100.8%	7.199	7.202
February	2	6.673	7.420	95.9%	7.117	7.136
March	2	6.553	7.287	100.0%	7.288	7.537
April	2	7.004	7.789	94.7%	7.380	7.883
May	2	6.689	7.439	94.2%	7.011	6.914
June	2	6.008	6.682	89.6%	5.988	6.020
July	2	4.871	5.417	107.9%	5.846	6.663
August	2	4.884	5.432	110.5%	6.000	5.818
September	2	5.654	6.288	106.7%	6.712	7.041
October	1	6.519	7.249	106.3%	7.705	7.729
November	0	-	-	96.1%	7.166	7.455
December	1	6.174	6.865	113.0%	7.755	7.802
Averages …….		6.132	6.819	101.3%	**6.931**	7.100

Notes:

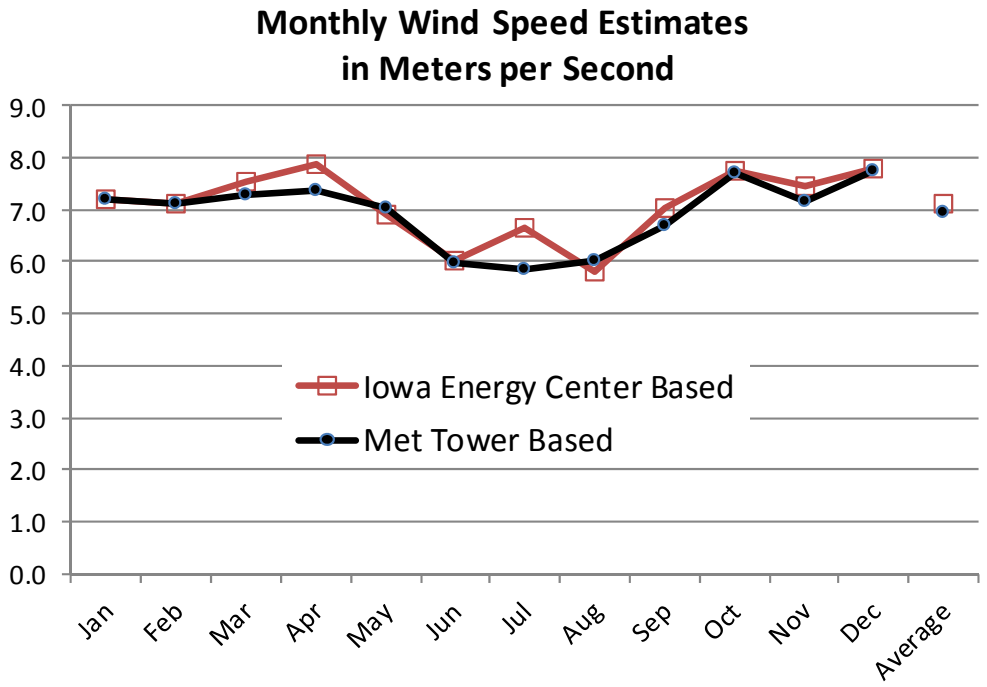
- Column C represents the average of the two anemometers mounted at the 58.5 meter height after the data has been adjusted for icing and tower shadowing.

- Column D are the column C wind speeds adjusted upwards by a factor of 1.1121, which represents a wind shear exponent of 0.285. To add some level of conservatism, this exponent was adjusted downward from the value of 0.31 which was derived from the met tower data.

- Column E data are monthly wind speed Long Term Adjustment ("LTA") factors derived from the Marshalltown airport wind speed data that was collected concurrently with the met tower data. They indicate whether the airport wind speeds for the met tower period of measurement were faster or slower than the most recent 10-year period average at the airport. A factor over 100% indicates the winds were slower than normal during the measurements.
- Column F is column D times Column F and it is the Consultant's best estimate of the long-term wind speed at the met tower location at 80 meters high. The estimate for November is Column E times Column G.

Figure 7 illustrates the monthly met tower wind speed estimates, based on the met tower data and on the IEC data. This data was shown previously in Columns F and G in Table 1. Although there are some differences between the monthly estimates, the two averages for the year shown by the last data points are fairly close, with only a 0.17 mps difference, which is 2.4%.

FIGURE 7



The wind rose chart in Figure 8 depicts the amount of time during the year that the wind blows from different directions. North is at the top at zero degrees. Figure 9 shows the directions where the most wind-generated power could be produced by a wind turbine. It takes into account how fast the wind blows from the various directions.

FIGURE 8

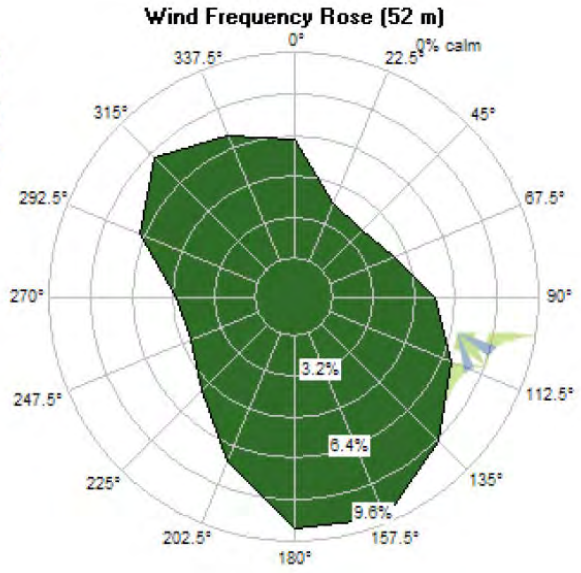
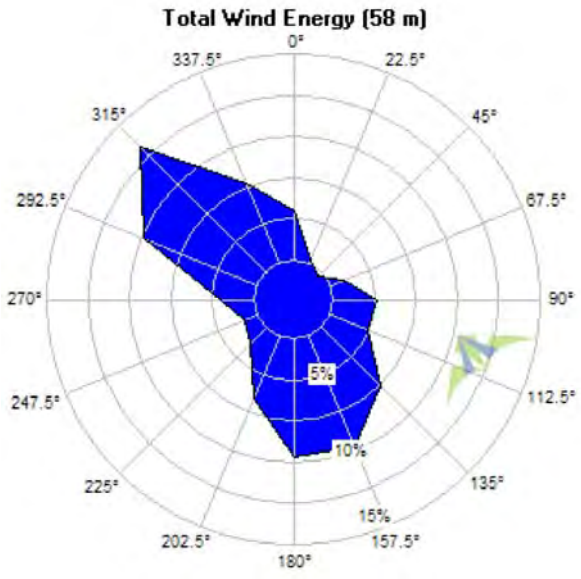
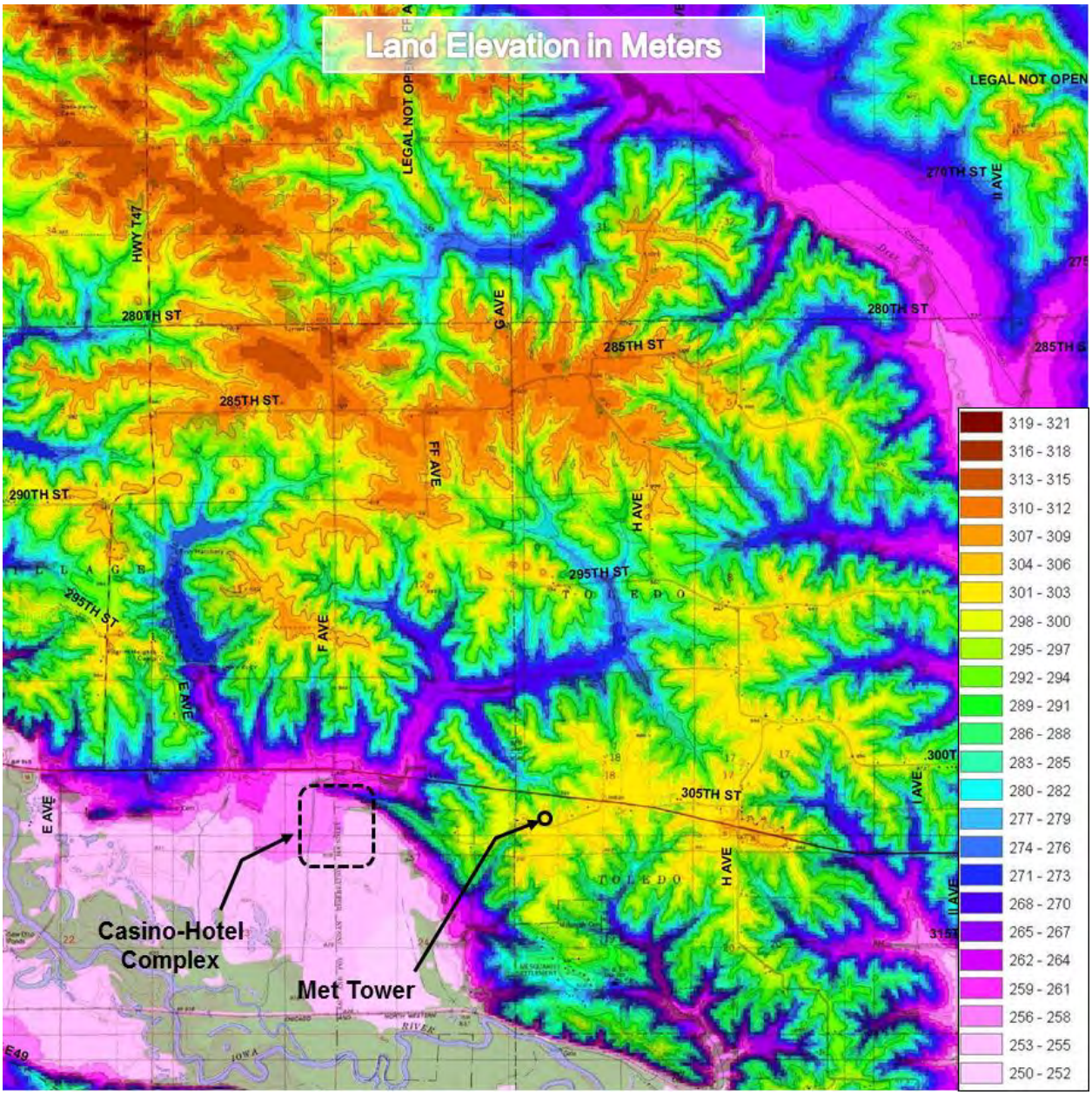


FIGURE 9



Based on using this long-term adjusted median wind speed estimate of 6.931 mps (15.5 mps) at the met tower site, a high-spatial resolution wind speed map was developed for the Meskwaki area using the ReSoft program called "Wind Farm". Development of this map requires high-spatial resolution elevation data and types of ground cover. The elevation data around the Meskwaki facilities is shown in Figure 10. This data was used in the Wind Farm program.

FIGURE 10



Ground cover data is presented in Figure 11. The orange and yellow areas have crops or pasture, the brown areas are wetland areas, while the green areas represent grasslands or trees. Tree and shrub cover reduces the wind speeds to some extent, even at typical wind turbine hub heights. The data shown in Figure 11 was converted into a surface roughness factor used by the Wind Farm program.

FIGURE 11

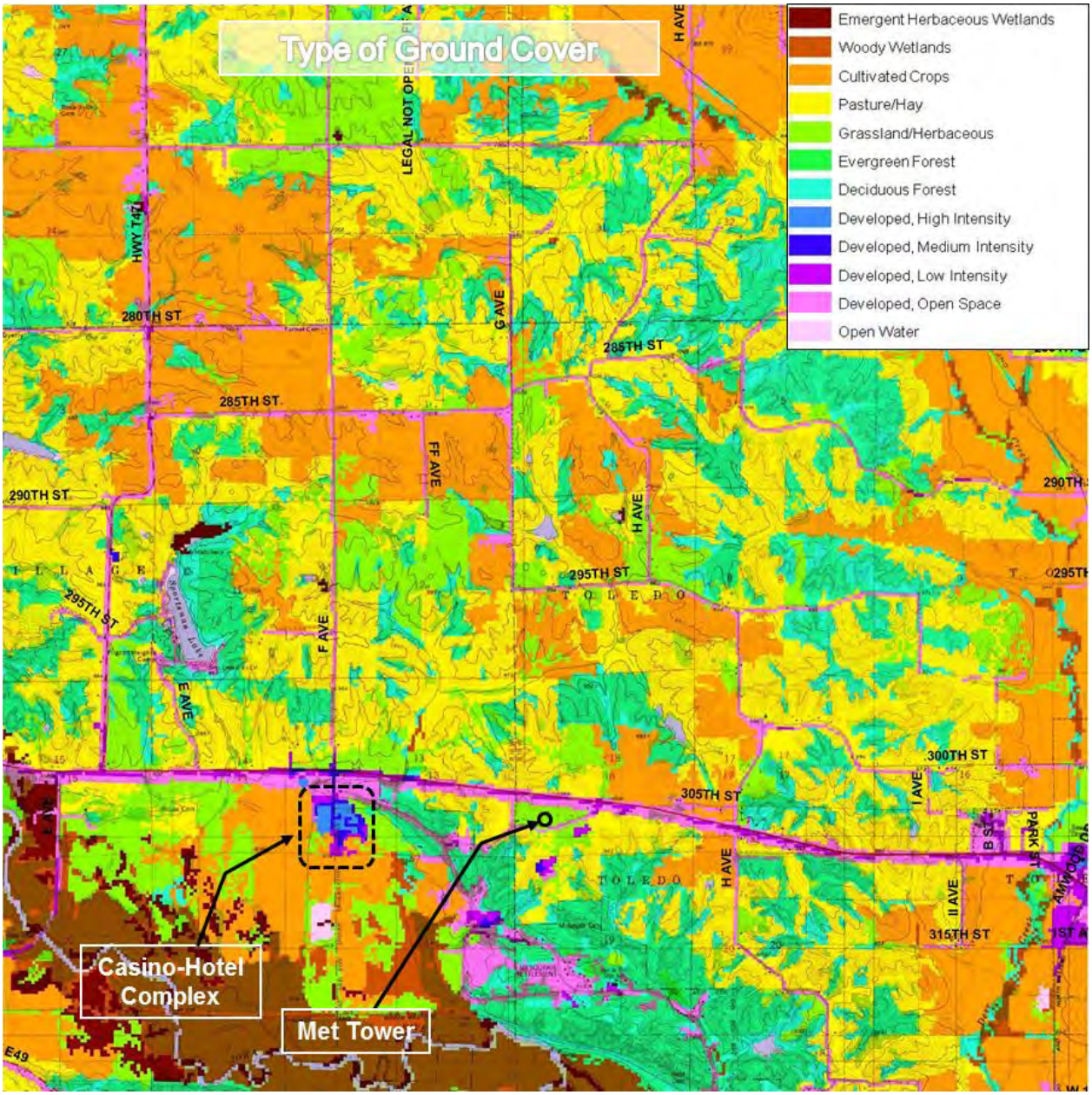
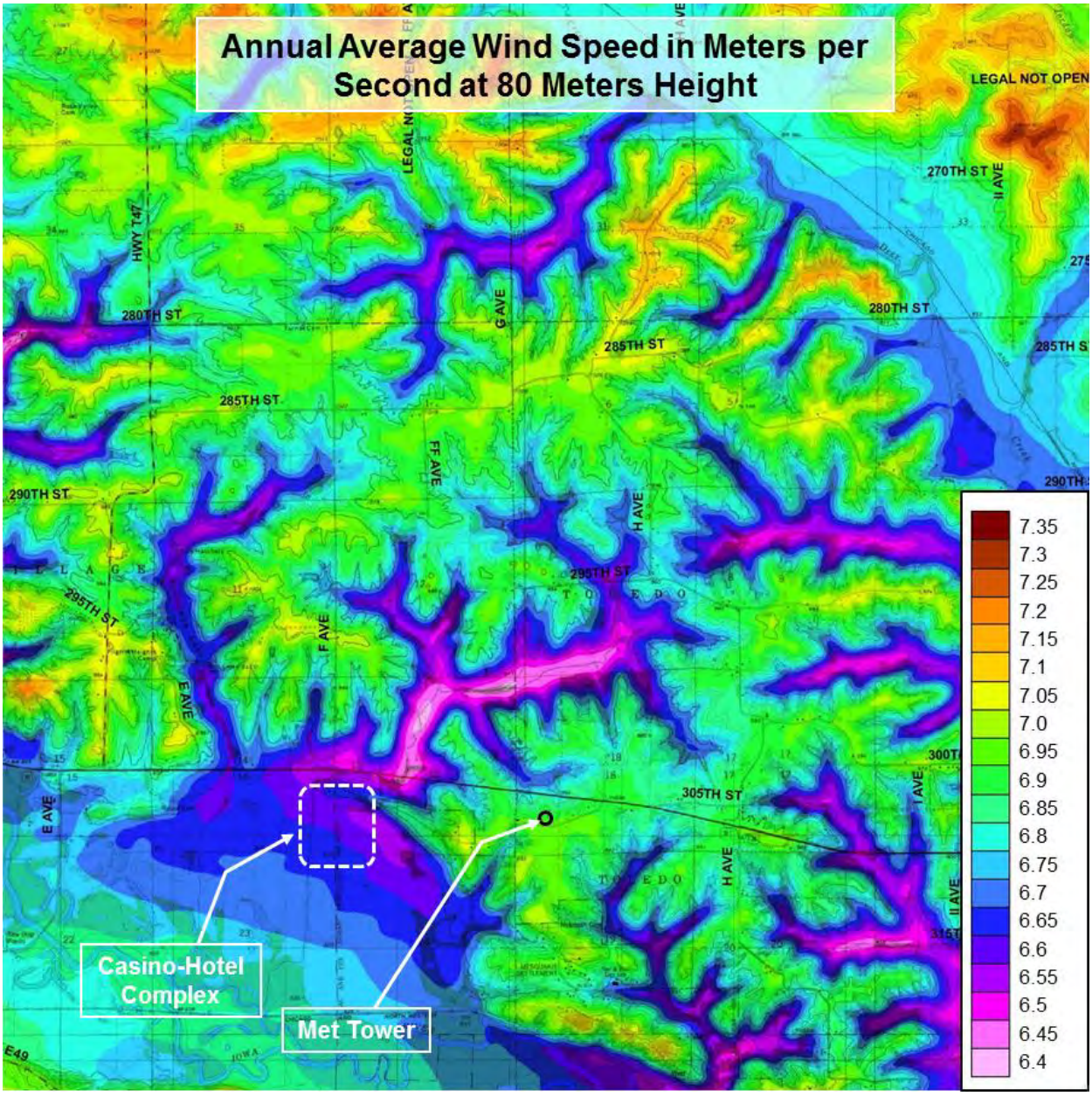


Figure 12 is the resulting high-spatial resolution wind speed map produced by the Wind Farm program. It is based on the 6.931 mps wind speed estimate at the met tower site, and all of the elevation and ground cover data shown in the previous two figures.

FIGURE 12



As the map indicates, the windiest areas are in the rural areas on high ground and away from the tree cover and drainage areas. Wind turbines are most productive and generally more profitable in these windier areas.

POTENTIAL WIND TURBINE SITES AND ENERGY PRODUCTION

Based on the Consultants' evaluation and discussions with the staff at Meskwaki, three sites were evaluated for the installation of a large wind turbine. Figure 13 is the wind speed map with the three potential sites identified that are east of the school, south of the casino, and on privately owned farmland 1.5 miles north of the casino.

FIGURE 13

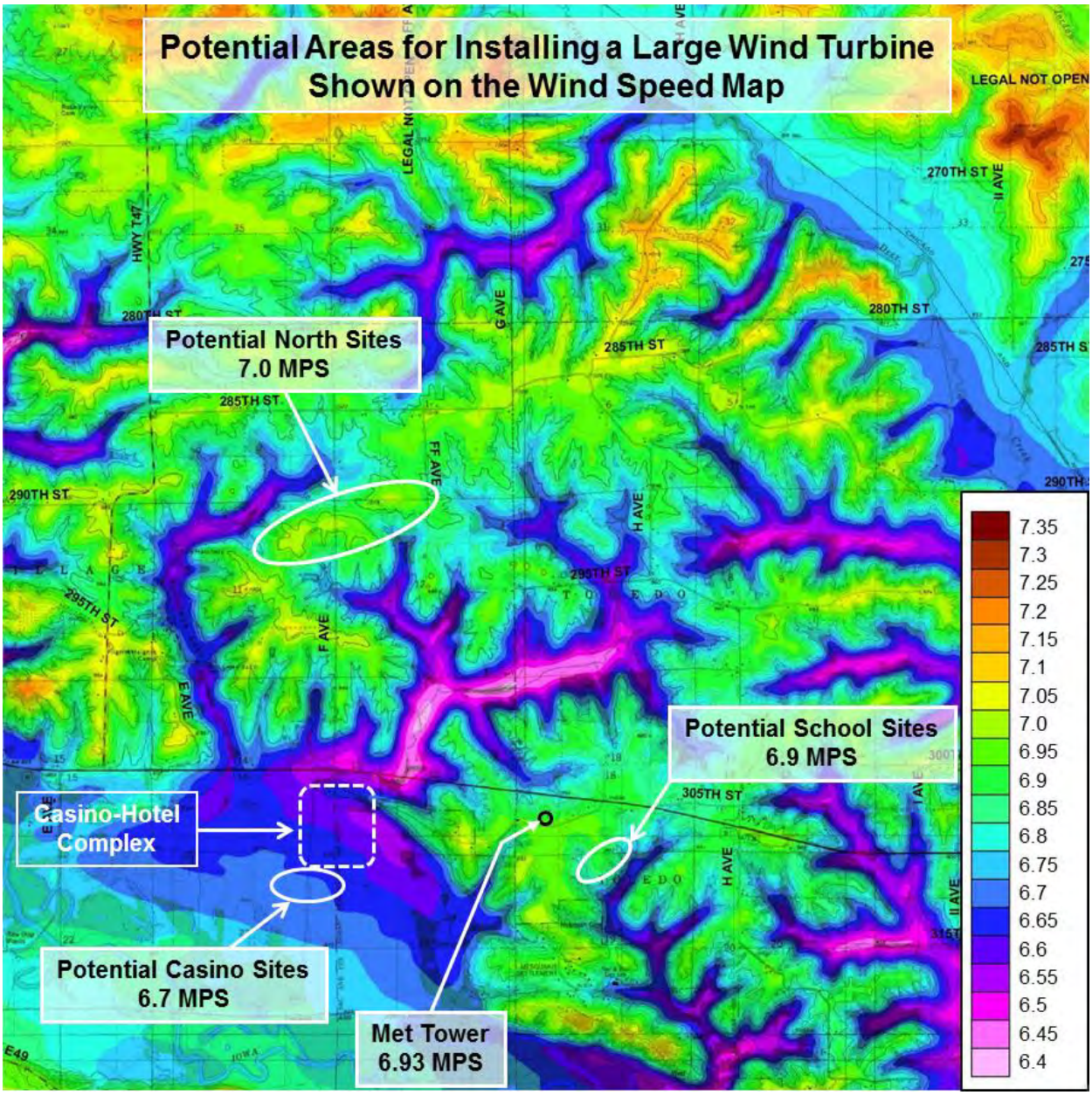
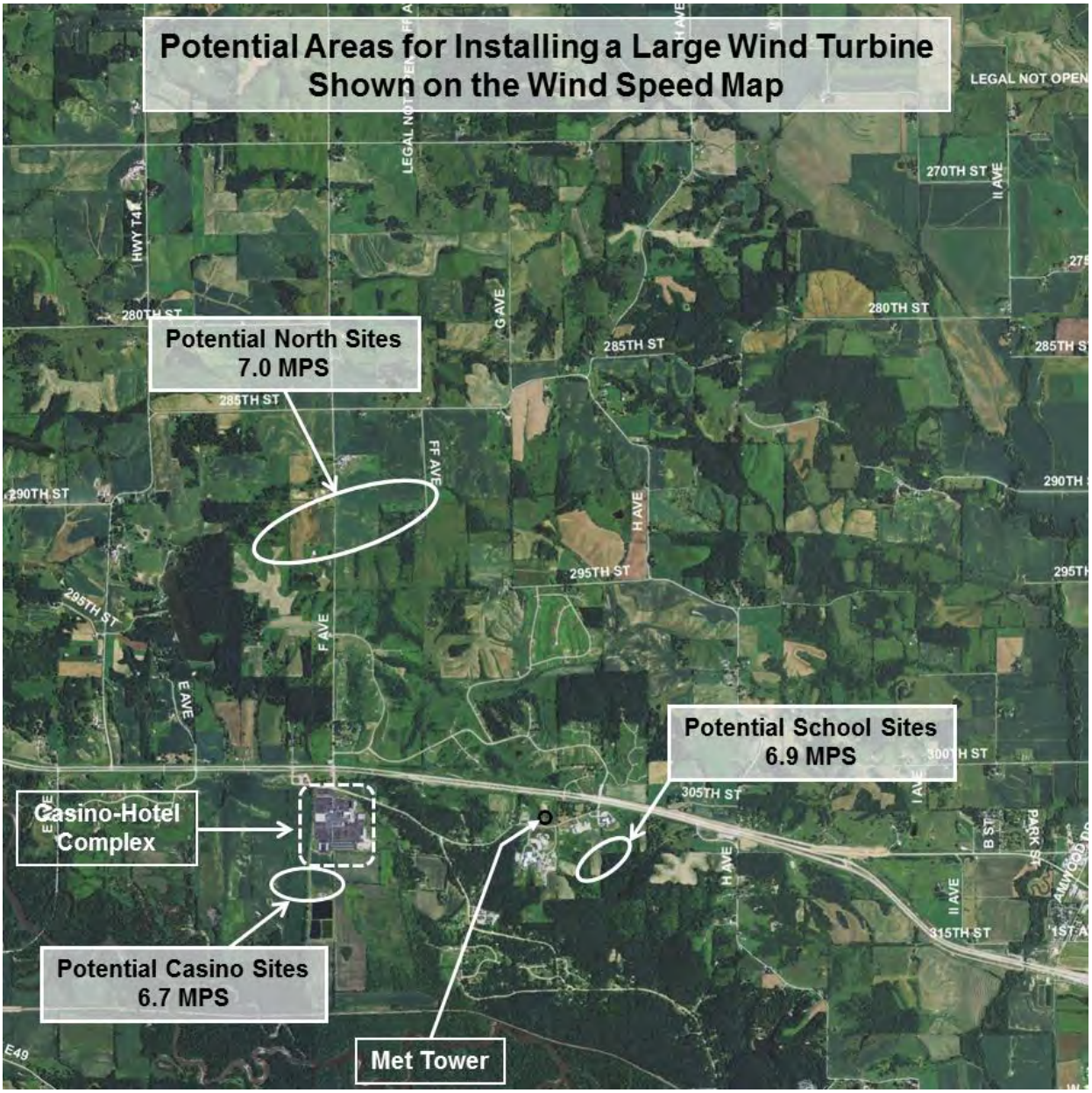


Figure 14 is an aerial photograph of the same identical area and the same three potential sites.

FIGURE 14



The Consultants recommend that a wind turbine be set back from property lines and roads by the "fall-down" height, which is about 430' for the wind turbine model evaluated in this feasibility study. Furthermore, the Consultants recommend a setback minimum of 1,500 feet from homes and businesses.

Each of the three sites was also evaluated for the noise levels and shadow flicker they might cause for nearby residents.

Evaluation of Potential Sites for Noise

Figure 15 depicts the calculated sound levels for a large 1.6 megawatt ("MW") wind turbine installed east of the tribal school. The Consultants consider a noise level of 45 dBA to be acceptable in quiet areas. Residents in areas with more background noise, such as that caused by traffic on a major highway like Highway 30, would quite likely accept even higher noise levels. People in commercial areas or schools also accept higher noise levels, again because of the higher background noise levels. The Consultants would anticipate the residents living along the Meskwaki Road (Reservation Highway 1) southwest of the potential turbine site would possibly notice the turbine's noise more often than anyone else. They would hear the "swoosh" of the blades on days with light winds when their windows facing the turbine are open. However, they would likely not hear the "swoosh" on windier days when the sound of the wind blowing through the branches and leaves of the nearby trees would mask the noise from the wind turbine. Based on the noise contours shown in Figure 15, a wind turbine installed nearby should not cause noise levels that would be objectionable.

FIGURE 15

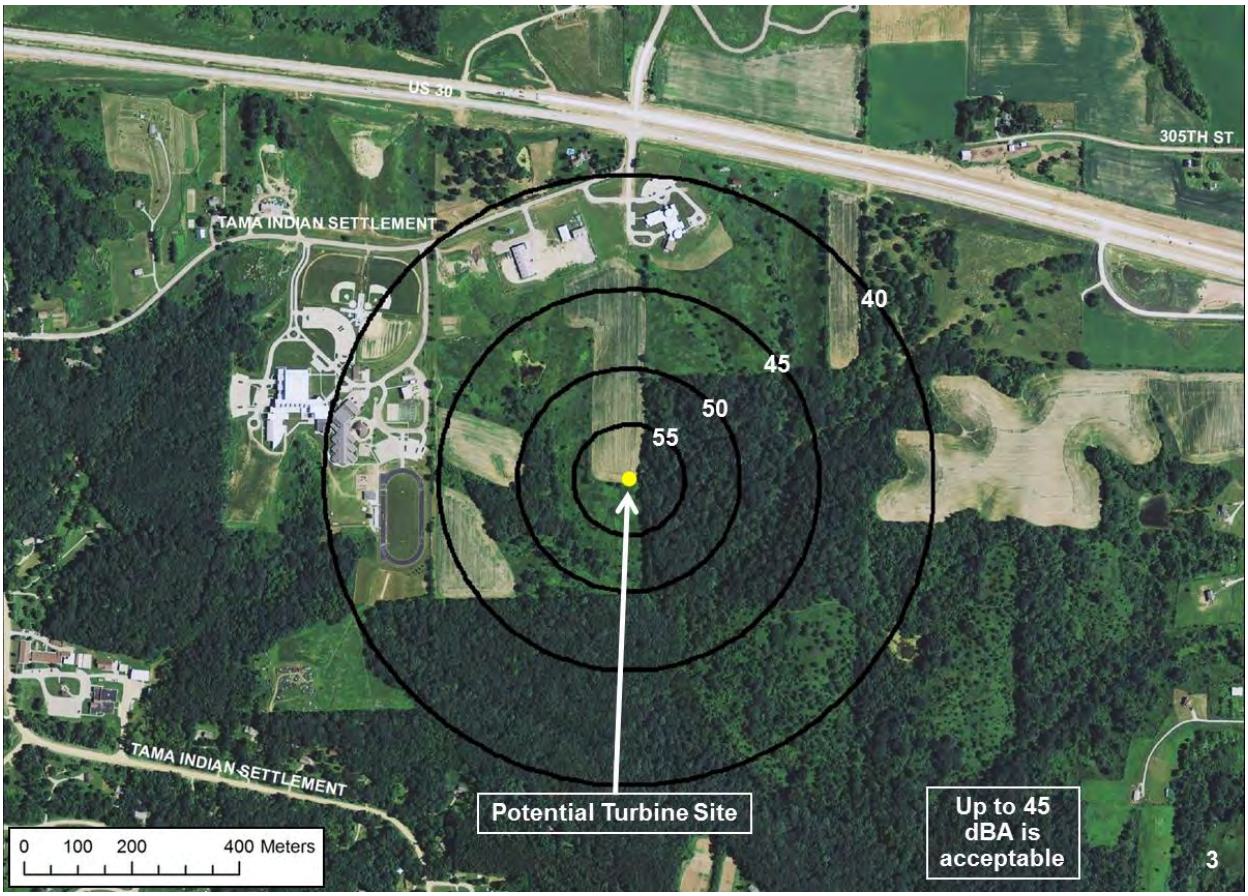


Figure 16 shows the noise contours for a wind turbine installed near the casino. The nearest home is about 3,700 feet east of the potential turbine site by the casino. Although the casino and hotel are closer, the higher ambient noise levels in those facilities would more than mask any noise from the turbines. The camper sites south of the casino are about 1700' feet from the turbine site shown. The turbine noise level of about 40 dBA would be noticeable there on several days of the year, especially when the wind is blowing from the southwest and the campers' windows are open. The turbine could be moved further south and west if this is deemed to be a potential problem.

FIGURE 16

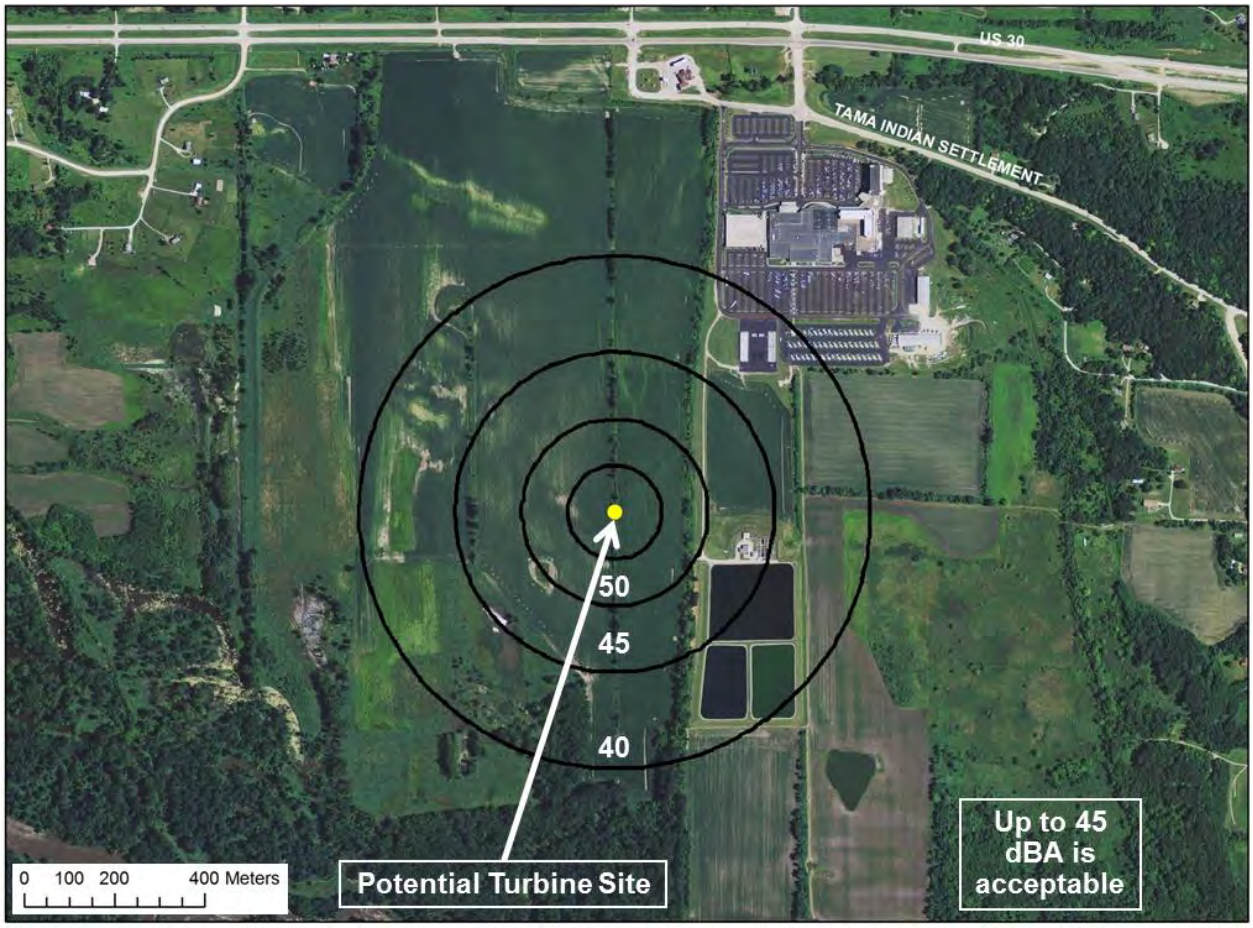
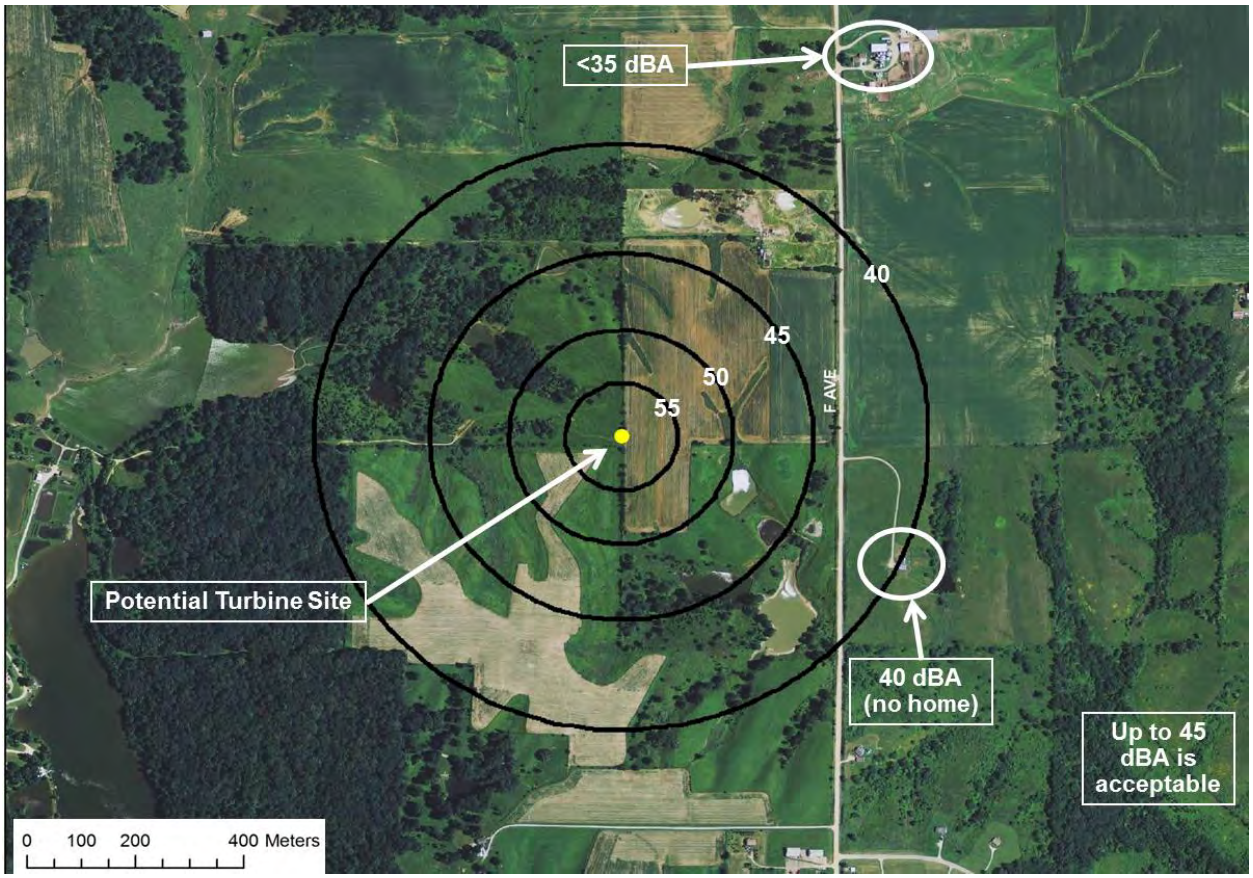


Figure 17 illustrates the noise contour levels for a turbine installed at the North Site. The closest resident has noise levels of less than 35 dBA, which would not be objectionable. However, even at a distance of 2,700 feet the residents will still be able to faintly hear the turbines on many days, especially if the wind is from the southwest. Nevertheless, the noise levels should be acceptable for a turbine at this site.

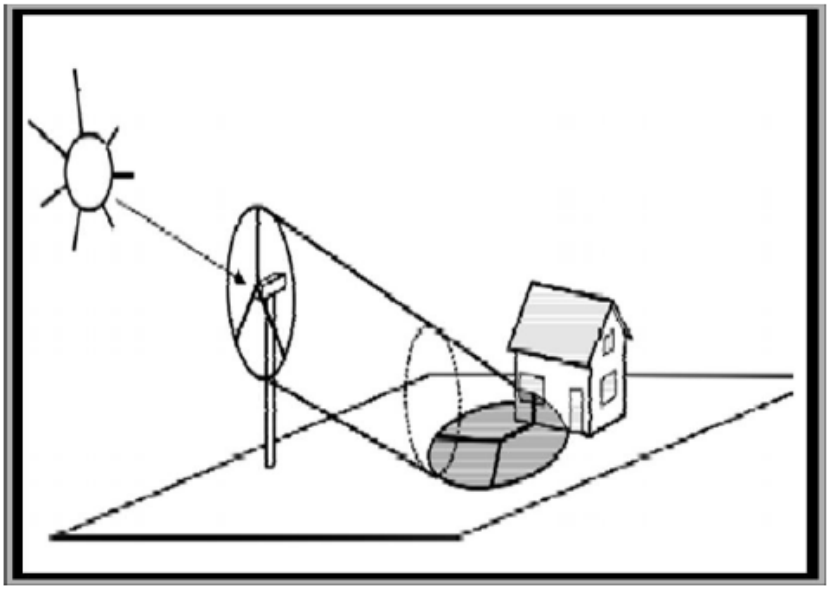
FIGURE 17



Evaluation of Potential Sites for Shadow Flicker

Another consideration for siting a wind turbine is shadow flicker. Shadow flicker is caused when a wind turbine blade passes between the sun and the window of a home or business. As each blade rotates, it can cast a shadow on the window for a brief instant, which can be distracting to occupants in rooms facing the sun. Figure 18 illustrates a turbine blade casting a shadow on a window. The flickering shadows from the rotating blades can last from 45 minutes to less than 1 minute per day, depending upon the day of the year and the position of the window with respect to the wind turbine. The typical duration might be 15 to 20 minutes per day. Shadow flicker occurs seasonally and can be predicted fairly accurately. Shadow flicker does not occur when the sun is obscured by clouds or fog, or when wind turbines are not operating, or when the blades are at a 90º angle to the receptor.

FIGURE 18



The Consultants consider a calculated shadow flicker level of 100 hours per year to be the maximum acceptable levels if the shadows do actually hit the windows. The calculated level is based on never having clouds, and always having enough wind for the blades to rotate. A calculated level of 100 hours will result in an actual level of about 50 hours per year or less, considering the typical cloud cover in Iowa.

Figure 19 shows the estimated level of shadow flicker for a wind turbine installed east of the school. Shadow flicker should not be a problem for a turbine installed by the school.

FIGURE 19

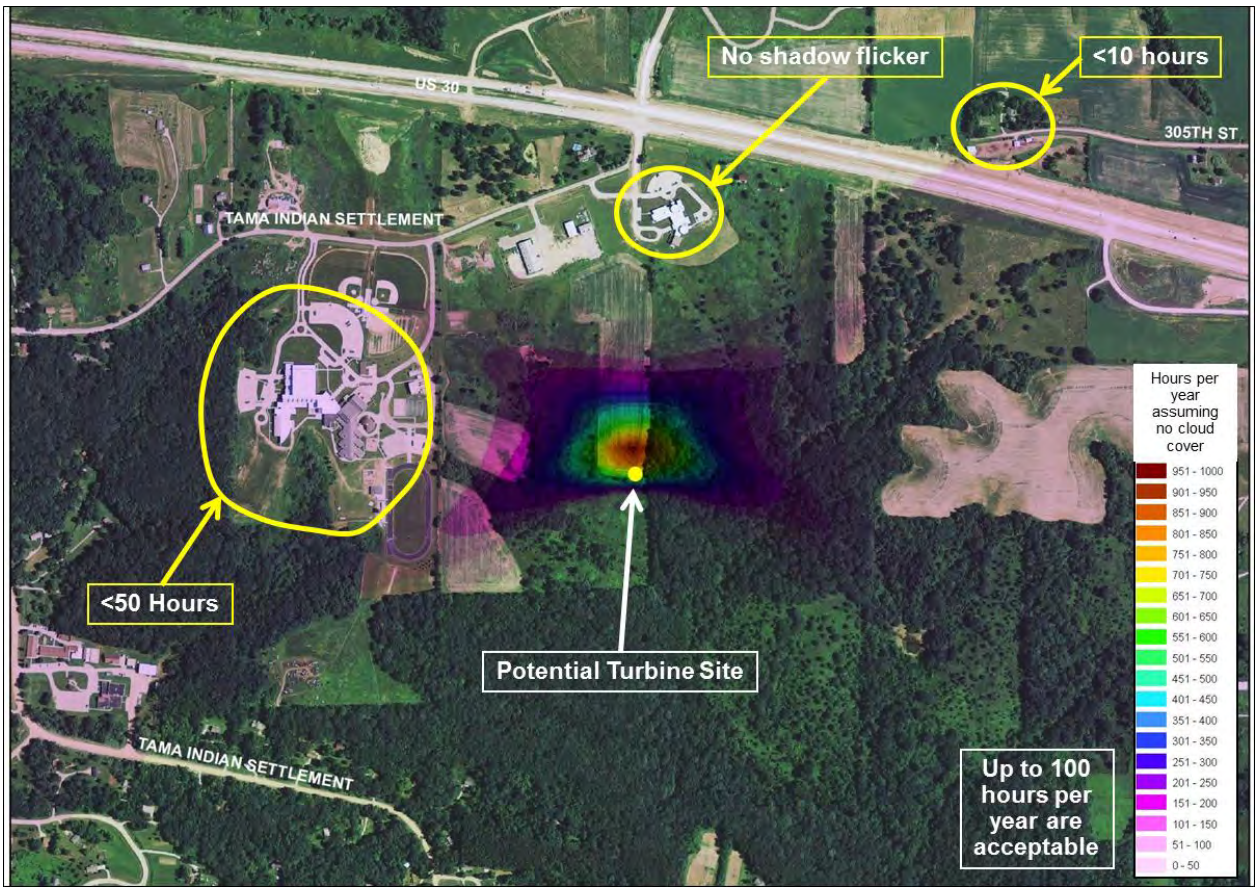
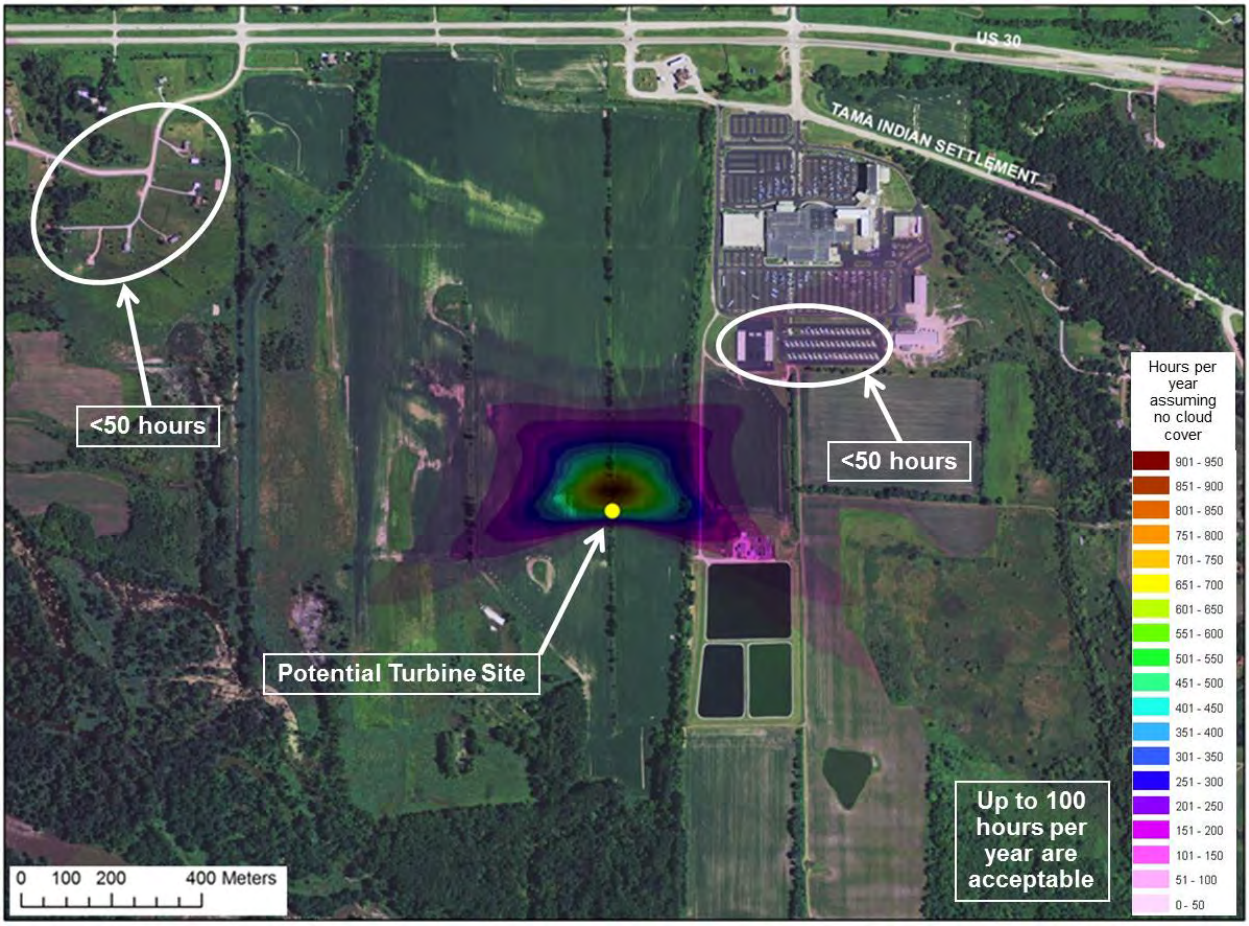


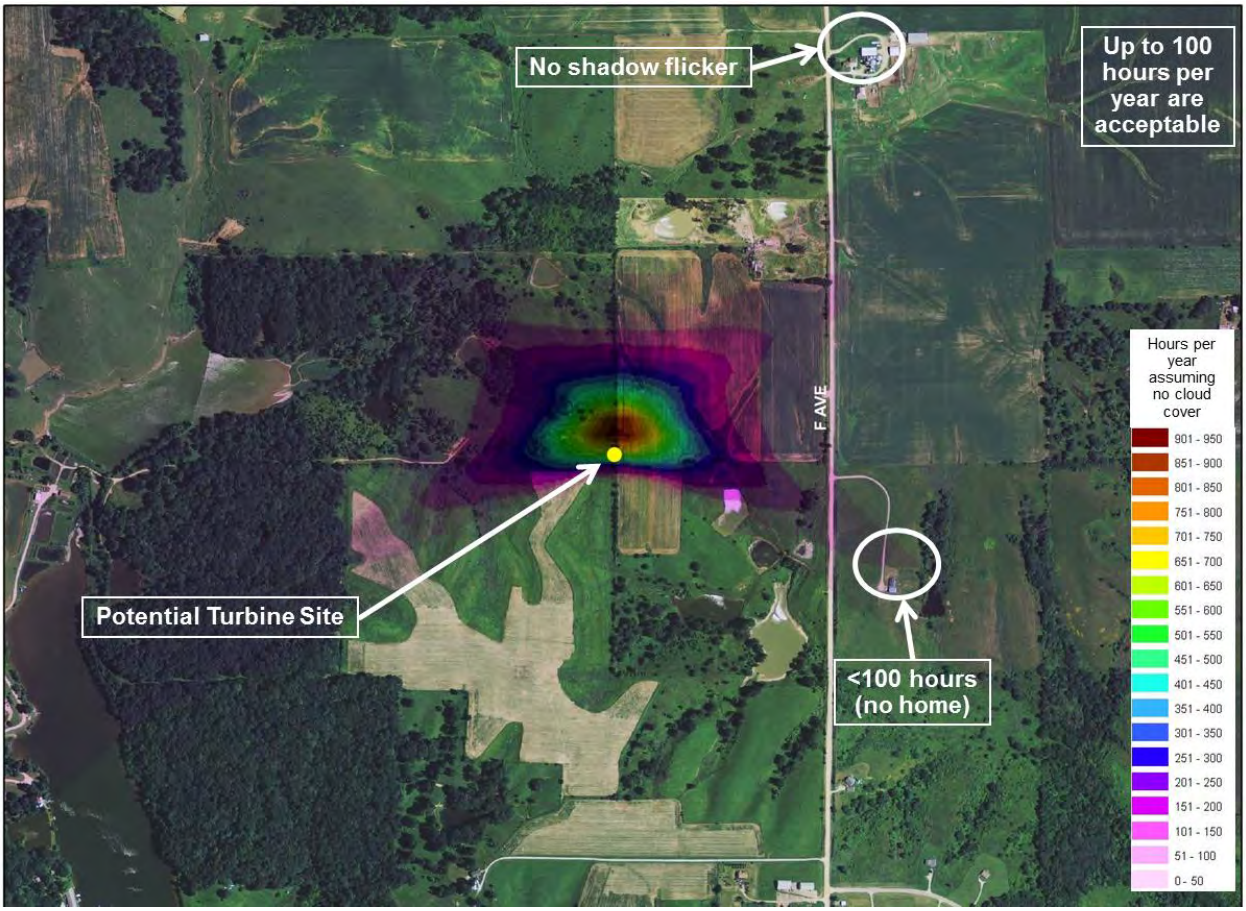
Figure 20 portrays the calculated shadow flicker levels for a turbine south of the casino. Based on this evaluation, the shadow flicker levels should be acceptable to the residents to the east and northwest of the potential turbine site. Occasional shadow flicker would be noticeable in the camper area in late November through early January, but only during the late afternoon period. This would likely not be an issue.

FIGURE 20



The calculated shadow flicker for the north site turbine location is displayed in Figure 21. There would be no shadow flicker for the nearest home, which is northeast of the potential turbine site. If someone builds a home southeast of the turbine site (where there is a storage building) some day in the future, the shadow flicker would be under the 100-hour limit the Consultants recommend. Therefore, the north site should not have a problem with shadow flicker issues.

FIGURE 21



Other Impacts from Large Turbines

Another consideration for siting is the impact on birds and bats. Large wind turbines in agricultural production areas in Iowa typically kill about 3 birds per year, and maybe twice that many bats per year. Since none of the species typically found are endangered or threatened, bird and bat mortality has not been an issue for wind turbines in Iowa. The potential sites evaluated for Meskwaki would most likely kill more birds and bats than for other wind turbines in Iowa, because there are more trees in the vicinity. The Consultants would only be concerned if there was a nearby colony of Indiana Bats, since they are an endangered species. During summer they roost under the peeling bark of dead and dying trees, and they eat a variety of flying insects found along rivers or lakes and in uplands. Indiana bats usually do not hibernate in Iowa. This is one potential impact that needs to be evaluated if the tribe is interested in considering a large wind turbine.

CONNECTING TO THE GRID

To utilize a wind turbine's energy production with the given laws and regulations in Iowa, the wind turbine must be connected behind the meter, so that any wind turbine generation reduces the flow of electric power from the utility. This slows the meter down and saves the customer money. If the wind turbine generates more power than the customer needs, the excess power simply and automatically flows backwards through the utility meter into the utility's grid, and the power is used by nearby electric customers.

The casino and hotel complex buy electric power primarily from the TIP rural electric cooperative through 10 different services and metering points. The three services providing power to the casino, the hotel, and the power plant collectively account for 97% of the electricity purchases from TIP. All three of these services are located adjacent to each other by three large pad-mounted utility transformers, and just outside of the southwest corner of the power plant in a fenced-in area. Therefore, underground high voltage electric cables would be installed from this location to the wind turbine. Figure 22 illustrates possible routes for underground electric cables for a wind turbine installed by the school, or a wind turbine installed north of the casino complex.

FIGURE 22

Figure 23 is a simplified one-line diagram showing the electric service equipment located southwest of the power plant building. The left side of Figure 23 shows the equipment today and the three utility-owned electric meters for the three large electric services. The right side of Figure 23 shows the same service equipment, along with some new equipment (shown in red) for connecting a large wind turbine. The right side shows that the metering points would be combined into one new primary voltage metering point about 50' south of the existing meters. The utility would then sell all power for the casino, hotel and power plant through one new meter. Meskwaki would purchase the three existing meters and some of the utility's existing equipment.

FIGURE 23

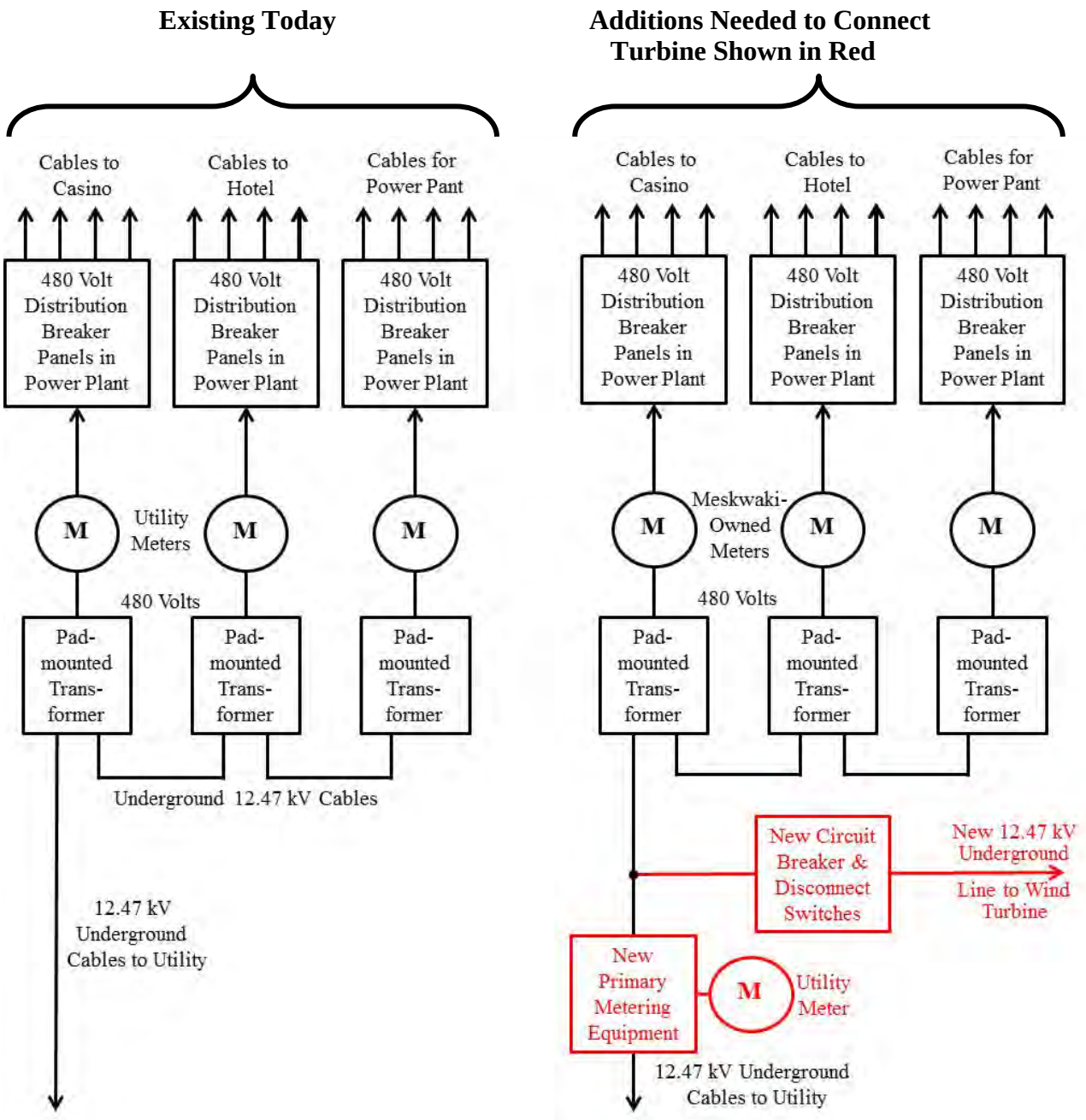


FIGURE 24

Figure 24 shows the three pad-mounted transformers and TIP's electric services by the power plant building.

FIGURE 25

Figure 25 is a view of distribution breaker panel switchgear inside the power plant. There would be essentially no changes to any of this equipment if a wind turbine is installed.

FIGURE 26

Figure 26 is a picture of a 1,750 kVA wind turbine step-up transformer that would be located adjacent to the wind turbine, and would step up the wind turbine generator voltage level of 690 volts to 12.47 kV. An underground 12.47 kV line would then take the wind-generated power back to the casino-hotel complex. Note that this underground line could not be tapped to supply power to other Meskwaki-owned buildings without the approval of the electric utility, because the utility has the exclusive right by law to sell electricity at retail to all of the Meskwaki facilities.

USING WIND TURBINE PRODUCTION

Energy Usage and Wind Turbine Production

The wind energy produced will depend primarily upon the swept area of the turbine blades and the height of the tower. Based on the Consultants' experience, a General Electric ("GE") 1.6 megawatt ("MW") turbine with a 100-meter (329') rotor diameter mounted on an 80-meter (262') tall tower was evaluated for installation at Meskwaki. This name brand turbine is based on a proven line of turbines from GE, and is designed for relatively low wind speed areas like Meskwaki has. There are several companies, including GE, and many wind service technicians living in Iowa that can service this wind turbine. GE has been pricing their turbines competitively in the market and this turbine would be one of the more economical options for Meskwaki. This GE model can also be used with a taller 96-meter tower. The shorter 80-meter tower height was used in the analysis, because the taller tower would require a larger crane. This would be much more expensive to use at a site with only one wind turbine, since the cost of mobilizing a very large crane is typically over $100,000. There are fewer cranes of this size in the Midwest, so getting a crane to come to the site that only has one turbine might be difficult and more expensive. There are many more cranes available for erecting turbines on 80-meter towers and their availability is greater.

Figure 27 is a pictorial drawing of this turbine from GE's technical specification manual, and Table 2 below shows the key features of this wind turbine.

FIGURE 27

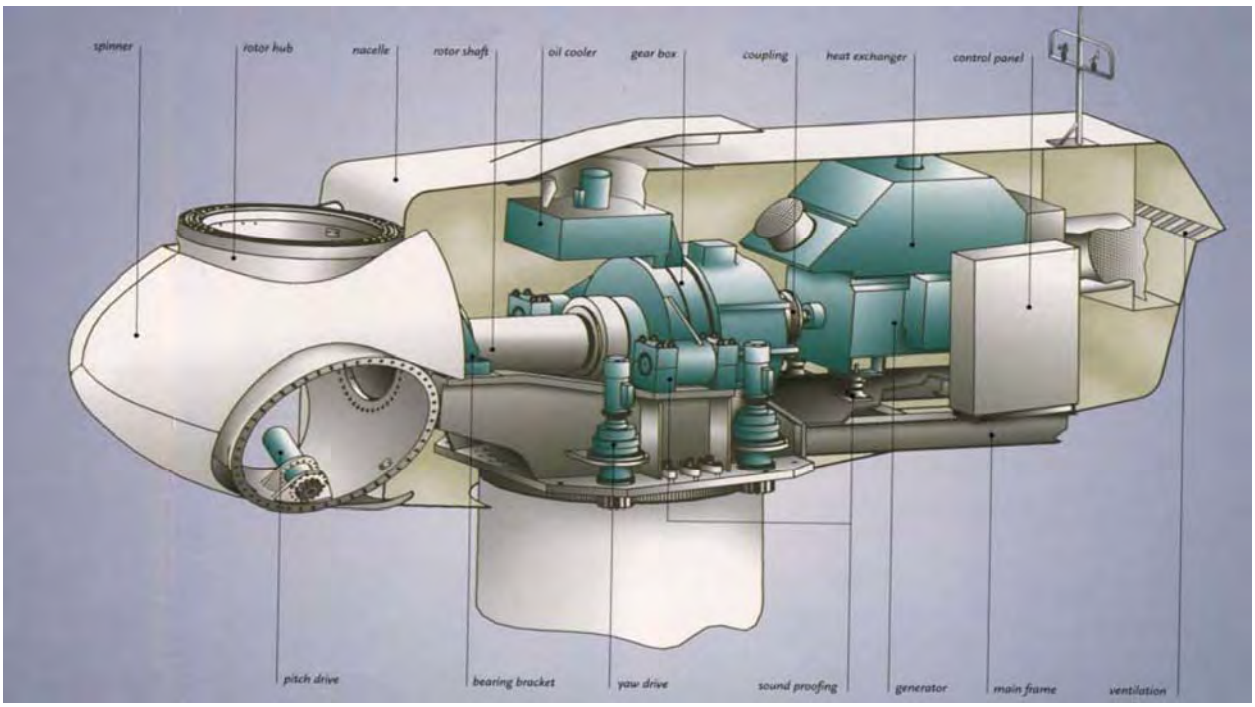


TABLE 2

Key Features of the GE 1.6 MW 100-Meter Rotor Diameter Wind Turbine	
1700 kW rated power	Designed for wind class III
100-meter rotor, with an 80-meter or 96-meter tubular tower	Design life of 20 years
Active yaw control and full-span blade pitch control power regulation with distributed drive train design	Operates from -22º F to 104º F (Cold Weather Package)
Multi-stage planetary/helical design gearbox	Rotor Speed is 7-15 rpm Maximum blade tip speed is 170 mph
Variable speed wound rotor doubly fed induction 3-phase generator with AC-DC-AC power converter connected to rotor to deliver 60 Hz	Cutout wind speed is 56 mph 10-minute avg. Extreme wind speed is 82 mph for 10 minutes Survival wind speed is 117 mph for 3 seconds (Based on Cold Weather Package)
Over-speed control by independent electric full-span pitch control for each blade and mechanical brake on the high speed shaft	The GE 1.6 wind turbine design is certified worldwide.
Foundation design will be a pad and pedestal design	Yaw rate is 0.5 ° per second, or 12 minutes for 360 ° of yaw rotation

As discussed previously, 97% of Meskwaki's energy purchases are for the three electric services for the Casino, hotel and power plant. Figure 28 illustrates the monthly kWh usage for those three electric services based on the usage over the last 2 years. For comparison purposes, the monthly kWh generation from the GE 1.6 turbine is also shown in the graph by the green bars.

FIGURE 28

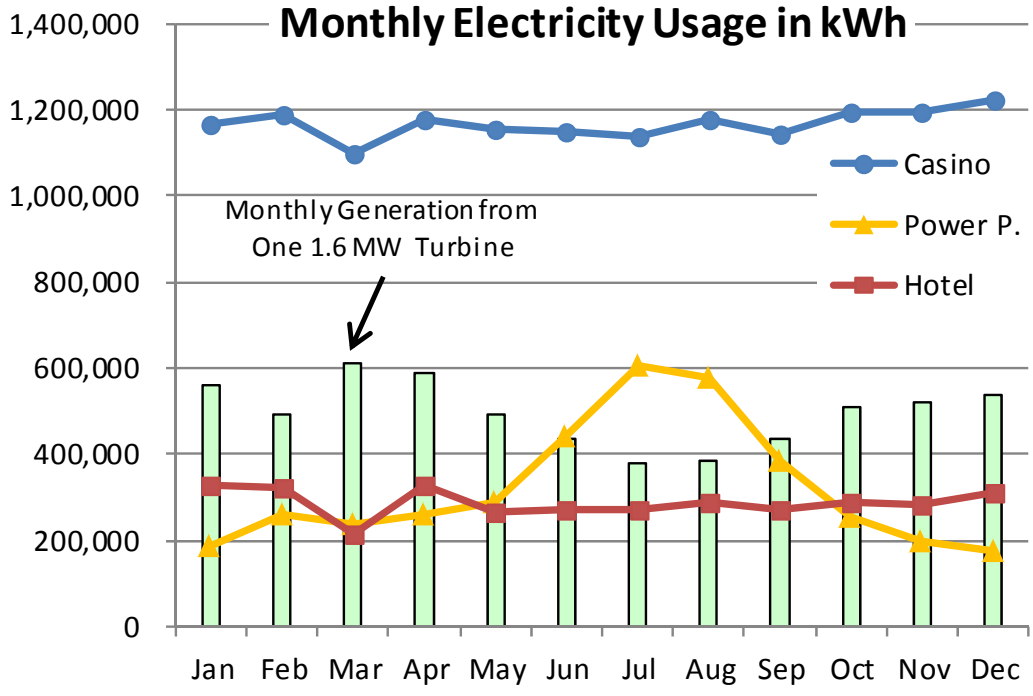


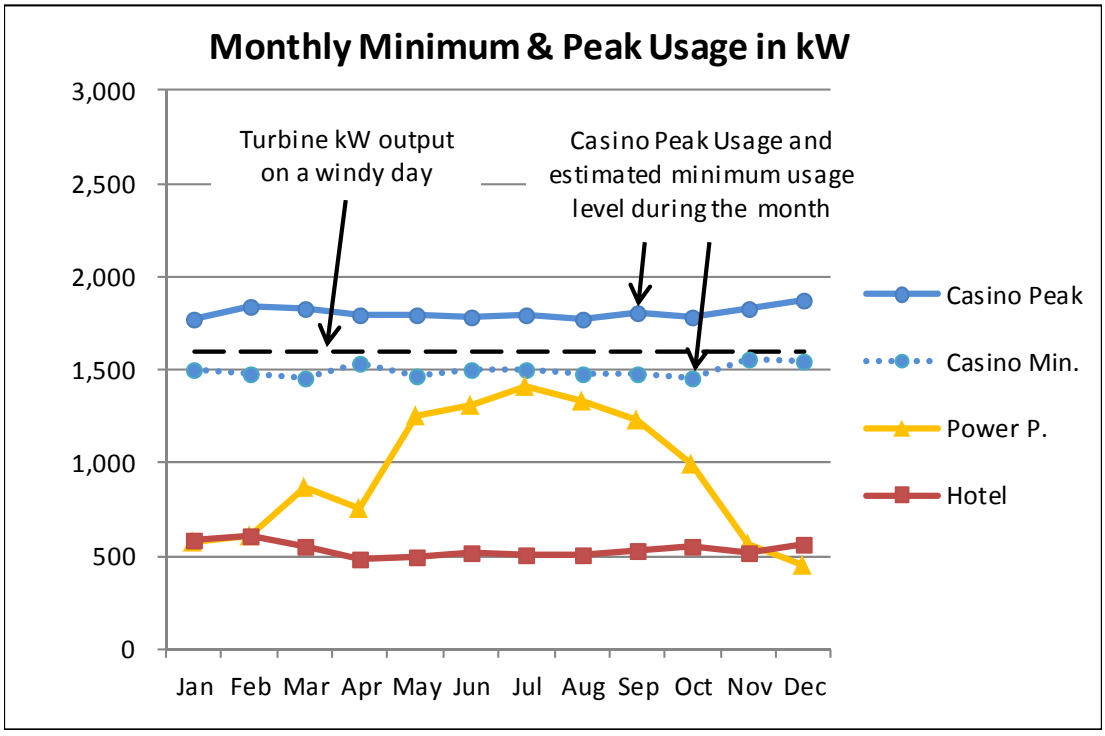
TABLE 3

Annual kWh Wind Generation Compared to Each Facility Usage		
One Turbine	5,942,000	100%
Casino	14,004,000	42%
Power Plant	3,867,000	154%
Hotel	3,443,000	173%
All Three	21,314,000	28%

Table 3 illustrates the comparison of the annual usage of the three facilities and the annual kWh generation of the wind turbine if it was installed at the school site. The estimated annual production from a wind turbine at the school site is 5,942,000 kWh per year, which is 42% of what the Casino uses during a year. The turbine would produce 154% of what the power plant uses during a year, and 173% of the hotel's usage. Based on this table, one turbine would generate too much if it was used exclusively for the power plant or hotel. However, it would only provide about 28% of the annual electricity needs for the total casino-hotel complex.

Another key factor in sizing a wind turbine to a facility's usage level is comparing the minimum level of usage at a facility with the maximum output of a wind turbine. The top blue line in Figure 29 depicts the peak usage level of the casino as measured by the utility's meter. For example, in January the highest level of usage was at a rate of about 1,800 kW. The minimum that month was estimated by the Consultants to be 1,500 kW. If the wind turbine were only connected behind the casino's electric service, then during windy periods with minimum loads the wind turbine would generate up to 100 kW more than the casino would need. During those brief times, the extra 100 kW would flow back through the casino meter to the utility. Even though the wind turbine would only generate 42% of the casino's needs over the course of a year, there will be a few times when the turbine generates more than the casino needs.

FIGURE 29



The Consultants simulated the amount of wind generation over the course of a year and compared it to the estimated hourly use of power for the casino. This comparison showed that 99.5% of the wind turbine's output would be used directly by the casino, and only 0.5% would be in excess of the casino's needs. This is predicated on the turbine only being connected behind the meter for the casino. If the wind turbine is connected as shown in Figure 23 where the casino, hotel and power plant services are connected together behind one new utility meter, then there would never be a time when the wind turbine would generate more power than used by the three facilities. This arrangement was assumed in this feasibility study. If all three facilities were combined and two wind turbines were installed, the Consultants estimated that 88% of the two wind turbines' output would be fully utilized by the three facilities. Then 12% of the two wind turbines' output would be in excess of the combined needs and would flow back into the utility's grid. Having excess wind generation does not cause the utility any problems. However, a contract would be needed to specify the power purchase rate the utility would pay Meskwaki for any excess generation flowing back to the grid. If the utility would let Meskwaki "bank" any excess wind generation for credit against power purchased later, then the utility provides what is called "net metering" service. Since TIP does not provide this service, any excess wind generation must be sold back to the utility.

Three different potential sites were considered in the previous section of the report. Since each site has slightly different wind speeds, each site would have different energy production. Table 4 shows a comparison of the hub height wind speed estimates and the predicted average annual wind generation for the three potential sites.

TABLE 4

Comparison of Wind Speeds and Energy Production for Three Sites

	Average Wind Speed			Average Annual Production	Difference in Production	
	In Meters per Second	In Miles per Hours	Difference in %	kWh	kWh	%
Casino Site	6.70	14.99	-2.9%	5,683,000	(259,000)	-4.4%
School Site	6.90	15.43	Reference	5,942,000	Reference	Reference
North Site	7.00	15.66	1.4%	6,069,000	127,000	2.1%

As expected, the casino site has the lowest wind speed and energy production due to the lower elevation of the site. Note that a 2.9% reduction in wind speed results in a 4.4% reduction in annual energy production. Likewise, the site north of the casino is on higher ground and would produce 2.1% more energy than the school site.

The wind speeds and production estimates shown in Table 4 are based on the 50/50 probability wind speed estimates. Since the future average wind speed is not exactly known, there is some uncertainty in the projected kWh production estimates.

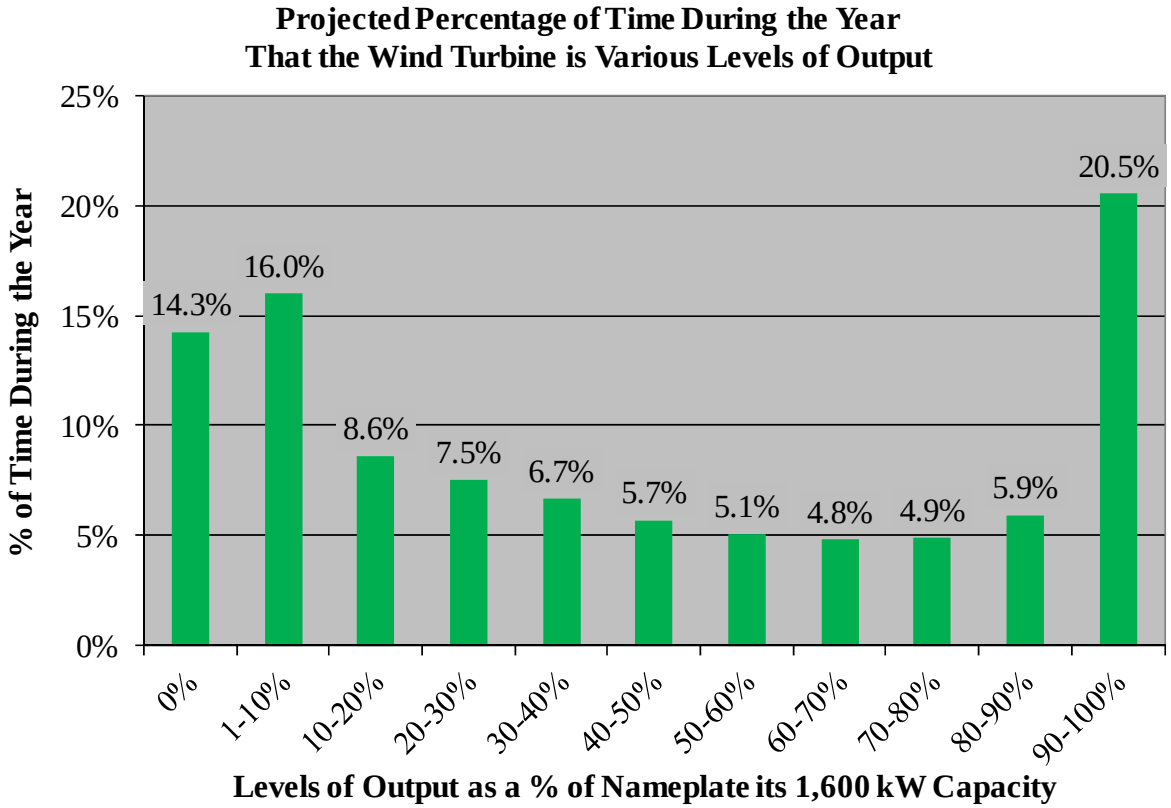
POWER BILL SAVINGS

Meskwaki has a relatively low rate for the electricity it purchases for the casino hotel complex. Power bills for large users generally have three major components. The first component is the energy component of the bill, which is based on the number of kWh used each month.

Every kWh generated by a wind turbine directly reduces the number of kWh purchased from the utility, which proportionately reduces the energy charge. Of course, if a wind turbine generates more power than is used by the customer at that instant, then the excess flows backwards through the meter into the utility's system. The utility meter will record this excess. If the local utility provides a "net metering" option, then this excess would be carried forward to the next monthly power bill to offset any purchases from the utility. However, TIP does not provide this net metering option, so the excess must be sold back to the utility at an "avoided cost" based price. This would be done on a monthly basis.

The second component is the demand charge, and it is based on the highest rate of kWh usage in any 15-minute period during the month. Since the demand charge is based on the customer's peak usage during the month, the addition of a wind turbine will only reduce the demand charge if it is generating power during the customer's 15-minute peak period. The output of a wind turbine varies continually, and at times the wind turbine does not produce any power because of low wind speeds. Figure 30 shows the estimated amount of time during a year that the GE wind turbine would generate various levels of power.

FIGURE 30

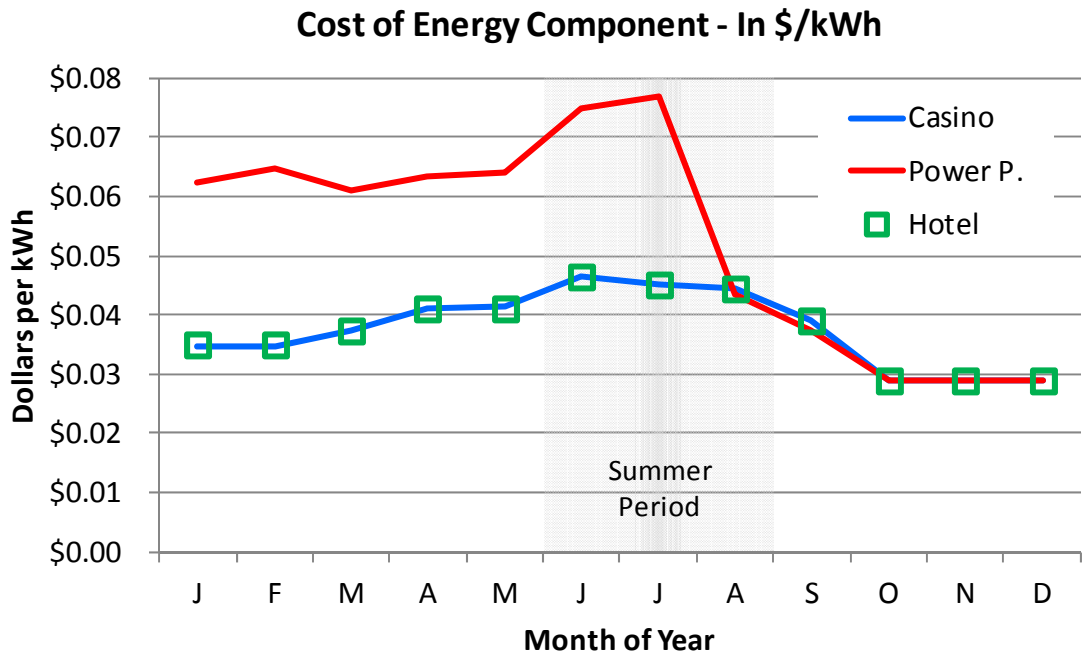


The graph indicates that 14% of the time during the year, the wind turbine will not generate any power at all. During some of those hours the blades may be turning, but because the wind speed is too low, there will be no power generated. Likewise, the turbine will be near full output 20% of the time. The data in the graph indicates that the wind turbine will be generating 800 kW or more (or half of its 1,600 kW capability) for 41% of the time. Because of this variability, there is never any certainty that the wind turbine will be generating power during the customer's peak demand period, or if it is generating, it may not be very much. Therefore, in most cases, a wind turbine will provide little demand charge savings over the course of a year. The proposed GE wind turbine would occasionally reduce the monthly demand charges. This is discussed in more detail later.

The third component is a customer service charge that is the same each month. It is $750 per month for each of these 3 services, or $2,250 per month in total. A wind turbine will not reduce that part of the power bill. However, combining the three services into one service could reduce the fixed charges by 2/3, or $1,500 per month, which is $18,000 annually.

The TIP electric rates and power bills from the last 2 years were analyzed by the Consultants to determine how much a wind turbine would reduce Meskwaki's power bills. Figure 31 shows the first component of the electric bill, which is the energy cost per kWh by month for the period of October 2011 through September 2012. The energy rates for the casino, hotel and power plant are now all identical. The rate varies from month to month because of a monthly energy adjustment clause that reflects TIP's wholesale cost of buying power, which is in turn affected by the regional market price of power. The rates shown are the weighted average of the summer and winter rates. Generally, energy rates are higher in the summer period as the graph shows.

FIGURE 31



The average annual cost of the energy component of the power bills is about $0.038 per kWh.

Figure 32 illustrates the second component of the electric bill, which is the demand charge rate in $ per kW-month for the same 12-month period. The demand charge rates for the casino, hotel and power plant are now all identical, as was the energy charge rate. The rate increases for the 3 summer months to $14.58 per kW, and then drops back to $11.10 per kW for the other 9 months. These rates reflect a lower demand charge rate that Meskwaki receives, because it has agreed to run its back-up diesel electric generators during the utility's peak load periods. These rates generally don't vary from month to month like the energy charge rates. The average demand charge rate over the year is about $12.00 per kW-month.

FIGURE 32

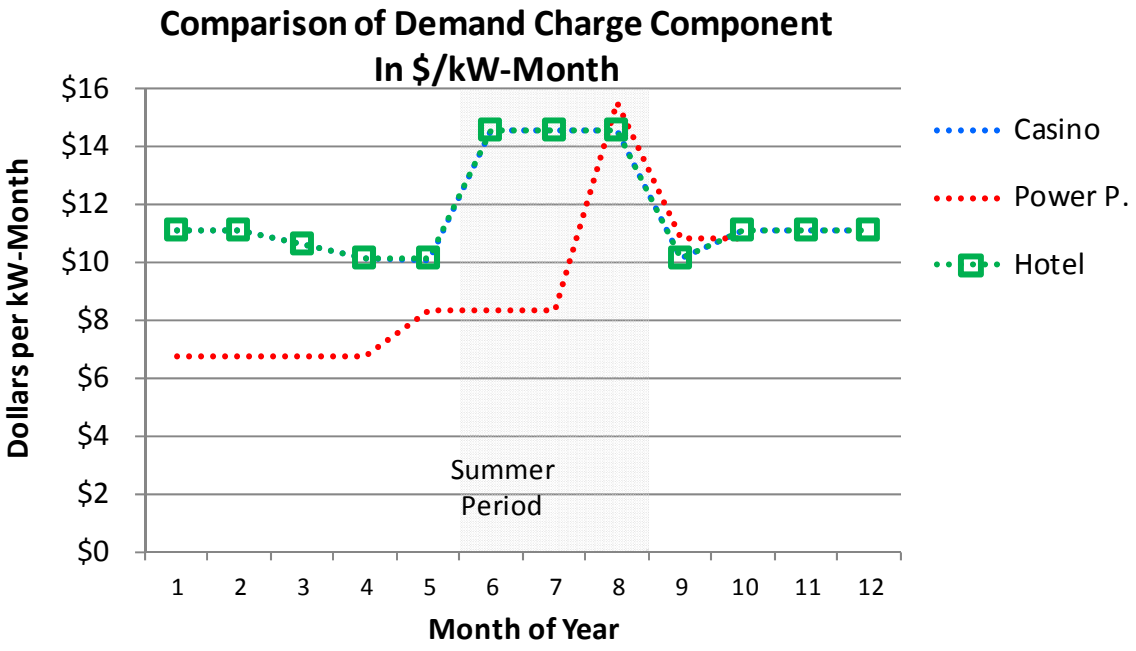


Table 5 shows an estimate of the energy cost component savings if one of the proposed wind turbines is added. The table shows that one wind turbine would save Meskwaki about $220,000 in energy charges per year.

TABLE 5

Projected Energy Charge Savings with a GE 1.6-100 Wind Turbine

Column >	A	B	C	D	E
Month	kWh Usage kWh	Energy Rate $ / kWh	Energy Charge with No Turbine $	Turbine Generation kWh	Energy Charge Savings $
January	1,679,000	$0.0347	$ 58,261	560,000	$ 19,432
February	1,771,000	$0.0348	$ 61,631	491,000	$ 17,087
March	1,554,000	$0.0375	$ 58,275	610,000	$ 22,875
April	1,765,000	$0.0412	$ 72,718	587,000	$ 24,184
May	1,704,000	$0.0413	$ 70,375	492,000	$ 20,320
June	1,854,000	$0.0464	$ 86,026	434,000	$ 20,138
July	2,015,000	$0.0452	$ 91,078	380,000	$ 17,176
August	2,048,000	$0.0446	$ 91,341	385,000	$ 17,171
September	1,799,000	$0.0391	$ 70,341	433,000	$ 16,930
October	1,738,000	$0.0288	$ 50,054	511,000	$ 14,717
November	1,679,000	$0.0289	$ 48,523	519,000	$ 14,999
December	1,707,000	$0.0289	$ 49,332	540,000	$ 15,606
Totals / Average	21,313,000	$0.0379	$ 807,955	5,942,000	$ 220,635
Percentage Savings in Energy Charges =				**27.3%**	

Notes:

-- Column A represents the total kWh used by the casino, hotel and power plant, assuming the three electric services would combined into one.

-- Column B is a rough estimate of the monthly energy rates. They will vary each month and will depend upon a number of factors which are very difficult to predict.

-- Column C is Column A x Column B

-- Column D is the estimated monthly kWh generation for a turbine at the school site. It is the same data as shown by the blue bars in Figure 28.

-- Column E is Column B x Column D.

Table 6 shows that the estimated demand charge savings. The demand charge savings are created by two different factors. The first factor emanates from simply combining the 3 electric services for the casino, hotel, and power plant into one electric service with one meter. This savings comes from taking advantage of a small amount of timing differences in when the monthly peaks occur for the three services. This timing difference is estimated to average 3%, but it will vary from month to month. This 3% savings is about $14,000 per year. The cost for making these changes has been estimated to be $100,000. The second savings in the demand charge is from the addition of the wind turbine. It is estimated to be only $2,400 per year, which is a 0.5% savings.

TABLE 6

Projected Demand Charge Savings with Combining Services & Adding a GE 1.6-100 Wind Turbine

Column >	A	B	C	D	E	F	G
	Current Peak Demands with 3 Meters	Current Demand Charge Rates	Current Demand Charges	Demand Savings by Combining Services Under One Meter		Demand Savings by Adding a Wind Turbine	
Month	kW	$/kW-Month	$	kW	$	kW	$
January	2,935	$11.10	$ 32,581	88	$ 977	19	$ 205
February	3,061	$11.10	$ 33,979	92	$ 1,019	19	$ 205
March	3,255	$11.10	$ 36,127	98	$ 1,084	19	$ 205
April	3,032	$11.10	$ 33,660	91	$ 1,010	19	$ 211
May	3,537	$11.10	$ 39,262	106	$ 1,178	19	$ 211
June	3,617	$14.58	$ 52,734	109	$ 1,582	19	$ 277
July	3,715	$14.58	$ 54,171	111	$ 1,625	7	$ 104
August	3,619	$14.58	$ 52,764	109	$ 1,583	7	$ 104
September	3,558	$11.10	$ 39,491	107	$ 1,185	19	$ 211
October	3,338	$11.10	$ 37,054	100	$ 1,112	19	$ 211
November	2,913	$11.10	$ 32,330	87	$ 970	19	$ 205
December	2,894	$11.10	$ 32,119	87	$ 964	19	$ 205
Totals / Avg.	39,474	$12.07	$ 476,270	1,184	$ 14,288	202	$ 2,354
Percentage Savings in Demand Charges =					**3.0%**		**0.5%**

Notes:

-- Column A represents the total Kw peak demands for the casino, hotel and power plant, as individual electric services as they are today.

-- Column B is a rough estimate of the monthly demand charge rates. The rate in the summer is higher than the other months.

-- Column C are the current demand charges paid by Meskwaki. It is Column A x Column B

-- Column D represents the estimated savings in peak demands that are obtained by simply combining the three services under one meter. This 3% savings does **not** include savings from adding a wind turbine.

-- Column E are the dollar savings, and is Column B x Column D

-- Column F is the estimated average kW savings in the monthly kW peak demands for a turbine at the school site. The savings will vary from 0 to perhaps 100 kW for any specific month.

-- Column G are the dollar savings, and is Column B x Column F

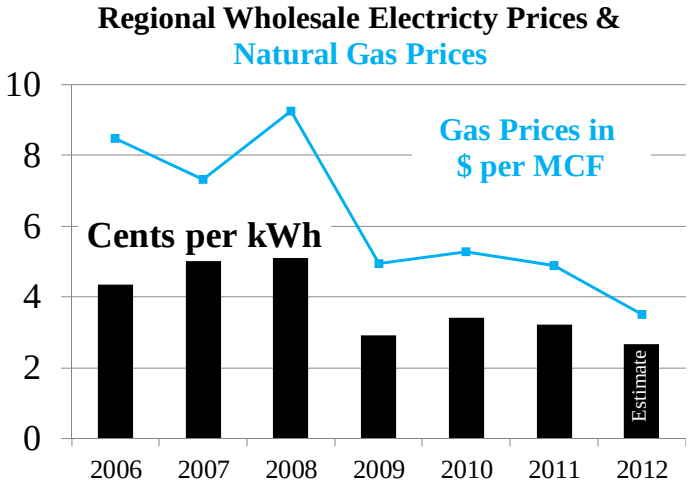
TABLE 7

Summary of Power Bill Savings from Adding a Wind Turbine		
Energy Charge Savings	$	220,635
Demand Charge Savings		
From combining 3 serives into 1	$	14,288
From wind turbine generation	$	2,354
Fixed Charge Savings	$	18,000
Total Initial Power Bill Savings	**$**	**255,276**
Annual kWh Generated by Turbine		5,941,800
Average Savings per kWh generated		**$0.0430**

Table 7 at right summarizes the estimated savings in power bills from adding the proposed wind turbine. The savings will initially total $255,000 annually, which is about 19.5% of the combined power bills of the three services. These bill savings average $0.043 per kWh generated by the wind turbine. These savings are expected to increase as power bills increase over time due to inflation.

Power costs are expected to escalate in the future due to a number of reasons. However, wholesale grid prices are stable right now. Therefore, Meskwaki's electric rates will also not increase very much for a couple of years. Assuming a growing economy, electric rates should escalate thereafter. The rate of escalation will depend upon a number of factors; such as the general inflation rate, the rate of growth in electricity usage in the Midwest, the cost of natural gas, the demand / supply balance of electric generation capacity, and the impact of recent tightening regulation on power plant emissions. These factors should tend to increase the cost of electricity over time, which generally increases the power bill savings from adding a wind turbine.

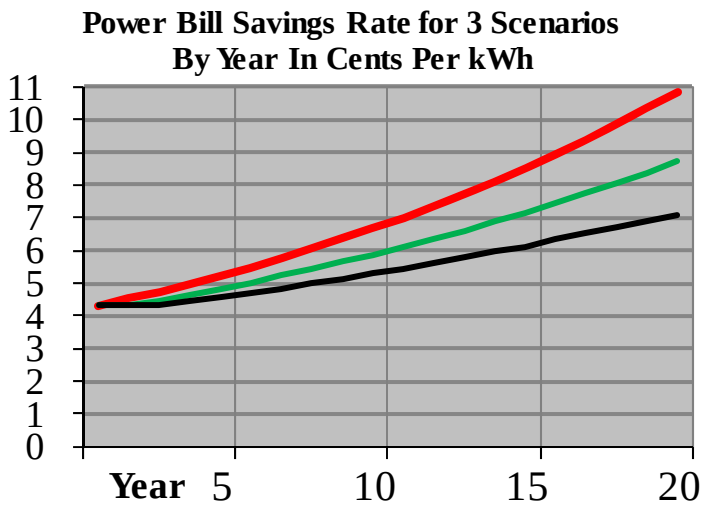
FIGURE 33



The current recession and the dramatic drop in natural gas prices have significantly reduced the Midwest grid power prices. Figure 33 illustrates the Midwest Independent System Operator ("MISO") annual average electricity prices for the upper Midwest regional area grid that includes the Alliant/CIPCO area. This graph shows that grid electricity prices fell an astounding 44% in 2009. Three factors contributed to this decline. The most important factor was the reduction in electricity usage due to the recession. The second factor was the decline in natural gas prices. During the hours when natural gas is used to generate electricity for the regional grid, the wholesale cost of natural gas determines the electricity prices, since these natural gas generators create the market clearing prices. The blue line in Figure 33 depicts the price of natural gas that was used for generating electricity. There has been a dramatic decline in natural gas prices used for generating electricity since 2008, and the current price is now about $3 per MCF. This decline is

due to the abundance of new natural gas provided by the use of horizontal well hydraulic fracturing technology in shale deposits. Although natural gas prices may recover a little as the economy picks up, experts are predicting that the abundance of these newly tapped reserves will keep natural gas prices relatively low for many years in the future. These low natural gas prices will also put a cap on the price of wholesale electricity. A third factor that is helping to keep whole electricity prices low is the ever increasing supply of wind generation. Any new wholesale power generator tends to make prices go down a little, due to the laws of supply and demand. Since wind turbines are rarely turned off, their generation tends to lower the wholesale prices.

FIGURE 34



An improving economy will gradually raise the cost of grid electricity prices. However, the abundance of natural gas and the increasing supply of wind generation should limit future electricity prices for Meskwaki for at least two or three years. Electricity prices will eventually go up because of a number of other factors, but the Consultants believe the increases will be modest. Because it is so difficult to project market-based electricity costs, the Consultants have developed three scenarios of future electricity purchase rates that are shown in Figure 34. These scenarios were based on the judgment of the Consultants. In all three scenarios, the price per kWh starts at 4.3¢ per kWh for 2014. In the "High" scenario with the red line, the price increases by 5% per year starting in 2015. The "Medium" scenario with the green line increases 4% annually starting one year later in 2016. This medium escalation rate is used in the reference case evaluation. The "Low" scenario stays flat at 4.3¢ for 2014 through 2016, and then starts escalating at 3% per year.

The power bill savings estimates shown in Figure 34 are based on the 50/50 probability wind speed estimates. Since the exact average wind speed is not known, there is some uncertainty in the projected kWh production estimates.

CAPITAL AND OPERATING COST ESTIMATES

Table 8 depicts a preliminary capital cost estimate for installing one GE 1.6-100 turbine at the school site. The total project cost is $3.95 million, or about $2,470 per kW of wind generating capacity. This estimate is based on direct ownership and financing by Meskwaki.

The interconnection cost is based on not having any real-time communication equipment with the utility, which saves $75,000.

TABLE 8

Total Cost of Wind Generation Project	
$ 2,375,000	Wind Turbine Delivered to Site
$621,000	Foundation, Unloading, Erection, Roads
$489,000	Electrical Interconnection
$ 193,000	Soft Costs (Interest, Engineering, Legal)
$ 276,000	Contingencies at 7.5%
$ 3,954,000	Total Capital Cost
These estimates are based on installation at the school site.	

The capital cost would vary between the three sites, primarily due to the length and cost of installing the 12.47 kV underground electrical cables. For example, underground installation costs are more expensive for the school site because the cable is routed along 305th Street, where there are many other underground utility services for homes that need to be worked around. Installation costs in the rural area going to the north site were estimated to be 33% less per mile.

Table 9 depicts the total project cost for the installation of one turbine at the three sites. The north site only costs about 1.5% more than the school site, again due to the lower underground cable installation cost. The casino site is the least expensive, since it is so close to the interconnection point.

TABLE 9

Comparison of Total Project Costs for the Three Different Wind Turbine Installation Sites			
		Difference	
	Cost	Dollars	Percent
School Site	$ 3,954,000	Reference	Reference
North Site	$ 4,015,000	$ 61,000	1.5%
Casino Site	$ 3,700,000	$ (254,000)	-6.4%

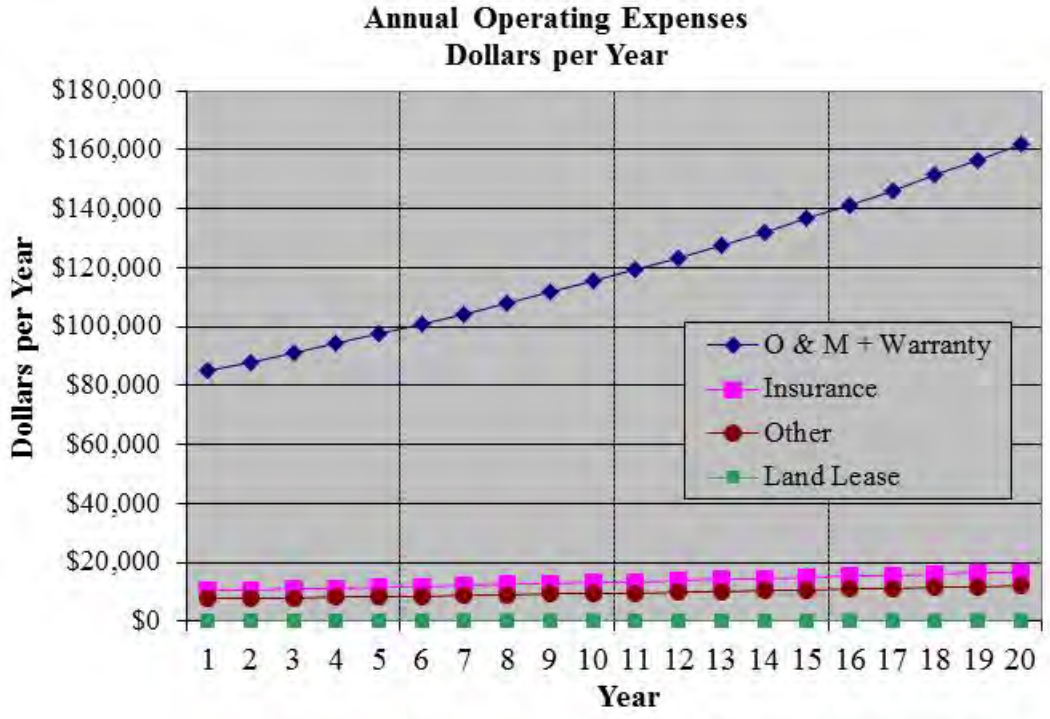
Table 10 summarizes the expected operating and management expenditures for a single wind turbine installed at Meskwaki. These costs are based on having a third party provide the maintenance, warranty and operating services for the wind turbine under a comprehensive long-term contract. It was assumed that Meskwaki staff would provide some modest amount of operating assistance for simple tasks to minimize the travel and labor cost of an outside contractor making a trip to Meskwaki. Also, it was assumed that Meskwaki's staff would handle overall project management for the operation of the project. Modest labor and management costs for any part-time employees are included in the second line item in the table.

TABLE 10

Initial Operating, Management and Miscellaneous Expenses		
Maintenance Service Contract (Incl. Warranty Services)	$	80,000
Local Operation Labor, Professional Services & Mgmnt.	$	10,000
Property, Business Interruption, & Liability Insurance	$	10,500
Property Taxes	$	-
Miscellaneous, Decommisioning Escrow	$	2,500
Total ……	**$**	**103,000**
The General Inflation Escalator is 2.5% and O&M Escalator is 3.5%		

Most of these operating costs will escalate over time. Figure 35 shows a projection of these operating expenses over 20 years. All of the above capital and operating costs are used in the financial analysis in the following section.

FIGURE 35

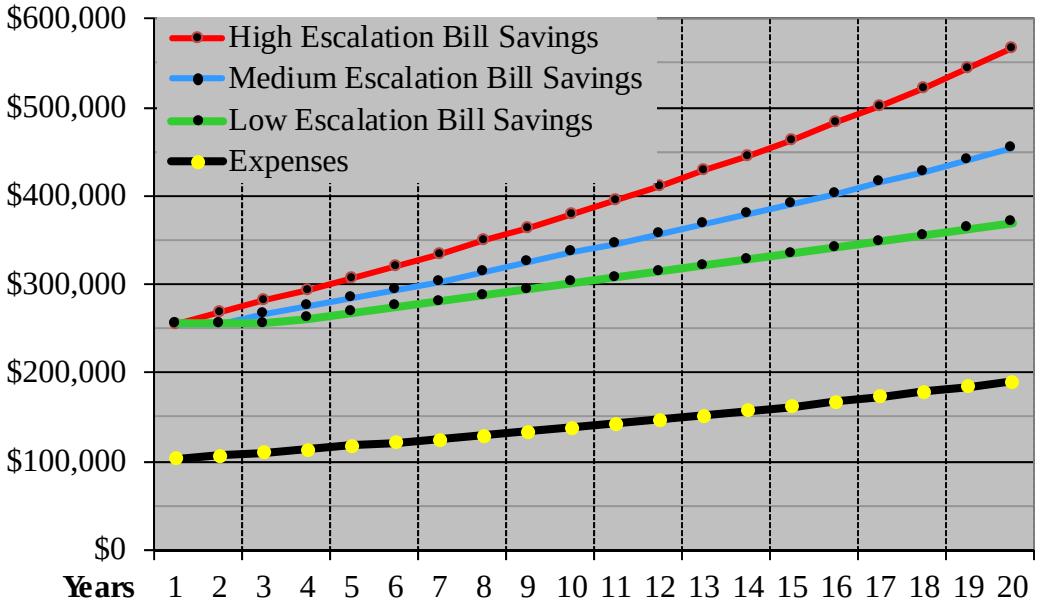


FINANCIAL ANALYSIS

Based on the capital and operating costs shown in the previous tables and graphs, long-term financial projections were made for operating costs, power bill savings, and the net margin from the wind project. A simple break-even for the project is achieved when the accumulated margins finally exceed either the total project cost of $3.7 to $4.0 million, depending upon the site used. These financial projections are shown in Appendix 3. Figure 36 illustrates the power bill savings for the three escalation rates shown in Figure 34 above, and the projected operating expenses. These are based on installing the wind turbine at the school site.

FIGURE 36

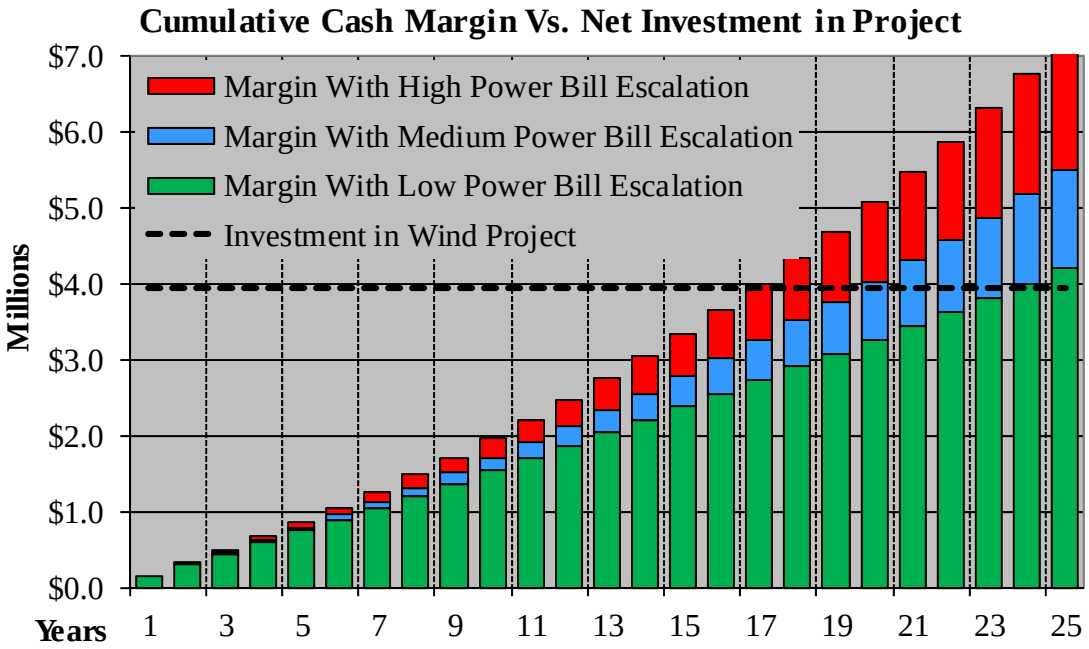
Annual Bill Savings and Operating Expenses



Note that the annual bill savings are greater than the operating expenses for the wind turbine. Therefore the project has a positive operating margin for all three escalation rates. If the accumulated operating margins over the years eventually exceed Meskwaki's investment, then the wind project attains a simple break-even.

Figure 37 depicts the accumulated cash operating margins by year for the wind project for the three different power bill escalation rates. The green bars show that for the "low power bill escalation rate" scenario, the accumulated margin grows to $4.2 million over a 25-year period. Since this is more than the $3.95 million cost of the project (black dashed line), the project does achieve a simple break-even. In the 24th year, the green bars exceed the black dashed line, so the project has a 24-year simple payback. This simple payback does not consider any time value or cost of money on project debt. If the cost of money is considered, then years to become debt free would be a little longer than the simple payback, depending upon the interest rate.

FIGURE 37



Under the "medium power bill escalation" scenario, the accumulated power bill savings are shown by the top blue bars. Under this scenario the project has a simple payback of 20 years. The top red bars represent the accumulated margins under a "high power bill escalation" rate. Under this scenario, the project achieves a break-even period of 17 years.

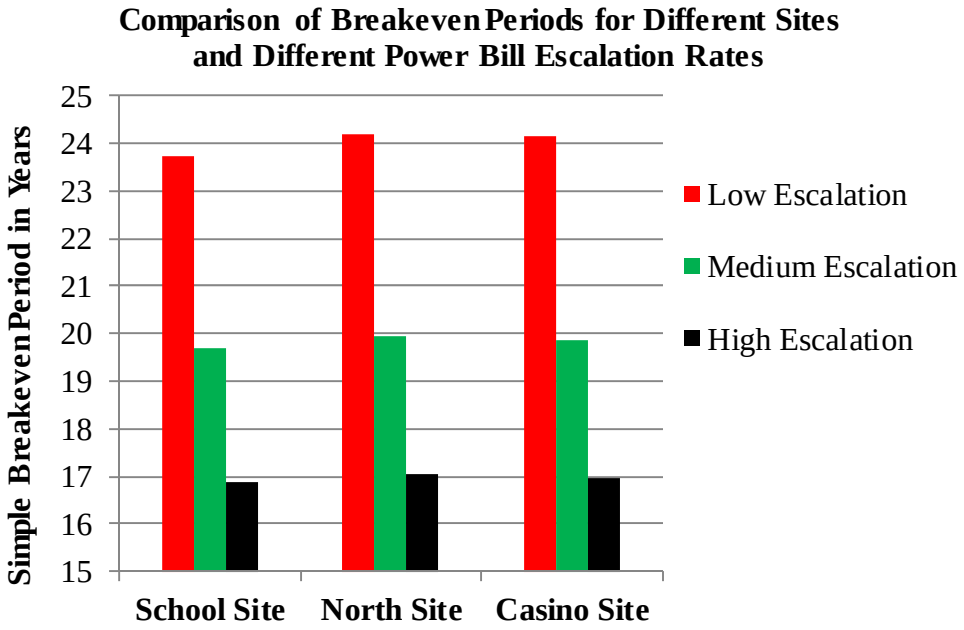
These resulting break-even periods are based on the 50/50 probability wind speed estimates, so there is some uncertainty in the break-even period projections.

In summary, the results of this break-even analysis for a turbine at the school site are:

1) 24 years break-even for low power bill escalation rates
2) 20 years break-even for medium power bill escalation rates
3) 17 years break-even for high power bill escalation rates

A similar break-even analysis was done for installing a turbine at the north site and at the casino. Figure 38 compares the break-even analysis results for all three sites and all three power bill escalation rates.

FIGURE 38



The graph indicates that there is less than a 1-year difference in the break-even period between the 3 sites, given the same power bill escalation rates. Therefore, it doesn't really make much difference which site is used from a payback perspective. The casino site has the lowest up-front capital cost. However, these up-front savings are slowly lost over time compared to the other sites, because of the lower kWh production.

These simple payback periods have a corresponding Internal Rate of Return ("IRR") on the investment. Table 11 portrays the equivalent IRRs for some of the various payback periods shown in the graph above. Since the IRR depends upon the length of the period in years, the IRR is shown for a 20-year period and a 25-year period. A large wind turbine should have a useful life of 25 years or potentially more.

TABLE 11

IRR for Various Breakeven Periods		
Breakeven Period	**IRR at ….**	
	20 Years	**25 Years**
17.0	2.0%	4.2%
20.0	0.0%	2.2%
24.2	-1.9%	0.3%

Although the results of this break-even period analysis appear to be definitive, there is some uncertainty in the results, because the starting assumptions are not known with certainty. The next section of the report evaluates the potential impacts of some of those uncertainties.

RISK AND UNCERTAINTY ANALYSIS

The primary uncertainties in this wind generation feasibility study are:

1) Changes in the annual power bill savings rate over time
2) The mean annual wind speed
3) The long-term changes in the mean annual wind speed due to climate change
4) The amount of money spent on major equipment repair and replacement ("R&R")
5) The total capital cost of the wind turbine project

The impact of each of these uncertainties is discussed below.

1) Changes in the Annual Power Bill Savings Rate over Time

The first uncertainty in the above list has the biggest impact on the break-even period. Three different power bill escalation rates were evaluated in the previous section of the report, and changes in the escalation rates cause the break-even period to vary from 17 years to 24 years. This 7-year difference is substantial.

2) Mean Annual Wind Speed

The amount of kWh generated by the wind turbine was based on the mean annual wind speed estimate of 6.931 mps (15.5 mph) at an 80-meter hub height. The Consultants project that this estimate has a 50% / 50% of being higher or lower than the true actual long-term average wind speed. Although this estimate was based on two years of actual wind speed measurements near the school site, there is uncertainty in this estimate because it is only based on two years of data. If the met tower had been operating for a longer period of time, the average wind speed would most likely be a better prediction of the wind speed. A statistical analysis of the met tower data was made to determine wind speeds that represented different degrees of certainty that the calculated average was reflective of the true average. These probabilities ranged from being 99% sure that a specific wind speed was at least as high as the true accurate average down to a 1% certainty. For example the 90% (P-90) certainty prediction was a lower wind speed, which would give a very conservative (low) kWh production estimate, whereas the P-10 prediction gave much higher production estimates. For financing purposes, bankers use the P-75 or P-90 predictions to make their financial projections conservative. Based on the Consultants' experience, the probability calculations derived from the met tower were adjusted by 30% to make the P75 and higher wind speed estimates a little slower and thus more conservative. This 25% adjustment was made because there were only 2 years of data recorded.

By taking into account the uncertainty in the wind speed measurements, the break even analysis was performed again using the P-90, P-75 and P25 wind speed estimates. The results are summarized as follows:

1) Using a conservative P-90 wind speed estimate adds 3 years for high-rate escalation to 6 years for low-rate escalation to the simple paybacks for all of the different power bill escalation rates compared to the P-50 estimates.
2) Using a little less conservative P-75 estimate adds 1-2 years to the break-even periods, depending upon the rate escalation.
3) Using the optimistic P-25 reduces the break-even period by about 1 year.

Another area of uncertainty involves the adjustment made in the wind speed data to reflect the true long-term average wind speed. This adjustment was shown in column E of Table 1. The adjustments were made, because there was uncertainty about whether the wind speed measurements at the met tower were made during a period of time that had "normal" wind speeds. Or did the period of measurement have higher or lower winds than the long-term average? The Consultants used long-term wind speed measurements from the Marshalltown airport to try to answer that question. However, the wind speeds at Marshalltown were a little different than they were at Tama, and the accuracy of those Marshalltown anemometers is unknown. The Consultants recognize that these adjustments add to the uncertainty in the long-term average wind speed estimates. However, they do not know how much uncertainty is involved.

3) The Long-Term Changes in Mean Annual Wind Speed Due to Climate Change

The average annual wind speeds appear to be changing over time in parts of the Midwest. Research climatologists at Iowa State University have concluded that the wind speeds at the height of corn tassels have declined by over 10 percent during the last 15 years, due to changes in the climate. Although they did not study changes at typical wind turbine hub heights, the key researcher suspects a similar downward trend may also exist. The Consultants have seen evidence of a general downward trend in the wind speeds recorded by the National Weather Service in the five locations in and adjacent to Iowa where they have had anemometers for many years.

To account for the real possibility that the long-term wind speed will decline as the earth warms and the climate changes, the Consultants have assumed that the wind speeds will decline a little over time. The net result is that the kWh production was reduced by 10% in total over a 20-year period, or about 0.5% per year. This 10% reduction in production only takes about a 5% reduction in wind speed, which is less than the Iowa State University climatologists have found. Therefore, the impacts of climate change could reduce the wind generation production even more than assumed in this feasibility study.

The impact of climate change on wind speeds is summarized as follows:

1) If there is no reduction in wind speeds due to climate change, the simple paybacks will be reduced by 1 to 2 years, depending upon the rate escalation.

2) If climate change is twice as much as assumed in the reference case, then the simple payback will increase by 1 to 2 years.

Based on this analysis, the impact of climate change on the simple payback will be about ± 1 to 2 years.

It should be noted that the production estimates were also reduced another 2.5% in total over 20 years to reflect the higher maintenance requirements as the wind turbine ages.

4) The Amount of Money Spent on Major Equipment Repair and Replacement

Over the course of 20 years, the Consultants would assume that the wind turbine would require $750,000 of major equipment repairs and replacements ("R&R"). However, the long-term cost of these R&R expenditures is uncertain, since this model of wind turbine (or any large wind turbine model) has not been in service for 20 years. Although the Consultants believe this cost estimate is a little conservative, the cost could certainly be higher or lower.

Because Meskwaki would likely only install 1 turbine, it was assumed that it would purchase a long-term warranty from the manufacturer to cover these R&R costs. Therefore, the risk from unforeseen major repairs is eliminated in this feasibility study. If Meskwaki chose to shoulder those R&R cost risks rather than purchase a long-term warranty, then the impact of variations in the long-term R&R costs would probably have a ± 2-year impact on the simple payback.

5) **The Total Capital Cost of the Wind Turbine Project**

The total project cost estimates range from $3.70 million for the casino site up to $4.01 million for the north site. The actual cost of the project will depend upon the competitiveness of the turbine market and the availability of construction contractors to do the work. The turbine supply market is very competitive right now due to the slow market. Therefore turbine costs will likely not get much lower. Nevertheless, a ± $300,000 (about ±8%) variation in the project cost was evaluated to determine the impact on the simple payback.

1) If the cost increases by $300,000 the simple payback increases by 1 year.
2) If the cost decreases by the same $300,000, the simple payback drops by 1 to 2 years.

Summary of Risks and Uncertainties

The uncertainty associated with five key assumptions has been evaluated, and the change in the break-even period is typically 1 to 2 years. Even though one could imagine a combination of pessimistic scenarios for these five key assumptions, it is unlikely they would all occur simultaneously. The Consultants typically find that their initial assumptions turn out to be a combination of being too high and too low, which tends to prevent the most pessimistic and optimistic scenarios from actually occurring. Therefore, the Consultants believe the uncertainties in these break-even estimates lie in the 1- to 2-year range. Again, the assumption having the largest impact on the break-even period is the escalation rate for the power bill savings. Figure 38 vividly illustrated that the simple payback could vary as much as 7 years for this key variable.

CONCLUSIONS FROM FEASIBILITY STUDY

This study determined that the simple paybacks were in the 17- to 24-year range, plus and minus a few years for various uncertainties. These results were predicated on a number of assumptions and the judgment of the Consultants, all of which adds some measure of uncertainty. This range of simple paybacks indicates that the project is likely not financially attractive for Meskwaki.

This result is not surprising to the Consultants, since Meskwaki is not taking advantage of any federal or state tax benefits. If this same identical proposed wind project was owned by a tax-paying entity, it would be able to use the 30% federal investment tax credit ("ITC"), or the 2.2¢ per kWh 10-year federal production tax credit ("PTC"). Either of these are equivalent to at least 30% of the capital cost of the project, which would be about $1,200,000. This incentive alone would be enough to reduce the simple payback for a turbine at the school site from 19.7 years down to 14.9 years, or a reduction of about 4 years. Furthermore, if Meskwaki paid income taxes, it could depreciate the wind turbine over 6 years and reduce its income tax obligations. Likewise, the state provides a 10-year production tax credit of 1.5 ¢ per kWh, that would total $875,000 over the 10-year period. However, to qualify for the Iowa tax credit, the wind power must be sold to a third party.

Nearly all wind projects having one or a few large wind turbines take advantage of the above tax credits. The Consultants are aware of a couple of other recent projects that sold their power for about the same 4¢ rate that Meskwaki will save on their power bill. All of these other recent projects utilized both the federal and state incentives and they will likely achieve a simple payback of 10 to 15 years.

Meskwaki could partner with a tax-paying entity that could use the tax credits as other projects have done. This partnership would last from 6 to 10 years, until the tax benefits are gone and then Meskwaki would buy out the other partner for a modest fee. One drawback of having a partner is that Meskwaki would be bound by legal agreements to operate the project in a manner that ensures that the tax credits are received in full. The legal, accounting, auditing, and administrative cost of having agreements over the 6 years might be $250,000, so these savings would reduce the value of the tax benefits.

Generally, investors or local owners have accepted simple paybacks of up to 10 to 15 years for large wind turbines. Paybacks longer than that are not attractive, because of the potential negative impact of the many uncertainties in the future. Since the paybacks found in this analysis are longer than that, most investors would not look favorably on this project, unless they were trying to help the environment, or make a public statement about their care for the environment.

Thomas A. Wind
Andrew Coil
Wind Utility Consulting, PC
March 19, 2013

APPENDIX 1

Iowa Maps Showing:

Land Elevation

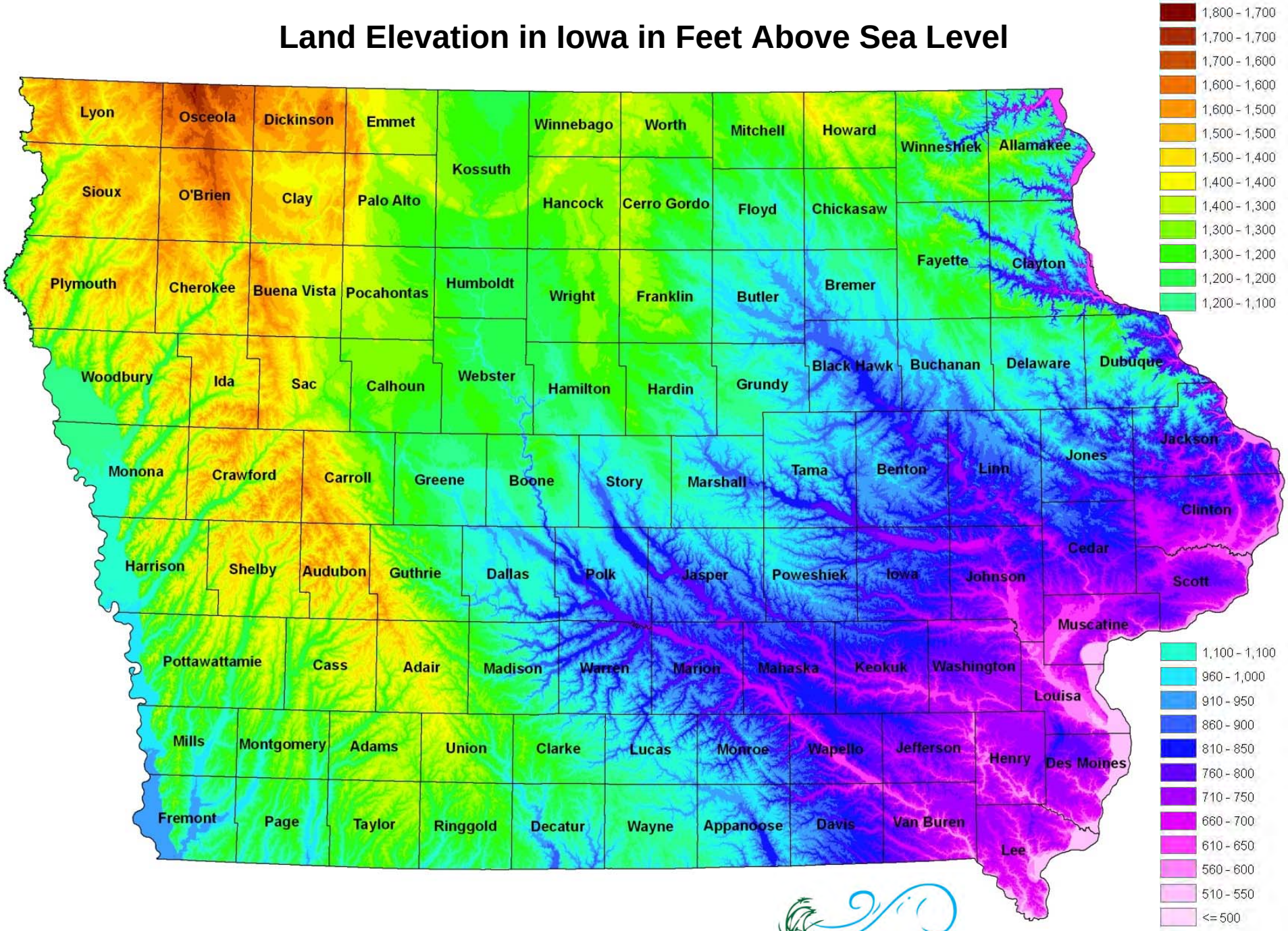
Land Cover Types

Wind Speed

And

Large Wind Turbine Locations

Land Elevation in Iowa in Feet Above Sea Level

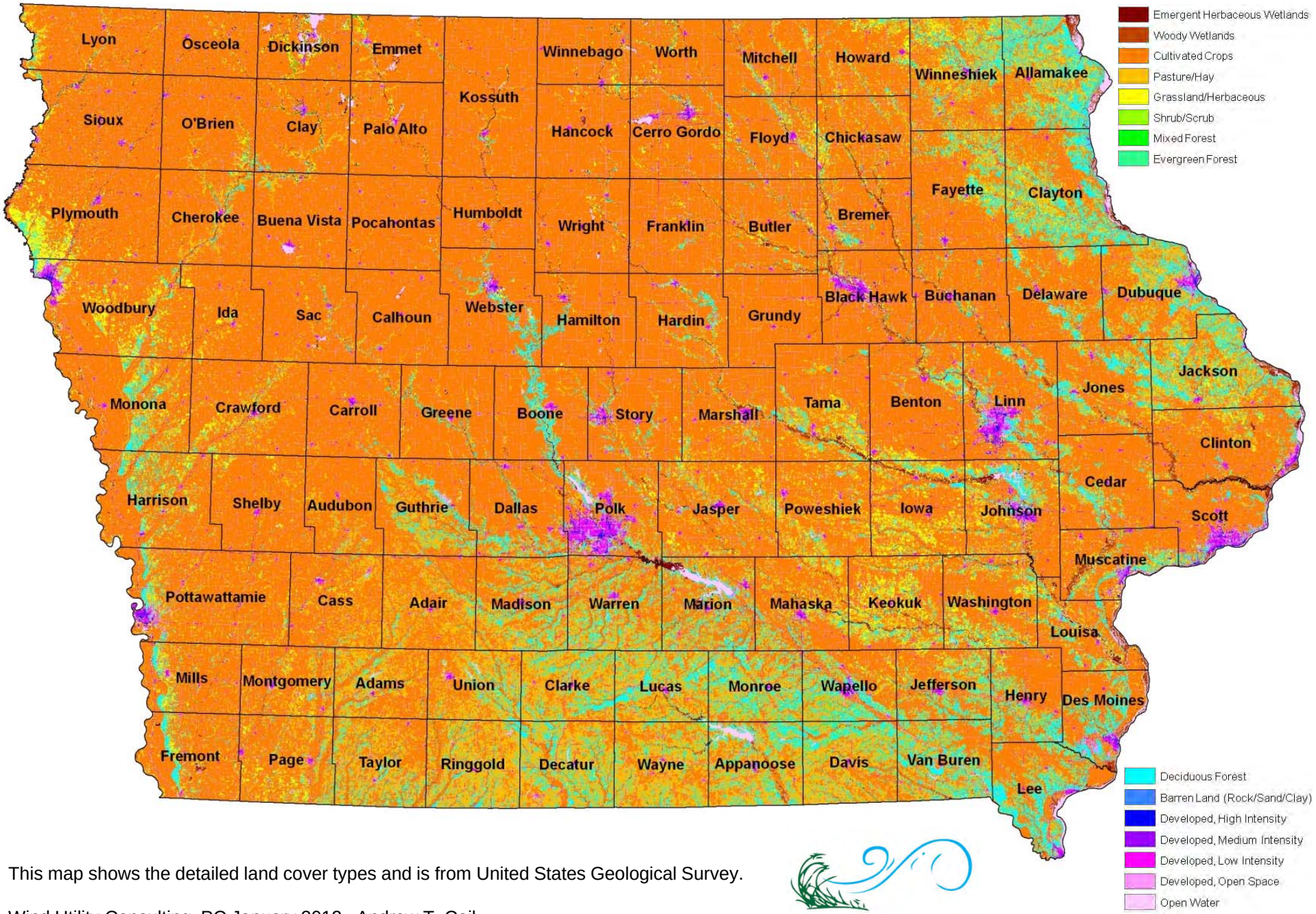


Map produced by Wind Utility Consulting, PC using 200-meter resolution digital elevation data.

Wind Utility Consulting, PC January 2012

Andrew T. Coil

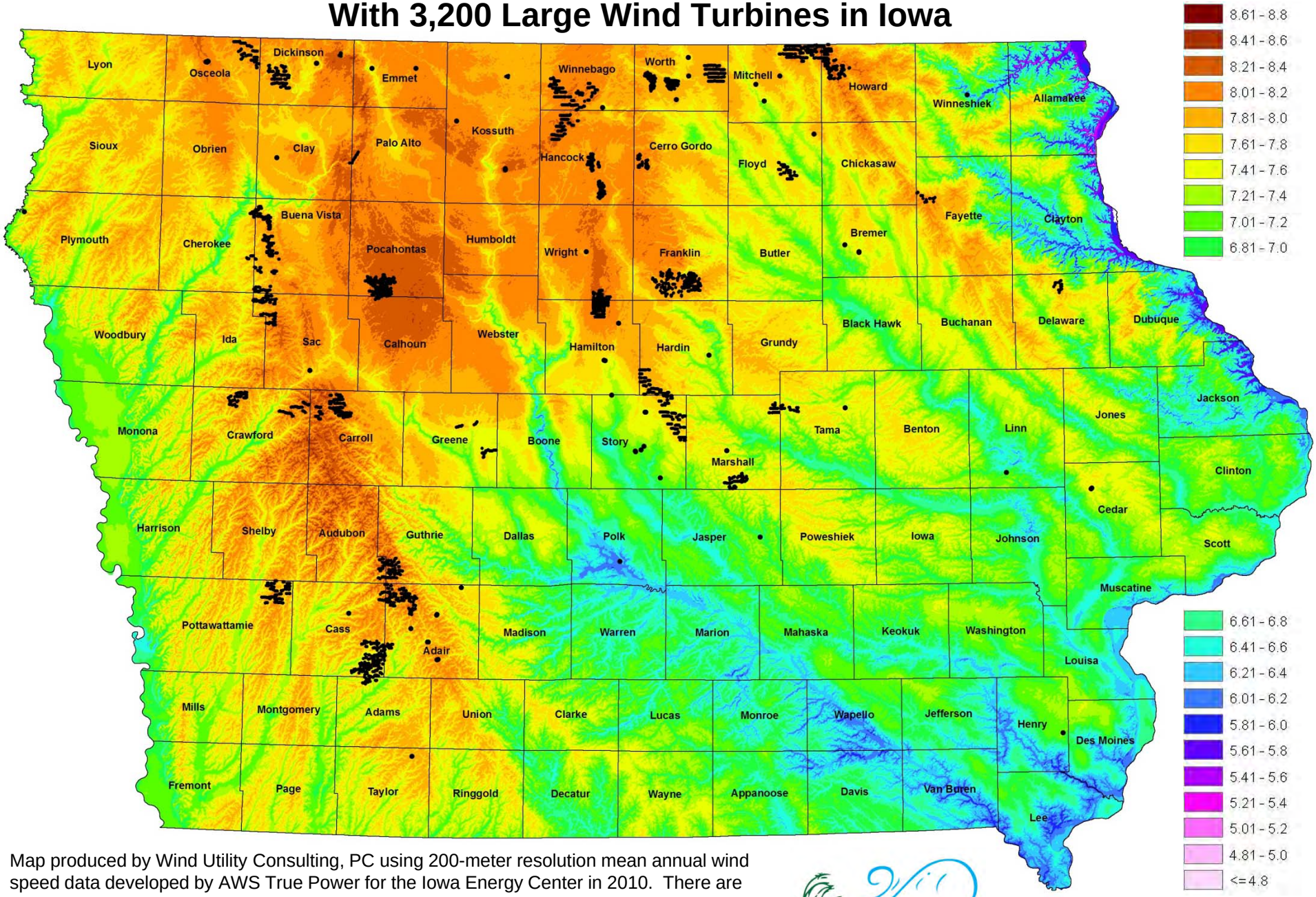
Land Cover Types in Iowa



This map shows the detailed land cover types and is from United States Geological Survey.

Wind Utility Consulting, PC January 2012. Andrew T. Coil

Mean Annual Wind Speed in Meters per Second at an 80-Meter Height With 3,200 Large Wind Turbines in Iowa



Map produced by Wind Utility Consulting, PC using 200-meter resolution mean annual wind speed data developed by AWS True Power for the Iowa Energy Center in 2010. There are approximately 3,200 large wind turbines plotted on the map. Single large turbines have larger black dots so they can more easily be seen on the map.

Wind Utility Consulting, PC March 2013
Andrew T. Coil

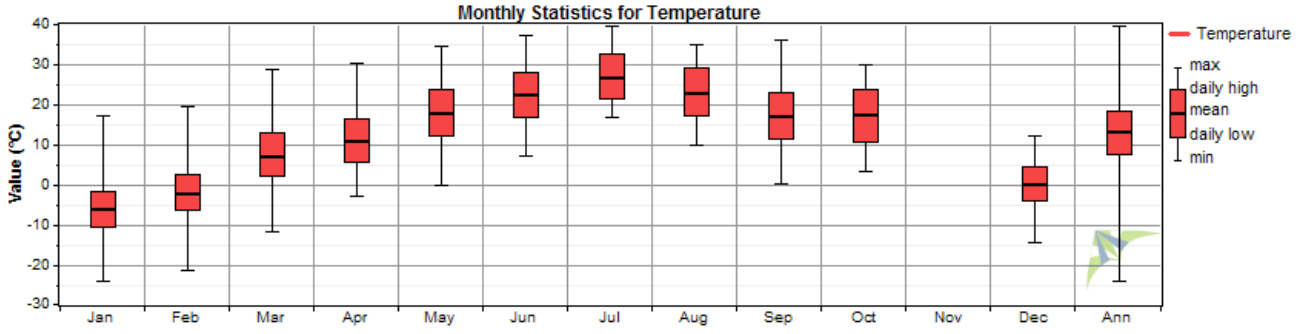
APPENDIX 2

Detailed Met Tower Data Statistical Reports

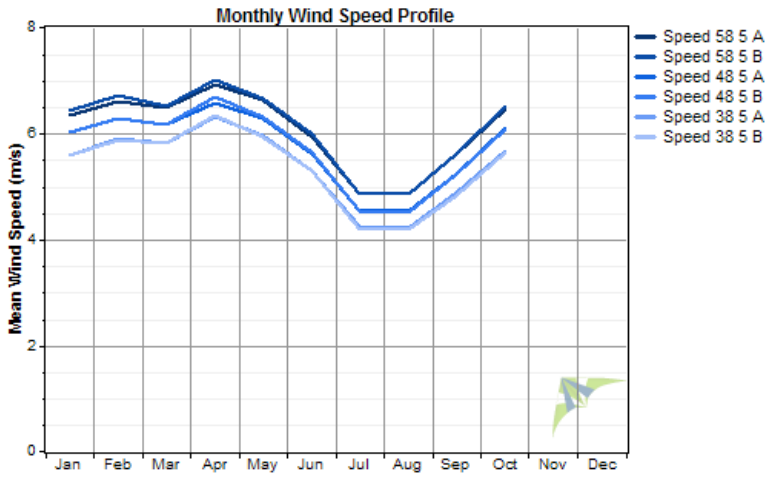
Data Set Properties

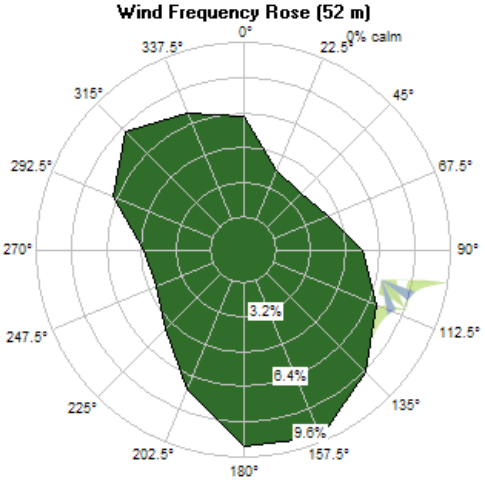
Report Created: 3/7/2013 10:20 using Windographer 2.4.4
Filter Settings: <Unflagged data>

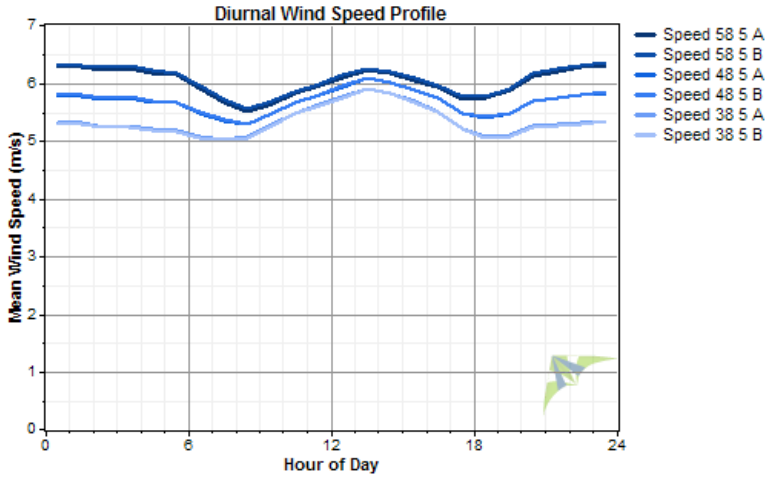
Variable	Value
Latitude	N 41° 59' 45.000"
Longitude	E 92° 38' 46.000"
Elevation	302 m
Start date	1/1/2011 00:00
End date	9/24/2012 06:00
Duration	21 months
Length of time step	10 minutes
Calm threshold	0 m/s
Mean temperature	13.1 °C
Mean pressure	97.76 kPa
Mean air density	1.192 kg/m³
Power density at 50m	187 W/m²
Wind power class	1 (Poor)
Power law exponent	0.28
Surface roughness	1.31 m
Roughness class	4.14
Roughness description	Suburban

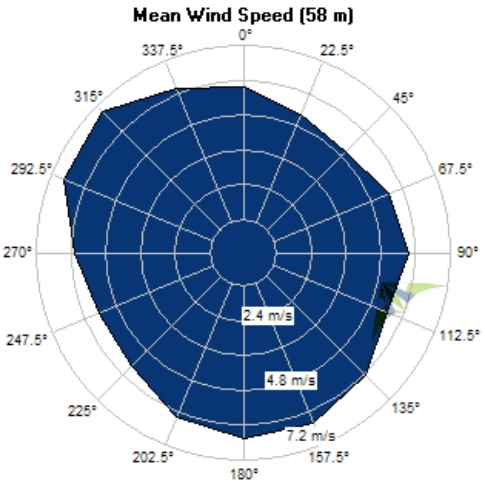


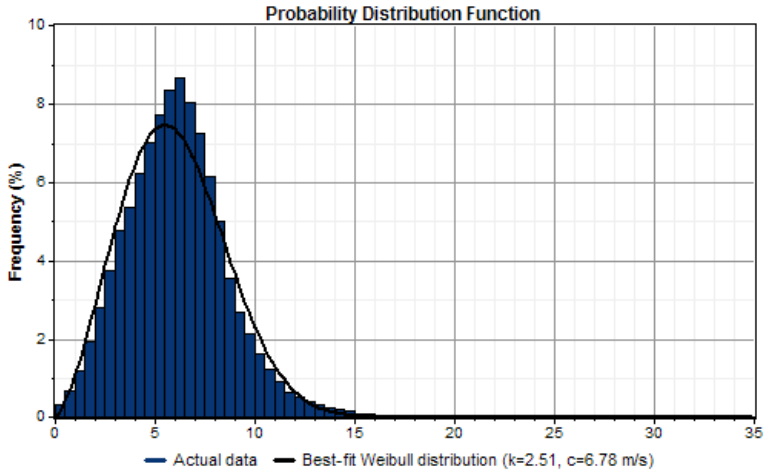
Wind Speed and Direction

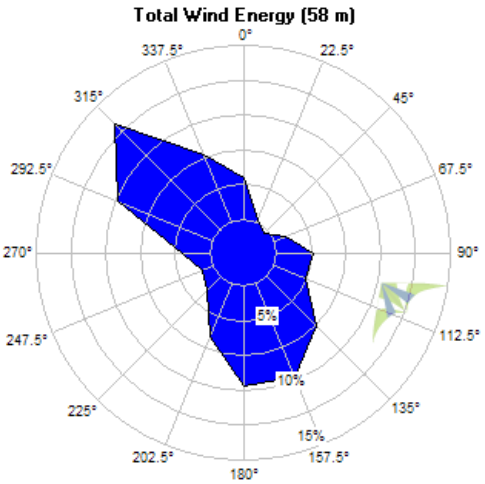




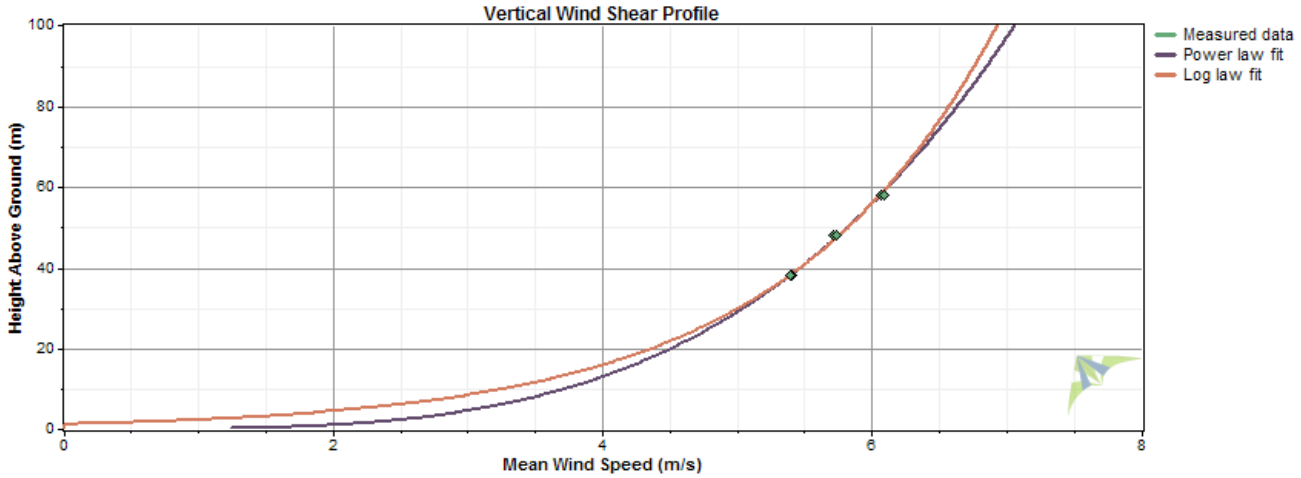


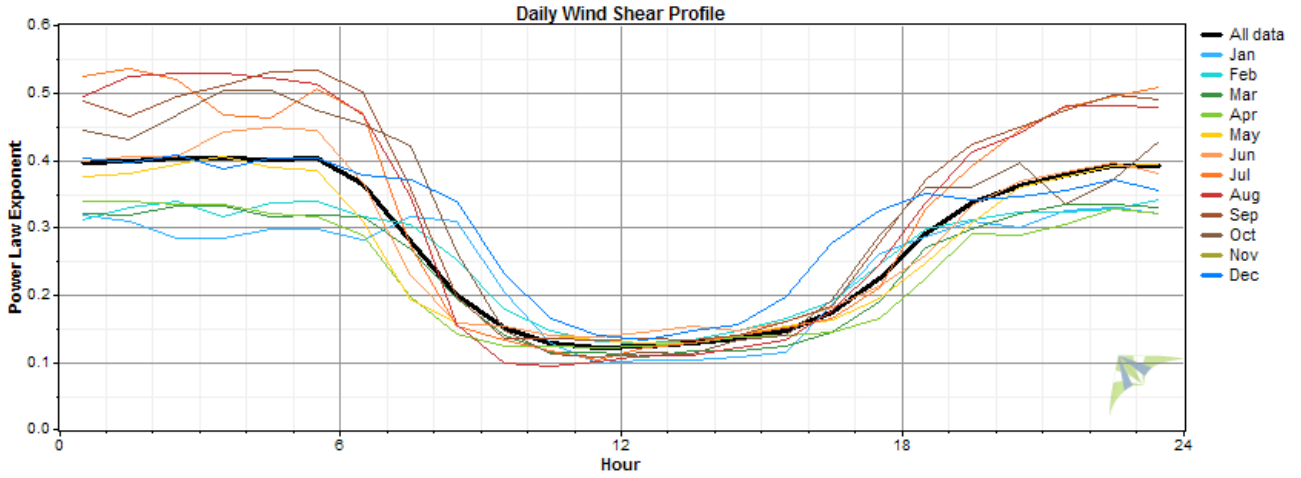


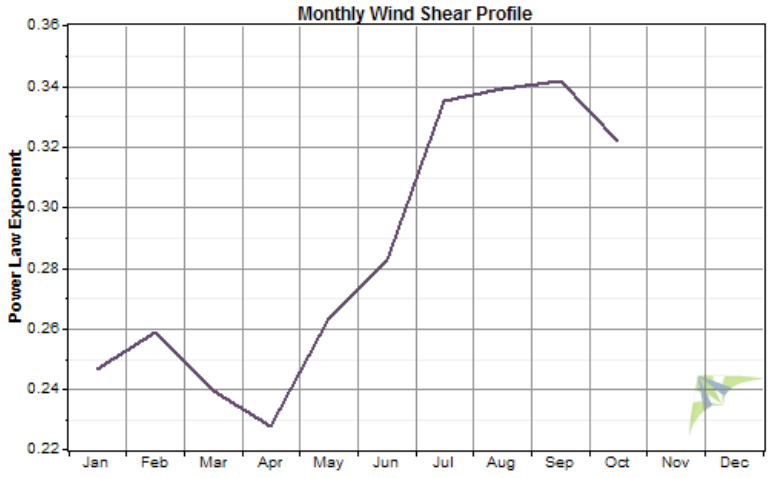


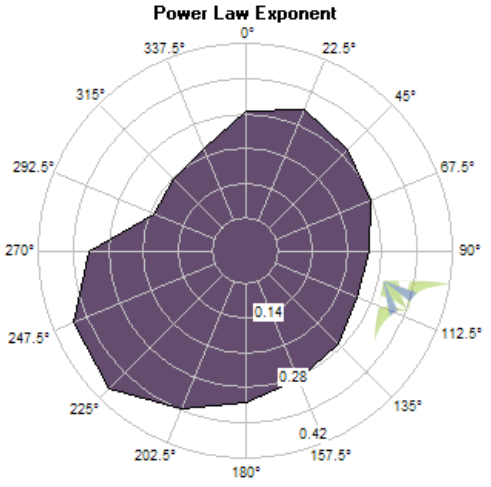


Wind Shear

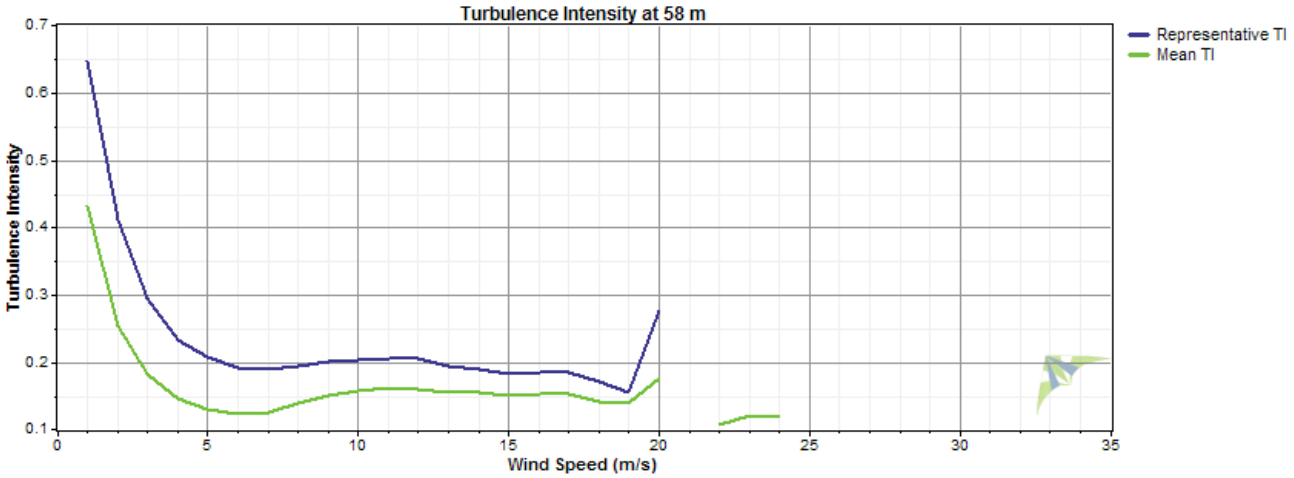

Vertical Wind Shear Profile
Measured data
Power law fit
Log law fit
Height Above Ground (m)
Mean Wind Speed (m/s)
0
20
40
60
80
100
0
2
4
6
8

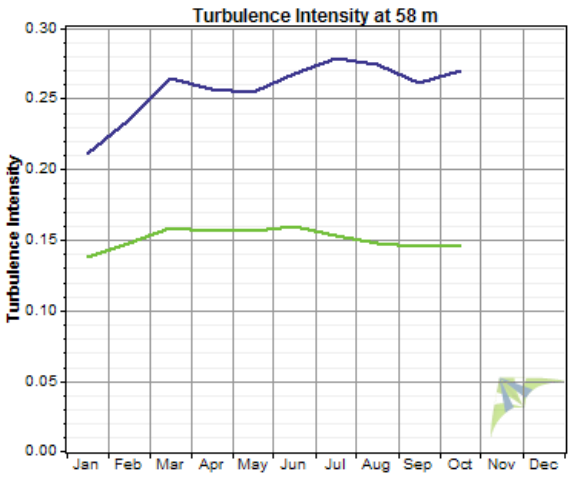

Daily Wind Shear Profile
All data
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Power Law Exponent
Hour
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0
6
12
18
24

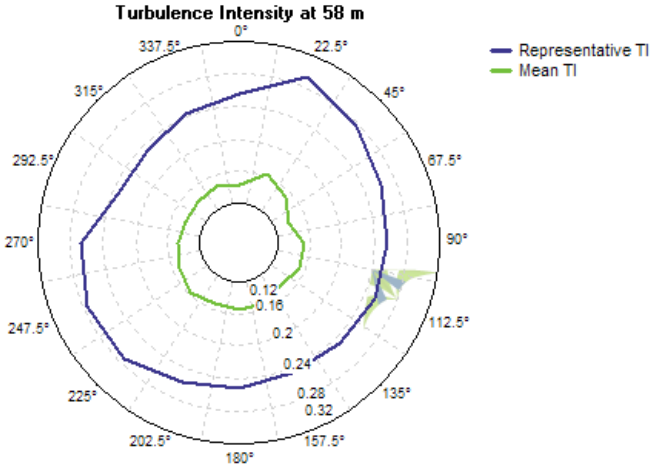

Monthly Wind Shear Profile
Power Law Exponent
0.22
0.24
0.26
0.28
0.30
0.32
0.34
0.36
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

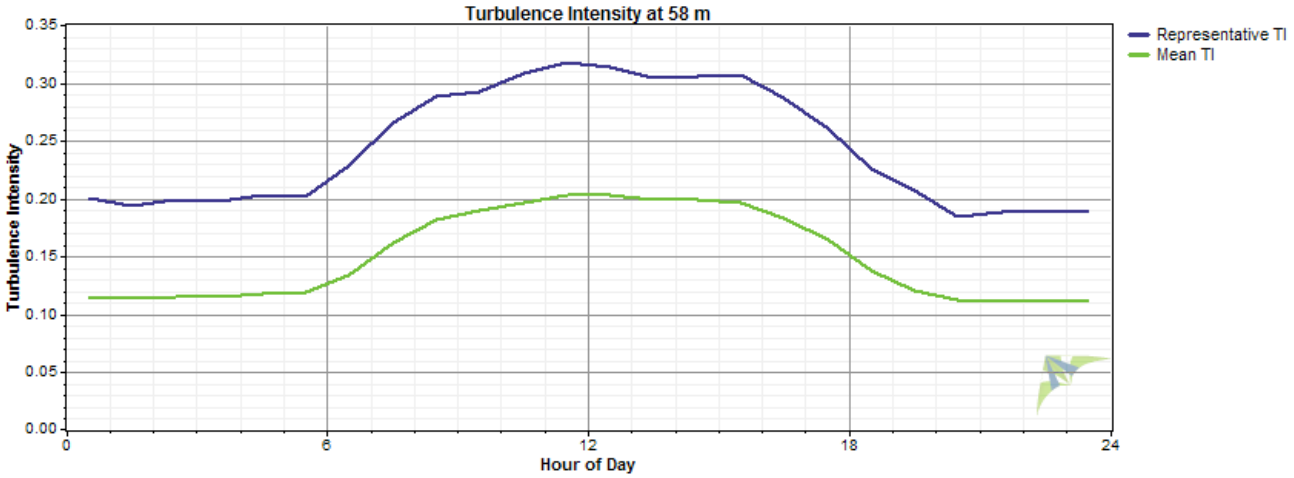

Power Law Exponent
0°
22.5°
45°
67.5°
90°
112.5°
135°
157.5°
180°
202.5°
225°
247.5°
270°
292.5°
315°
337.5°
0.14
0.28
0.42

Turbulence Intensity









Data Column Properties

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3	Speed 58 5 A Max	m/s	58 m	91,044	80,565	88.49	8.17	0.40	47.80	3.54
4	Speed 58 5 A Min	m/s	58 m	91,044	80,565	88.49	3.90	0.40	24.40	1.79
5	Speed 58 5 B	m/s	58 m	91,044	80,418	88.33	6.06	0.40	35.10	2.54
6	Speed 58 5 B SD	m/s	58 m	91,044	80,418	88.33	0.852	0.000	7.000	0.487
7	Speed 58 5 B Max	m/s	58 m	91,044	80,418	88.33	8.20	0.40	48.50	3.54
8	Speed 58 5 B Min	m/s	58 m	91,044	80,418	88.33	3.93	0.40	25.20	1.80
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11	Speed 48 5 A Max	m/s	48 m	91,044	80,573	88.50	7.88	0.40	46.20	3.50
12	Speed 48 5 A Min	m/s	48 m	91,044	80,573	88.50	3.56	0.40	21.80	1.66
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15	Direction 52 m Max	°	52 m	91,044	80,327	88.23	0	0	0	0
16	Direction 52 m Min	°	52 m	91,044	80,327	88.23	0	0	0	0
17	Direction 37 m	°	37 m	91,044	80,326	88.23	193.9	0.0	359.0	99.0
18	Direction 37 m SD	°	37 m	91,044	80,326	88.23	10.3	0.0	117.0	6.9
19	Direction 37 m Max	°	37 m	91,044	80,326	88.23	0	0	0	0
20	Direction 37 m Min	°	37 m	91,044	80,326	88.23	0	0	0	0
21	Temperature	°C		91,044	81,324	89.32	13.13	-24.20	39.50	12.31
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23	Temperature Max	?C		91,044	81,324	89.32	13.36	-24.10	39.90	12.36
24	Temperature Min	?C		91,044	81,324	89.32	12.99	-24.40	39.30	12.29
25	voltmeter	volts		91,044	81,324	89.32	13.81	13.00	15.20	0.42
26	voltmeter SD	volts		91,044	81,324	89.32	0.004	0.000	0.900	0.023
27	voltmeter Max	volts		91,044	81,324	89.32	13.83	13.10	15.30	0.42
28	voltmeter Min	volts		91,044	81,324	89.32	13.79	12.50	15.20	0.42
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32	Speed 48 5 B Min	m/s	48 m	91,044	80,848	88.80	3.60	0.40	21.40	1.65
33	Speed 38 5 A	m/s	38 m	91,044	81,111	89.09	5.35	0.40	32.30	2.37
34	Speed 38 5 A SD	m/s	38 m	91,044	81,111	89.09	0.859	0.000	7.300	0.476
35	Speed 38 5 A Max	m/s	38 m	91,044	81,111	89.09	7.56	0.40	46.60	3.46
36	Speed 38 5 A Min	m/s	38 m	91,044	81,111	89.09	3.25	0.40	19.10	1.54
37	Speed 38 5 B	m/s	38 m	91,044	81,201	89.19	5.33	0.40	32.70	2.39
38	Speed 38 5 B SD	m/s	38 m	91,044	81,201	89.19	0.856	0.000	7.300	0.477
39	Speed 38 5 B Max	m/s	38 m	91,044	81,201	89.19	7.54	0.40	46.20	3.48
40	Speed 38 5 B Min	m/s	38 m	91,044	81,201	89.19	3.24	0.40	19.90	1.55
41	Air Density	kg/m³		91,044	91,044	100.00	1.192	1.089	1.368	0.050
42	Speed 58 5 A TI			91,044	80,565	88.49	0.150	0.000	1.000	0.083
43	Speed 58 5 B TI			91,044	80,418	88.33	0.150	0.000	1.429	0.085
44	Speed 48 5 A TI			91,044	80,573	88.50	0.160	0.000	1.091	0.085
45	Speed 48 5 B TI			91,044	80,848	88.80	0.157	0.000	1.100	0.083
46	Speed 38 5 A TI			91,044	81,111	89.09	0.169	0.000	1.100	0.084
47	Speed 38 5 B TI			91,044	81,201	89.19	0.169	0.000	2.077	0.086
48	Speed 58 5 A WPD	W/m²		91,044	80,565	88.49	206	0	24,237	305
49	Speed 58 5 B WPD	W/m²		91,044	80,418	88.33	210	0	25,085	312
50	Speed 48 5 A WPD	W/m²		91,044	80,573	88.50	177	0	22,399	277
51	Speed 48 5 B WPD	W/m²		91,044	80,848	88.80	179	0	22,399	280
52	Speed 38 5 A WPD	W/m²		91,044	81,111	89.09	152	0	19,548	247
53	Speed 38 5 B WPD	W/m²		91,044	81,201	89.19	152	0	20,283	252

Appendix 3

20-Year Financial Pro Forma Analysis

Using a GE 1.6 MW 100-Meter Rotor Diameter Wind Turbine
On an 80-Meter Hub Height Tower
Installed at the School Site

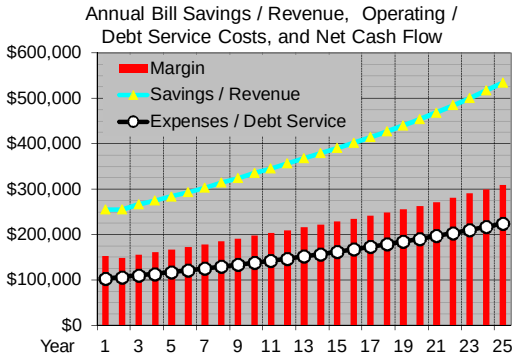
Annual Cash Flow Projections

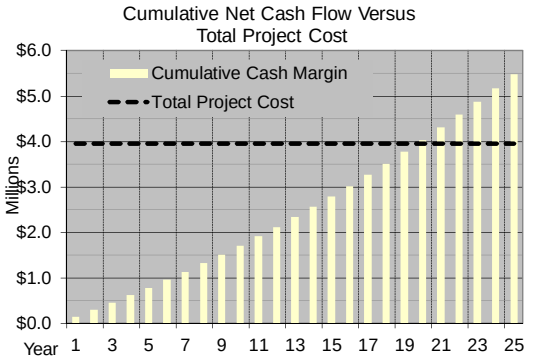
Cash Flow Analysis Based on Using the School Site with a Medium Power Bill Escalation Rate

Key Study Assumptions	
Medium Power Bill Escalation Rate Used in this Analysis	
Wind Speed Probability Scenario Used is	P-50
Climate Change Impacts on Wind Speed Used >	Normal
General Inflation Rate	2.5%
O&M Escalator Rate	3.5%
Tax-Exempt Bond Interest Rate	N / A
Tax-Exempt Bond Term in Years	N / A
Cash Investment from Meskwaki	$ 3,954,000

Summary of Results	
Project Cost Simple Breakeven in Years (Accumulated Savings exceeds the Project Cost)	19.7
Average Debt Service Coverage Ratio	N/A
Minimum Debt Service Coverage Ratio	N/A

Summary of Operating Costs and Net Cash Margins	Average Annual Cost		
	Years 1-10	Years 11-20	All 20 Years
Annual Operating Cost	$ 119,565	$ 165,302	$ 142,433
Annual Debt Service	$ -	$ -	$ -
Total Annual Cost	$ 119,565	$ 165,302	$ 142,433
Mean Annual Mwh Output	5,844	5,426	5,635
Operating Cost per kWh	$0.0205	$0.0305	$0.0253
Total Annual Cost per kWh	$0.0205	$0.0305	$0.0253
Average Power Bill Savings Rate, $/kWh	$0.0498	$0.0735	$0.0616
Average Net Margin From Operations	$ 171,038	$ 232,254	$ 201,646
Cumulative Net Margin End of Period	$ 1,710,378	$ 4,032,915	$ 4,032,915





			Year 1 2014	Year 2 2015	Year 3 2016	Year 4 2017	Year 5 2018	Year 6 2019	Year 7 2020	Year 8 2021	Year 9 2022	Year 10 2023
ENERGY PRODUCTION												
Gross Energy Production, Adjustments made for climate change		kWh	6,785,852	6,785,852	6,785,852	6,745,951	6,706,050	6,666,149	6,626,248	6,586,348	6,546,447	6,506,546
Average Wind Turbine Availability		%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%
Gross to Net Production Factor		%	87.56%	87.56%	87.56%	87.56%	87.56%	87.56%	87.56%	87.56%	87.56%	87.56%
Projected Net Energy Generated	100.0%	kWh	**5,941,800**	**5,941,800**	**5,941,800**	**5,906,863**	**5,871,925**	**5,836,987**	**5,802,049**	**5,767,112**	**5,732,174**	**5,697,236**
							100.0%					
Energy Used & Sold												
Meskwaki Electricity Usage Growth Rate			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Meskwaki Total Electricity Used			21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087
% of Wind Energy Used for Meskwaki Facilities	100.0%	100.0%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Energy Used for Meskwaki Facilities		kWh	5,941,800	5,941,800	5,941,800	5,906,863	5,871,925	5,836,987	5,802,049	5,767,112	5,732,174	5,697,236
Natural Gas Replaced by Electricity?	No	kWh	0	0	0	0	0	0	0	0	0	0
Balance of Energy Sold to Utility		kWh	0	0	0	0	0	0	0	0	0	0
Wind Generation as a Percentage of Total Meskwaki Usage			27.9%	27.9%	27.9%	27.7%	27.5%	27.4%	27.2%	27.1%	26.9%	26.7%
SAVINGS, REVENUES, & INCENTIVE PAYMENTS												
Power Bill Savings from Energy Used on Site												
Average Power Bill Savings including Demand & Fixed Charges		$ / kWh	$0.0430	$0.0430	$0.0447	$0.0465	$0.0484	$0.0503	$0.0523	$0.0544	$0.0566	$0.0588
Power Bill Savings		$	$ 255,497	$ 255,497	$ 265,717	$ 274,721	$ 284,020	$ 293,623	$ 303,540	$ 313,781	$ 324,355	$ 335,274
Natural Gas Bill Savings (None)		$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Revenue from Excess Sales to Utility												
Buyback Rate for Excess Energy Sales	3.0%	$ / kWh	$0.0290	$0.0299	$0.0308	$0.0317	$0.0326	$0.0336	$0.0346	$0.0357	$0.0367	$0.0378
Revenue from Sale of Energy to Utility		$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Bill Savings, Sales Revenue & Incentives		**$**	**$ 255,497**	**$ 255,497**	**$ 265,717**	**$ 274,721**	**$ 284,020**	**$ 293,623**	**$ 303,540**	**$ 313,781**	**$ 324,355**	**$ 335,274**

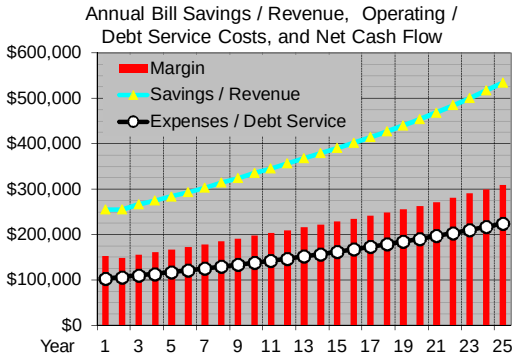
Annual Cash Flow Projections

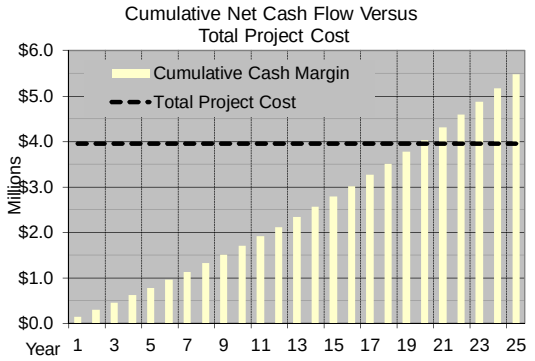
Cash Flow Analysis Based on Using the School Site with a Medium Power Bill Escalation Rate

Key Study Assumptions	
Medium Power Bill Escalation Rate Used in this Analysis	
Wind Speed Probability Scenario Used is	P-50
Climate Change Impacts on Wind Speed Used >	Normal
General Inflation Rate	2.5%
O&M Escalator Rate	3.5%
Tax-Exempt Bond Interest Rate	N / A
Tax-Exempt Bond Term in Years	N / A
Cash Investment from Meskwaki	$ 3,954,000

Summary of Results	
Project Cost Simple Breakeven in Years (Accumulated Savings exceeds the Project Cost)	19.7
Average Debt Service Coverage Ratio	N/A
Minimum Debt Service Coverage Ratio	N/A

Summary of Operating Costs and Net Cash Margins	Average Annual Cost Years 1-10	Years 11-20	All 20 Years
Annual Operating Cost	$ 119,565	$ 165,302	$ 142,433
Annual Debt Service	$ -	$ -	$ -
Total Annual Cost	$ 119,565	$ 165,302	$ 142,433
Mean Annual Mwh Output	5,844	5,426	5,635
Operating Cost per kWh	$0.0205	$0.0305	$0.0253
Total Annual Cost per kWh	$0.0205	$0.0305	$0.0253
Average Power Bill Savings Rate, $/kWh	$0.0498	$0.0735	$0.0616
Average Net Margin From Operations	$ 171,038	$ 232,254	$ 201,646
Cumulative Net Margin End of Period	$ 1,710,378	$ 4,032,915	$ 4,032,915





	Year 1 2014	Year 2 2015	Year 3 2016	Year 4 2017	Year 5 2018	Year 6 2019	Year 7 2020	Year 8 2021	Year 9 2022	Year 10 2023
EXPENSES & DEBT SERVICE										
Operating Expenses										
Maintenance / Warranty Service Contract	$ 80,000	$ 82,800	$ 85,698	$ 88,697	$ 91,802	$ 95,015	$ 98,340	$ 101,782	$ 105,345	$ 109,032
Parts and Supplies (Included above)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Operation Labor	$ 5,000	$ 5,125	$ 5,253	$ 5,384	$ 5,519	$ 5,657	$ 5,798	$ 5,943	$ 6,092	$ 6,244
Property, Business Interruption & Liability Insurance	$ 10,452	$ 10,713	$ 10,981	$ 11,255	$ 11,537	$ 11,825	$ 12,121	$ 12,424	$ 12,734	$ 13,053
Professional Services / Management	$ 5,000	$ 5,125	$ 5,253	$ 5,384	$ 5,519	$ 5,657	$ 5,798	$ 5,943	$ 6,092	$ 6,244
Miscellaneous / Unanticipated Expenses / Other	$ 2,500	$ 2,563	$ 2,627	$ 2,692	$ 2,760	$ 2,829	$ 2,899	$ 2,972	$ 3,046	$ 3,122
Land Lease, Total Dollars $ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Property Taxes $ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses	**$ 102,952**	**$ 106,326**	**$ 109,812**	**$ 113,414**	**$ 117,136**	**$ 120,983**	**$ 124,957**	**$ 129,065**	**$ 133,309**	**$ 137,695**
Debt Service										
Beginning of Year Loan Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Principal Portion of Commercial Loan Payment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Portion of Commercial Loan Payment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Commercial Loan Payments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Year Loan Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Loan Payments	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Cash Available to Cover Service Debt	$ 152,546	$ 149,172	$ 155,906	$ 161,307	$ 166,884	$ 172,641	$ 178,583	$ 184,716	$ 191,046	$ 197,578
Debt Service Coverage Ratio										
Total Operating Costs & Loan Payments	**$ 102,952**	**$ 106,326**	**$ 109,812**	**$ 113,414**	**$ 117,136**	**$ 120,983**	**$ 124,957**	**$ 129,065**	**$ 133,309**	**$ 137,695**
NET MARGIN, PAYBACK & RETURN ON INVESTMENT										
Net Margin Available from Operations	$ 152,546	$ 149,172	$ 155,906	$ 161,307	$ 166,884	$ 172,641	$ 178,583	$ 184,716	$ 191,046	$ 197,578
Cumulative Net Margin from Operations	$ 152,546	$ 301,718	$ 457,623	$ 618,930	$ 785,814	$ 958,455	$ 1,137,038	$ 1,321,754	$ 1,512,800	$ 1,710,378
Years Until Cum. Margin Exceeds Project Cost 20	$ 3,954,000	1	1	1	1	1	1	1	1	1
Yrs. Until Cum. Margin Exceeds Meskwaki Invest. 20	$ 3,954,000	1	1	1	1	1	1	1	1	1
Net Margin for Internal Rate of Return Calculation	$ (3,954,000)	$ 152,546	$ 149,172	$ 155,906	$ 161,307	$ 166,884	$ 172,641	$ 178,583	$ 184,716	$ 191,046	$ 197,578
Percentage Internal Rate of Return on Net Cash Investment by Year		-96.1%	-78.6%	-60.8%	-47.2%	-37.0%	-29.4%	-23.6%	-19.0%	-15.4%	-12.5%

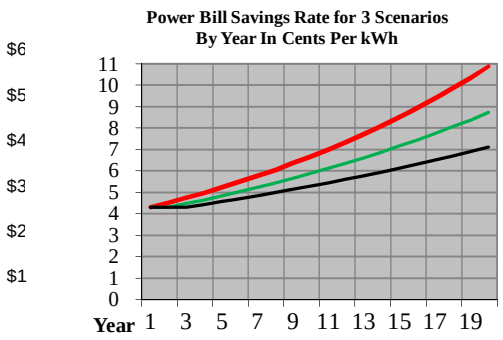
Annual Cash Flow Projections

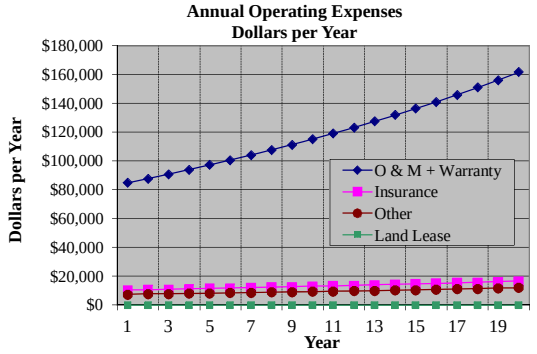
Cash Flow Analysis Based on Using the School Site with a Medium Power Bill Escalation Rate

Key Study Assumptions	
Medium Power Bill Escalation Rate Used in this Analysis	
Wind Speed Probability Scenario Used is	P-50
Climate Change Impacts on Wind Speed Used >	Normal
General Inflation Rate	2.5%
O&M Escalator Rate	3.5%
Tax-Exempt Bond Interest Rate	N / A
Tax-Exempt Bond Term in Years	N / A
Cash Investment from Meskwaki	$ 3,954,000

Total Cost of Wind Generation Project	
$ 2,375,000	GE 1.6-100 Wind Turbine Delivered to Site
$ 621,000	Foundation, Unloading, Erection, Roads
$ 489,000	Electrical Interconnection
$ 193,000	Soft Costs (Interest, Engineering, Legal)
$ 276,000	Contingencies at 7.5%
$ 3,954,000	Total Capital Cost
$ -	Spare Parts, Warranty, Other
$ -	Financial Reserves
$ 3,954,000	Total Wind Project Cost

Sources of Capital		
$ -	0.0%	Treasury Grant
$ -	0.0%	Grants & Gifts
$ 3,954,000	100.0%	Meskwaki Net Investment
$ -	0.0%	Outside Investor's Equity
$ -	0.0%	Commercial Loan
$ -	0.0%	Other Loans
$ 3,954,000	100.0%	Total Wind Project Cost





			Year 11 2024	Year 12 2025	Year 13 2026	Year 14 2027	Year 15 2028	Year 16 2029	Year 17 2030	Year 18 2031	Year 19 2032	Year 20 2033
ENERGY PRODUCTION												
Gross Energy Production, Adjustments made for climate change		kWh	6,466,645	6,426,744	6,386,844	6,346,943	6,307,042	6,267,141	6,227,240	6,187,339	6,147,439	6,107,538
Average Wind Turbine Availability		%	94.75%	94.50%	94.25%	94.00%	93.75%	93.50%	93.25%	93.00%	92.75%	92.50%
Gross to Net Production Factor		%	87.33%	87.10%	86.87%	86.64%	86.41%	86.18%	85.95%	85.72%	85.49%	85.26%
Projected Net Energy Generated	100.0%	kWh	**5,647,397**	**5,597,743**	**5,548,272**	**5,498,985**	**5,449,882**	**5,400,963**	**5,352,228**	**5,303,676**	**5,255,309**	**5,207,125**
Energy Used & Sold												
Meskwaki Electricity Usage Growth Rate			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Meskwaki Total Electricity Used			21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087	21,314,087
% of Wind Energy Used for Meskwaki Facilities	100.0%	100.0%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Energy Used for Meskwaki Facilities		kWh	5,647,397	5,597,743	5,548,272	5,498,985	5,449,882	5,400,963	5,352,228	5,303,676	5,255,309	5,207,125
Natural Gas Replaced by Electricity?	No	kWh	0	0	0	0	0	0	0	0	0	0
Balance of Energy Sold to Utility		kWh	0	0	0	0	0	0	0	0	0	0
Wind Generation as a Percentage of Total Meskwaki Usage			26.5%	26.3%	26.0%	25.8%	25.6%	25.3%	25.1%	24.9%	24.7%	24.4%
SAVINGS, REVENUES, & INCENTIVE PAYMENTS												
Power Bill Savings from Energy Used on Site												
Average Power Bill Savings including Demand & Fixed Charges		$ / kWh	$0.0612	$0.0637	$0.0662	$0.0688	$0.0716	$0.0745	$0.0774	$0.0805	$0.0838	$0.0871
Power Bill Savings		$	$ 345,634	$ 356,299	$ 367,276	$ 378,574	$ 390,202	$ 402,167	$ 414,480	$ 427,148	$ 440,183	$ 453,593
Natural Gas Bill Savings (None)		$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Revenue from Excess Sales to Utility												
Buyback Rate for Excess Energy Sales	3.0%	$ / kWh	$0.0390	$0.0401	$0.0413	$0.0426	$0.0439	$0.0452	$0.0465	$0.0479	$0.0494	$0.0509
Revenue from Sale of Energy to Utility		$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Bill Savings, Sales Revenue & Incentives		**$**	**$ 345,634**	**$ 356,299**	**$ 367,276**	**$ 378,574**	**$ 390,202**	**$ 402,167**	**$ 414,480**	**$ 427,148**	**$ 440,183**	**$ 453,593**

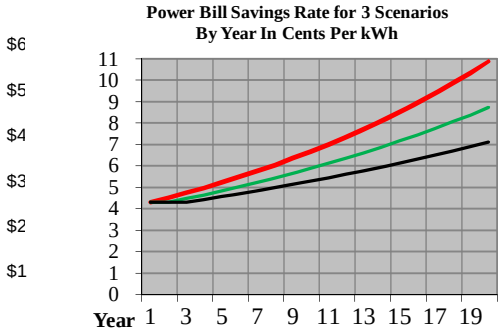
Annual Cash Flow Projections

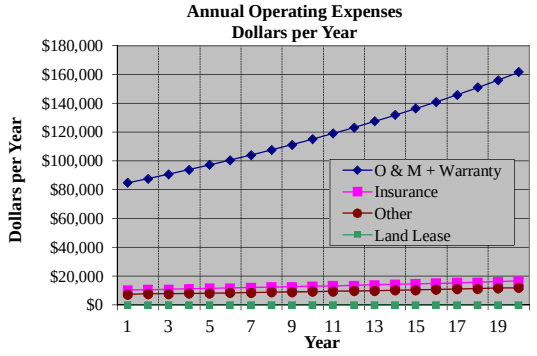
Cash Flow Analysis Based on Using the School Site with a Medium Power Bill Escalation Rate

Key Study Assumptions	
Medium Power Bill Escalation Rate Used in this Analysis	
Wind Speed Probability Scenario Used is	P-50
Climate Change Impacts on Wind Speed Used >	Normal
General Inflation Rate	2.5%
O&M Escalator Rate	3.5%
Tax-Exempt Bond Interest Rate	N / A
Tax-Exempt Bond Term in Years	N / A
Cash Investment from Meskwaki	$ 3,954,000

Total Cost of Wind Generation Project		
$ 2,375,000	GE 1.6-100 Wind Turbine Delivered to Site	
$ 621,000	Foundation, Unloading, Erection, Roads	
$ 489,000	Electrical Interconnection	
$ 193,000	Soft Costs (Interest, Engineering, Legal)	
$ 276,000	Contingencies at 7.5%	
$ 3,954,000	Total Capital Cost	
$ -	Spare Parts, Warranty, Other	
$ -	Financial Reserves	
$ 3,954,000	Total Wind Project Cost	

Sources of Capital		
$ -	0.0%	Treasury Grant
$ -	0.0%	Grants & Gifts
$ 3,954,000	100.0%	Meskwaki Net Investment
$ -	0.0%	Outside Investor's Equity
$ -	0.0%	Commercial Loan
$ -	0.0%	Other Loans
$ 3,954,000	100.0%	Total Wind Project Cost





		Year 11 2024	Year 12 2025	Year 13 2026	Year 14 2027	Year 15 2028	Year 16 2029	Year 17 2030	Year 18 2031	Year 19 2032	Year 20 2033
EXPENSES & DEBT SERVICE											
Operating Expenses											
Maintenance / Warranty Service Contract	$	$ 112,848	$ 116,798	$ 120,885	$ 125,116	$ 129,496	$ 134,028	$ 138,719	$ 143,574	$ 148,599	$ 153,800
Parts and Supplies (Included above)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Operation Labor	$	$ 6,400	$ 6,560	$ 6,724	$ 6,893	$ 7,065	$ 7,241	$ 7,423	$ 7,608	$ 7,798	$ 7,993
Property, Business Interruption & Liability Insurance	$	$ 13,379	$ 13,714	$ 14,056	$ 14,408	$ 14,768	$ 15,137	$ 15,516	$ 15,904	$ 16,301	$ 16,709
Professional Services / Management	$	$ 6,400	$ 6,560	$ 6,724	$ 6,893	$ 7,065	$ 7,241	$ 7,423	$ 7,608	$ 7,798	$ 7,993
Miscellaneous / Unanticipated Expenses / Other	$	$ 3,200	$ 3,280	$ 3,362	$ 3,446	$ 3,532	$ 3,621	$ 3,711	$ 3,804	$ 3,899	$ 3,997
Land Lease, Total Dollars	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Property Taxes	**$ -**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses		**$ 142,228**	**$ 146,912**	**$ 151,753**	**$ 156,756**	**$ 161,926**	**$ 167,269**	**$ 172,791**	**$ 178,498**	**$ 184,396**	**$ 190,492**
Debt Service											
Beginning of Year Loan Balance		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Principal Portion of Commercial Loan Payment		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Portion of Commercial Loan Payment		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Commercial Loan Payments		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Year Loan Balance		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Loan Payments		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Cash Available to Cover Service Debt		$ 203,406	$ 209,387	$ 215,523	$ 221,819	$ 228,276	$ 234,898	$ 241,689	$ 248,651	$ 255,787	$ 263,101
Debt Service Coverage Ratio											
Total Operating Costs & Loan Payments		**$ 142,228**	**$ 146,912**	**$ 151,753**	**$ 156,756**	**$ 161,926**	**$ 167,269**	**$ 172,791**	**$ 178,498**	**$ 184,396**	**$ 190,492**
NET MARGIN, PAYBACK & RETURN ON INVESTMENT											
Net Margin Available from Operations		$ 203,406	$ 209,387	$ 215,523	$ 221,819	$ 228,276	$ 234,898	$ 241,689	$ 248,651	$ 255,787	$ 263,101
Cumulative Net Margin from Operations		$ 1,913,785	$ 2,123,172	$ 2,338,695	$ 2,560,513	$ 2,788,789	$ 3,023,687	$ 3,265,376	$ 3,514,026	$ 3,769,814	$ 4,032,915
Years Until Cum. Margin Exceeds Project Cost	20	$ 3,954,000	1	1	1	1	1	1	1	1	0
Yrs. Until Cum. Margin Exceeds Meskwaki Invest.	20	$ 3,954,000	1	1	1	1	1	1	1	1	0
Net Margin for Internal Rate of Return Calculation		$ (3,954,000)	$ 203,406	$ 209,387	$ 215,523	$ 221,819	$ 228,276	$ 234,898	$ 241,689	$ 248,651	$ 255,787	$ 263,101
Percentage Internal Rate of Return on Net Cash Investment by Year			-10.1%	-8.1%	-6.4%	-5.0%	-3.8%	-2.8%	-1.9%	-1.1%	-0.4%	0.2%

Preliminary Environmental Documentation for the Sac & Fox Tribe of the Mississippi/Meskwaki Nation Wind Energy Project Tama County, Iowa

Prepared For:

Sac and Fox Tribe of the
Mississippi in Iowa/Meskwaki Nation
249 Meskwaki Road
Tama, Iowa 52339

Prepared By:

Project No. 112.0193

May 2012

ACRONYMS AND ABBREVIATIONS

AEP	annual energy production
AQI	air quality index
BIA	Bureau of Indian Affairs
CE	Categorical Exclusion
CFR	Code of Federal Regulations
CWA	Clean Water Act
dBA	decibel A-weighted sound level
DOE	Department of Energy
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc
EIS	Environmental Impact Statement
GSHP	ground source heat pump
IDNR	Iowa Department of Natural Resources
IDOT	Iowa Department of Transportation
LNTE	low noise trailing edge
MW	megawatt
NEPA	National Environmental Policy Act
PED	Preliminary Environmental Documentation
ROW	right-of-way
SWCD	Soil and Water Conservation District
USACE	United States Army Corp of Engineers
U.S.C.	United States Code
UST	underground storage tank

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TABLES

EXHIBITS

PHOTOLOG

APPENDICES

1.0 INTRODUCTION

1.1 NATIONAL ENVIRONMENTAL POLICY ACT

In accordance with the Department of Energy (DOE) National Environmental Policy Act (NEPA) implementing regulations, DOE is required to evaluate the potential environmental impacts of DOE facilities, operations, and related funding decisions. Based on action by the U.S. Congress, DOE has funding available to support the proposed project described in this Preliminary Environmental Documentation (PED). If available, funding would allow the Meskwaki Settlement of the Sac & Fox Tribe of the Mississippi in Iowa/Meskwaki Nation (herein known as the Meskwaki Settlement) to erect two wind turbines supporting the development of available wind resources.. The Bureau of Indian Affairs (BIA) may also provide funding for the project or be involved in a land lease if a third party holds financial interest in the turbine development, but with their concurrence, the DOE is the lead federal agency for the NEPA process. In compliance with NEPA (42 U.S.C. 4321) and DOE's NEPA implementing regulations (10 CFR section 1021.330) and procedures, this PED will identify required permits and/or approvals necessary along with identifying any "environmental issues" that may be encountered that will impact future development. Based on the results of this study the DOE will determine the appropriate level of NEPA documentation necessary to proceed with the wind development project. A listing of additional relevant statutes and regulations applicable to the NEPA process are provided below:

Statutes

- 42 U.S.C. 4321: National Environmental Policy Act of 1969
- 42 U.S.C. 4371: Environmental Quality Improvement Act of 1970
- 42 U.S.C. 7401: Clean Air Act, Section 309

CEQ Regulations

- 40 CFR Part 1500-1508: CEQ - Regulations for Implementing NEPA

DOE Regulations and Orders

- 10 CFR Part 1021: NEPA Implementing Procedures
- 10 CFR Part 1021: NEPA Rulemaking Process
- 10 CFR Part 1022: Compliance with Floodplain and Wetland Environmental Review Requirements
- DOE O 451.1B: NEPA Compliance Program

Executive Orders

- EO 11514: Protection and Enhancement of Environmental Quality (as amended by EO 11911)
- EO 11988: Floodplain Management
- EO 11990: Protection of Wetlands
- EO 12088: Federal Compliance with Pollution Control Standards
- EO 12114: Environmental Effects Abroad of Major Federal Actions
- EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13112: Invasive Species
- EO 13148: Greening the Government through Leadership in Environmental Management
- EO 13158: Protected Areas
- EO 13175: Consultation and Coordination With Indian Tribal Governments

- EO 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
- EO 13211: Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use
- EO 13212: Actions to Expedite Energy-Related Projects
- EO 13287: Preserve America
- EO 12969: Federal Acquisition and Community Right-To-Know
- EO 13031: Federal Alternative Fueled Vehicle Leadership
- EO 13045: Protection of Children from Environmental Health Risks and Safety Risks
- EO 13149: Greening the Government Through Federal Fleet and Transportation Efficiency
- EO 13423: Strengthening Federal Environmental, Energy, and Transportation Management
- EO 13514: Federal Leadership in Environmental, Energy, and Economic Performance
- EO 13547: Stewardship of the Ocean, Our Coasts, and the Great Lakes

1.2 BACKGROUND

The Meskwaki Settlement seeks to develop viable wind resources within its boundaries to power its tribal facilities (medical center, school, tribal headquarters, and casino) and potentially access commercial markets for income generation from electric power. The Meskwaki Settlement encompasses approximately 8,000 acres in Tama, IA (Exhibit 1). Considerable ecological diversity exists within the reservation consisting of agricultural lands, prairie, and deciduous forest. There are approximately 1,250 members of the Meskwaki tribe with around 650 members and non-members living on the Reservation.

1.3 PURPOSE AND NEED

The purpose of the DOE's proposed action is to provide financial assistance to the Meskwaki Settlement in support of their proposed installation, construction, and operation of two proposed 1.6 megawatt (MW) wind turbines and its associated facilities. The project is needed to provide a more cost effective source of electricity for the Meskwaki Settlement and offset the overall consumption of fossil fuels with renewable wind power. Recent national and regional forecasts project increasing consumption of electrical energy to continue into the foreseeable future, thus requiring development of new sources to meet the increasing energy demand.

The goal of this project is to increase use of renewable energy technology in meeting the energy needs of the Meskwaki Settlement's tribal government and tribal community including their medical center, school, tribal headquarters, and casino. The beneficiaries of this project are the Meskwaki Settlement's tribal government, residents of the reservation, and the upper Midwest if energy is sold back to the area's power provider. The tribal government and the Meskwaki Settlement will benefit from low cost wind energy, potential revenue from sale of the wind energy, greater utilization of renewable energy, reduced reliance on fossil fuel, and potentially better air quality, which is currently impacted by fossil fuel-driven electrical generation.

1.4 OBJECTIVES OF THIS ENVIRONMENTAL ASSESSMENT

NEPA, as amended, and DOE regulations require DOE, as the lead federal agency, to consider several factors before making a final decision regarding funding. This PED is being prepared to identify additional studies that may be needed, potential environmental impacts, and necessary permitting requirements for implementing the Proposed Action. This PED will also be used to assist the DOE in determining the appropriate level of NEPA documentation necessary for proceeding with the project. Although environmental impacts will be identified, the evaluation of those impacts may be limited due to the scope of this assessment, the data available at the

present time, and the phase of planning and location of installing electrical lines and other infrastructure. As such this document is not meant to provide the level of alternatives analysis or serve as a substitute for an Environmental Assessment (EA), an Environmental Impact Statement (EIS), or a Categorical Exclusion (CE).

1.5 PUBLIC INVOLVEMENT

No public involvement activities have been scheduled for this phase. The public involvement process will be initiated once the DOE has determined the appropriate level of NEPA documentation.

2.0 PROPOSED ACTION AND ALTERNATIVES

The following sections discuss the proposed action and other alternatives.

2.1 PROPOSED ACTION

The Meskwaki Settlement intends to construct two wind turbines on tribal land south of the Meskwaki Health Clinic located at 1646 305th Street, in Tama, Iowa. These wind turbines will be used to generate power for its tribal facilities (medical center, school, tribal headquarters, and casino) and potentially access commercial markets for income generation from electric power. The project location is confined to an area of higher elevation bordered by the Meskwaki Health Clinic to the northwest, privately owned timberland to the south, and two wooded drainages of significantly lower elevation to the east and west (see Photo log). This area is approximately 922 feet by 288 feet comprising just over 6 acres (Exhibit 1). No other locations on the approximate 8,000-acre settlement have been considered for the location of the wind turbines. The Meskwaki Settlement School is located approximately 0.33 miles to the west of the project site

The project location was selected because 1) the site is not currently used for development or agriculture purposes, 2) an anemometer is co-located nearby which has been measuring wind speeds confirming the wind turbines optimal location, and 3) the location is ideally located to connect to existing electrical lines and serve multiple tribal facilities.

The Proposed Action will consist of installing two 1.6-MW wind turbines manufactured by General Electric (GE). The 1.6-MW GE turbine has undergone multiple design changes with recent incremental design changes including greater blade length, use of carbon fiber, Low Noise Trailing Edge (LNTE) and gearbox improvements resulting in an increase of Annual Energy Production (AEP), high capacity factor, and controlled sound performance. The1.6-MW GE wind turbine is a three-blade, upwind, horizontal axis wind turbine with a rotor diameter of 100 meters. The turbine rotor and nacelle are mounted on top of a tubular steel tower providing hub heights of 80 meters and 100 meters and uses active yaw controls to keep the blades pointed into the wind.

A transformer and meter box will likely be placed on a pad within a few feet of the most northerly-located turbine base since it will be closest to electric lines running to the electrical substation. However, no decisions have been made on the exact location of transformers, meter boxes, and other infrastructure components. Electric power from the wind turbine will be routed underground and follow existing rights-of-way to a nearby electrical substation. It is unlikely that power will directly connect to and supply electricity to tribal buildings due to power quality concerns. It is anticipated that that the wind turbine and associated equipment will last a

minimum of 20 years, after which time the turbine will be decommissioned and all equipment removed or the turbine will be upgraded.

2.2 NO ACTION ALTERNATIVE

The No Action alternative means the DOE will not provide funding and therefore the wind energy project will not be developed on the Meskwaki Settlement. The No Action alternative will not fulfill the Meskwaki Settlement's purpose and need for the project, which is to provide alternative energy to tribal facilities and to offset the reservation's overall consumption of fossil fuels with renewable wind power. If the Proposed Action is not constructed, the reservation's need for electrical power will continue to be provided by existing off-site sources and baseline conditions will remain unchanged.

2.3 ALTERNATIVE SITE LOCATIONS CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

At this phase of the project only one site has been considered for the construction of wind turbines. This site coincides with a nearby anemometer that was installed to collect wind speed measurements to determine an optimal location for wind turbines.

2.4 Permits and Approvals

Prior to construction, the Meskwaki Settlement will arrange compliance with all required federal and state permits and approvals. County permits are not required because the project will be located on tribal land. A list of potentially required permits and approvals include:

Federal

- Federal Aviation Administration Aeronautical Determination
- Environmental Protection Agency Storm Water Drainage Permit
- National Pollution Discharge Elimination System Permit
- U.S. Fish and Wildlife Service Section 7 Permit(s) (Specific to survey results and recommendations)
- US Army Corps of Engineers 404 permit

State

- Iowa Department of Natural Resources (IDNR) General Permit No. 2
- Iowa law (Code Section 161A.64) requires a signed affidavit to be placed on file with the local Soil and Water Conservation District stating that any erosion caused by activities will not exceed the district's adopted soil loss limits
- Iowa Department of Transportation (IDOT) (Highway Authority) Utility Access/Activity Permit
- IDOT Highway Access Permit

2.4.1 Construction and Installation Phase

The Meskwaki Settlement will start construction after all necessary federal and state permits and approvals are obtained and additional NEPA documentation is completed as determined by the DOE. Construction activities will be based at the lay down area and will involve the following tasks:

1. Surveying and constructing access road and turbine pads;
2. Constructing a foundation for the tower;
3. Trenching for underground utilities;

4. Placing underground electrical and communications cables in trenches;
5. Connecting to the transformer;
6. Transporting tower sections to the site and assembling the towers with a crane;
7. Installing nacelle, rotor, and other turbine equipment, final testing, and;
8. Final road grading, erosion control, and site cleanup.

Further details on the construction phases are discussed below.

2.4.1.1 Access Road

An access road approximately 400 feet long will be built adjacent to the Meskwaki Health Clinic extending from 305th Street. The finished width of the access road will be approximately 10 feet, but will be wider (up to 20 feet) during construction to allow for access of heavy equipment (e.g., crane). Total permanent disturbance will be approximately 0.1 acre, with an additional 0.1 acre of temporary disturbance. The access road will be surfaced with gravel or crushed stone, as locally available, for all-season access. Topsoil will be salvaged from road areas and replaced on roadside slopes and other temporarily disturbed areas following construction to provide a reclaimed growth substrate.

2.4.1.2 Turbine Pad

The circular turbine base will be constructed of concrete poured into a metal form. Depending on the turbine selected, the base will either be a depth of 30 feet with a diameter ranging from 12 to 15 feet or a spread foundation 10 feet deep and 40 to 50 feet in diameter. A metal ring support for foundation bolts will be placed into the form prior to pouring of concrete. The hole for the turbine base will be excavated with a large backhoe or similar heavy equipment and the spoil will be removed from the site or used for road construction in accordance with all applicable regulations and permit conditions. The total disturbed area for the turbine pad and associated structures is expected to be less than 0.25 acre for the life of the project.

2.4.1.3 Transmission

Currently, the decision has not been made as to the location of the transmission lines. They may be co-located along 305th Street or may be installed along the existing right-of-way (ROW) of Highway 30. The current preferred location will be to install the transmission lines along Highway 30 and connect to a transformer located to the east of the project site across from the casino. Interconnection with the existing utilities will help ensure that the intermittent power production from the turbine does not interfere with the local power distribution system. All underground transmission lines will be installed using conventional installation/trenching techniques. In addition to the transmission line, communication wiring and cables will be installed in the same trench. Temporary disturbance for the transmission lines is anticipated with the amount of disturbance being unknown at this time. No permanent disturbance is planned. No aboveground power lines or cables will be constructed or installed.

2.4.1.4 Turbine

The metal turbine tower will arrive via trucks in two or three pieces and be assembled on site. The turbine nacelle and three blades will arrive separately via trucks. A large crane will be used to assemble the tower, place the nacelle on top of the tower, and attach the blades to the nacelle hub. The tower will be bolted to the concrete pad using the anchor bolts; guy wires or other

external support systems will not be used. There will be approximately 3.2 acres of temporary disturbance for construction of the tower and placement of the nacelle, hub, and blades.

2.4.1.5 Construction Facilities

Project construction will require 10-15 construction personnel and equipment for one to two months. During construction, the contractor will provide necessary facilities consistent with similarly sized construction projects, including construction trailer, temporary chemical toilets, solid waste collection containers, etc. All solid and liquid wastes will be removed from the site in accordance with all applicable regulations and permit conditions. Fuel will be used on-site to power vehicles and other equipment. Turbine oil will also be on-site to be used as a lubricant. No other anticipated hazardous or flammable materials are expected to be on site.

2.4.2 Operations Phase

Once the turbine is constructed and tested, the Meskwaki Settlement will begin the operations phase of the project. There will be a full-time technician on site initially. After initial testing, periodic maintenance will be completed to maximize performance and detect problems. The turbine will also be monitored from a remote location recommended by the turbine supplier through a computerized control system. Any problems will be promptly reported to Operations and Maintenance (O&M) personnel for correction. O&M personnel will perform both routine maintenance and most major repairs. Most servicing will be performed "uptower" (that is, without using a crane to remove the turbine from the tower). Routine maintenance will include replacing lubricating fluids periodically and checking parts for wear and damage. The roads, turbine pad, and trenched areas will be inspected regularly and maintained.

2.4.3 Decommissioning Phase

Pursuant to any final negotiated financial assistance agreement between the Meskwaki Settlement and the DOE, the Meskwaki Settlement will retain title to the wind turbine and associated infrastructure and will be responsible for any decommissioning.

The turbine and other infrastructure are expected to have a useful life of at least 20 years. The trend in the wind energy industry has been to "repower" older wind energy projects by upgrading equipment with more efficient turbines. It is possible that the project could be upgraded with more efficient equipment and therefore have a useful life longer than 20 years.

If the project were terminated, the turbine and other infrastructure will be decommissioned and all facilities will be removed to a depth of approximately 3 feet below grade. Unsalvageable material will be disposed of at authorized sites. Salvageable items (including fluids) will be sold, reused, or recycled as appropriate. The soil surface will be restored as close as possible to its original condition. Reclamation procedures will be based on site-specific requirements commonly employed at the time the area is to be reclaimed. Procedures will include re-grading, adding topsoil, and replanting of all disturbed areas. Decommissioned roads will be reclaimed or left in place at the discretion of the Meskwaki Settlement.

2.4.4 Applicant-committed Practices

The Meskwaki Settlement will commit to necessary measures and procedures to minimize or avoid environmental impacts if the Proposed Action is carried forward.

2.4.4.1 Cultural Resources

A separate cultural resource survey is being completed concurrent with this PED. Should the cultural resource survey result in the discovery of culturally-significant items, then the Meskwaki Settlement will be committed to minimizing impacts to cultural resources from the Proposed Action through the implementation the following actions:

- An on-site archaeologist may be required during excavation activities.
- If cultural resources are discovered during construction, the construction supervisor will halt construction activities and immediately notify SHPO and appropriate officials with the Meskwaki Settlement who will then notify DOE within 24 hours of discovery. Construction will not resume until the materials are reviewed and evaluated to Professional Qualification Standards (48 FR 22716, September 1983) and proper notice has been given the Tribal Historic Preservation Officer, Sac and Fox Tribe of the Mississippi in Iowa/Meskwaki Nation, and DOE has provided concurrence with the intent to restart construction.
- If a site cannot be avoided, a detailed cultural resources recovery and mitigation plan will be developed and implemented after approval from the DOE and tribal authorities.

2.4.4.2 Noise

To minimize the impacts of noise on the nearby Meskwaki Health Clinic and adjoining properties:

- Vehicles will be properly maintained and mufflers will be installed.
- Loud music will not be permitted on site.
- Construction will occur during daylight hours.
- A modern turbine, with low noise levels, will be used (the unit under consideration meets this criteria).

2. 4.4.3 Soils and Vegetation

During construction, the following guidelines will be followed to minimize impacts to soils and vegetation:

- The Meskwaki Settlement will limit construction activities to the permanent and temporary disturbance areas described above. The construction contractor will be required to provide erosion and sediment control measures in accordance with federal, state, and local laws and regulations.
- Off-road travel or other access outside of the cleared workspace will be prohibited.
- Appropriate NPDES permits will be obtained and adhered to.
- Transmission lines, power cables, communication cables, and roads will be collocated.
- During reclamation, operation, and decommissioning of the Proposed Action, the Meskwaki Settlement will implement the following actions to minimize impacts to soils and vegetation:
    - All areas not needed for permanent operation of the Proposed Action will be restored to the original or near-original topographic features and will be reseeded with a native seed stock or other seed stock.
    - Invasion of noxious weeds will be monitored and controlled.

2. 4.4.4 Land Use

The Proposed Action is planned for construction within an area where native prairie grasses grow. Between the prairie grass area and the Meskwaki Health Clinic is a well field for a ground source heat pump (GSHP) that aids the heating and cooling of the Meskwaki Health Clinic. To

minimize impacts to land use, the Meskwaki Settlement will limit construction activities to the permanent and temporary disturbance areas described above so as to allow continued use of the surrounding areas under their current uses.

2. 4.4.5 Air Quality

The Meskwaki Settlement will make sure that:

- No garbage or other materials will be burned at the site.
- Dust abatement techniques will be employed during construction to minimize fugitive dust from leaving the site.
- All equipment will be properly maintained to minimize exhaust emissions.

2. 4.4.6 Visual Resources

To minimize the impacts to visual resources from the Proposed Action, the Meskwaki Settlement will implement the following:

- The wind turbine tower, nacelle, blades, and transformer box will be painted a neutral color to blend in with the surroundings.
- The turbine will be sited as best as possible to reduce shadow flicker falling on surrounding inhabited structures.

2. 4.4.7 Water Resources

To minimize loss or degradation to water resources from the proposed project, the following measures will be taken:

- Wetlands will be avoided when determining final turbine location, road construction, and placement of underground lines (the selected proposed turbine site meets this criterion).
- The construction contractor will be required to provide erosion and sediment control measures in accordance with federal, state, and local laws and regulations.
- A storm water drainage permit will be acquired prior to construction.

2. 4.4.8 Flora and Fauna (Including Special Status Species)

The Meskwaki Settlement is committed to minimizing and preventing unnecessary impacts to flora and fauna species from the Proposed Action through implementing the following guidelines:

- Conduct training with all construction personnel instructing them to not harm any *flora* or *fauna* species and to brief them on applicable laws and regulations.
- Construction activities will be limited to the permanent and temporary disturbance areas previously described.
- All transmission and other cables will be installed underground. The Meskwaki Settlement will develop and implement a post-construction bird and bat fatality monitoring plan under the guidance of the U.S. Fish and Wildlife Service (USFWS) and approval of DOE.
- Regularly scheduled surveys (e.g., every other week) for the spring, summer, and fall seasons after construction and searching of the area under the turbine for dead or injured birds and bats is expected to be part of the monitoring. These, and other specific details, will be included the plan.

2. 4.4.9 Health and Safety

To minimize the impacts to public health and safety, the Meskwaki Settlement will:

- Provide clean, safe drinking water, waste disposal services, portable toilets, and other items to meet basic human needs during the project. All waste will be collected and properly disposed of off-site.
- Ensure fueling and lubrication of equipment and motor vehicles are conducted in a manner to protect against spills and evaporation.
- Require contractors to dispose of unused lubricants and oils in approved manners and locations.
- Require that the contractor immediately clean up and dispose of any accidental spills of fuel, oil, grease, or other potentially toxic substances from construction equipment and impacted soils in an approved manner and location.
- Any open pits or holes left unattended will be fenced and flagged.
- The public will not be permitted in the work area.

3.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

3.1 LOCATION, SETTING, AND HISTORICAL USE

3.1.1 Location

The proposed project will be located in the northwest area of the unincorporated tribal village of the Meskwaki Settlement, in Southwestern Tama County, Iowa (Exhibit 1). Access to the site is via 305th Street off Highway 30. The proposed project will be located on tribal trust lands. A health center, housing subdivision, school, and casino are located within 0.5 miles of the proposed turbine site. The medical facility is located several hundred feet to the north of the proposed wind turbine site and utilizes GSHP technology for heating and cooling. The well field for the GSHP is located south of the medical facility directly adjacent to the project site.

The project area is on the top of a hill on a rolling ridge that runs generally north-south near a timbered area to the south, an agriculture field to the east, and prairie to the west. The topography rises from approximately 880 feet elevation, as measured approximately one mile southwest of the project site, to about 980 -1,000 feet elevation at the project site. The proposed project will disturb a portion of the site that is a level area.

3.1.2 Setting

The project site falls along the border of two different ecological regions of Iowa (IDNR, 2012a). These regions include the Iowan Surface and the Rolling Loess Prairies. Descriptions of both ecological regions, as provided by IDNR (2012a) are provided below:

Iowan Surface

> *The Iowan Surface ecoregion is a geologically complex region located between the bedrock-dominated landforms of the Paleozoic Plateau region and the relatively recent glacial drift landforms of the Des Moines Lobe. The southern and southeastern border of this ecoregion is irregular and crossed by major northwest- to southeast-trending stream valleys. In the northern portion of the region, the glacial deposits are thin, and shallow limestone bedrock creates karst features such as sinkholes and sags. There are no natural lakes of glacial origin in this region, but overflow areas and backwater ponds occur on some of the larger*

river channels contributing to some diversity of aquatic habitat and a large number of fish species.

Southern Iowa Drift Plain

The subject property is located within a geomorphic region referred to as the "Southern Iowa Drift Plain," wherein the area is typified by steeply rolling hills with areas of level upland divides and alluvial lowlands. Soil stratigraphy generally consists of Wisconsinan loess over paleosol underlain by Pre-Illinoian glacial till. The loess is moderately permeable silty clay to clayey silt deposit of sediment and tends to have a relatively uniform particle size. The underlying paleosols are generally weathered glacial drift with clay predominating the sediment matrix. Pre-Illinoian glacial till consists of a well-graded mixture of clay, silt, and sand, with lesser amounts of pebbles and cobbles. The unconsolidated glacial-derived sediments are underlain by the Des Moines Series and Pennsylvanian Bedrock System. The Des Moines Series consists of alternating layers of limestone, shale, sandstone, and coal.

The Meskwaki Settlement is located in a humid continental zone, resulting in wide variations in seasonal temperatures characterized by having hot summers, cold winters, and wet springs. The annual average temperature is 49 degrees Fahrenheit, with an average of 166 days of full sun and 199 days of cloudy or partly cloudy weather. The normal daily maximum temperature is 86 degrees Fahrenheit during the hottest month (July) and a normal daily minimum of 10 degrees Fahrenheit during the coldest month (January). Annual precipitation averages 34.7 inches with snowfall averaging 30 inches annually (Advameg 2010).

3.1.3 Historical Use

Prior to purchase by the Meskwaki Settlement, the project area was utilized as timber, prairie, and farmland. On July 15, 1856 the General Assembly of the State of Iowa approved the residential status of the Meskwaki Settlement. Soon afterward, James W. Grimes, Iowa's Governor was petitioned to act as the Meskwaki Settlement's trustee and acquire 80 acres. The first purchase was $1,000 with payment being made with $735 cash and the balance being met by the landowners being able to cut down timber. The historic deed was signed and recorded on July 13, 1857. The first group of residents was composed of eleven Meskwaki households of approximately 76 individuals. This original 80 acres now serves as the center for almost 8,000 acres. In 1856, there were approximately 200 members enrolled with the Meskwaki Nation. Presently, there are more than 1,250 members with over 650 residing on the Settlement (Meskwaki Education NetWork Initiative, undated).

3.1.4 Existing Land Use

The project site has historically been non-grazed prairie grass. The portion near 305th Street was developed for the construction of a small health clinic that is now located on site. Immediately adjacent to the south of the health clinic is an area being used as a GSHP well field for the clinic. Between the well field on the north edge, the timbered area on the south end and the drainage ditches on the east and west lies the project site. This area has historically been and is currently comprised entirely of prairie grasses.

3.2 AFFECTED RESOURCES

3.2.1 Cultural Resources

A separate cultural resource study is being performed concurrently with this PED. That separate study will identify cultural resources that may be affected by the proposed project activities. Recommendations will be provided in that study for project activities if necessary.

3.2.2 Noise

There are no known studies of ambient noise levels in the project area. Noise levels in the project area are expected to be typical of a rural setting. The project area is considered rural based on predominant land use of agricultural and prairie grass. Sources of ambient noise include small amounts of vehicular traffic (cars, trucks, farm equipment), medical clinic employees, weather disturbances, occasional aircraft flying over, and natural sources (e.g., wildlife, wind). The project site is rural, therefore sources of loud noises are rare. Intermittent and ambient noise levels are likely between 50 and 60 decibel A-weighted sound level (dBA) under calm wind conditions. This is the noise level range of a typical quiet suburban residential area that is not located near a major noise source, such as a highway (BFCWA 2001). Based on land use, this is a reasonable comparison to the project area. Humans likely to be sensitive to noise in the general project area will be workers or temporary patients at the medical clinic (approximately 400 ft north of the project area). Potential sensitive wildlife receptors may occur in the project area based on available habitat but no study has been conducted. It is recommended that noise studies be conducted during the pre- and post-construction phases at the project site.

3.2.3 Soil Resources

Under the Proposed Action, the turbine will be located in an area where the predominant soil series is the Fayette Series (Exhibit 2). The specific soil unit of the project site is the Fayette silt loam (NRCS, 2012). This unit is commonly found on loess over glacial drift with a slope ranging from nine to 14 percent. The soil is well drained, with saturation not occurring within a depth of 1.8 meters even during the wettest periods of normal years. Surface runoff potential is negligible to high. The soil is classified texturally as a silt loam and has a depth class of “very deep” (more than 80 inches). These soils typically form on convex crests, interfluves and side slopes on uplands and on treads and risers on high stream terraces. Generally, the level to gently sloping areas are cultivated with crops primarily consisting of corn, soybeans, small grains, and legume hays. Steeper slopes are generally used for pasture and/or wooded areas with the native vegetation consisting of deciduous trees, primarily oak and hickory.

Iowa law (Code Section 161A.64) requires a signed affidavit to be placed on file with the local Soil and Water Conservation District stating that any erosion caused by activities will not exceed the district’s adopted soil loss limits. For most soils, the limit is an annual soil loss of five tons per acre. Forms can be obtained from the local SWCD office and additional details located in Iowa’s erosion control manual (IDNR 2006).

Storm water discharges from construction activities are eligible (depending on project size) for permit coverage under the IDNR General Permit No. 2 that applies only to storm water discharge from land-disturbing construction activities. At this time the exact placement of the turbines, access roads, and utility infrastructure are undetermined meaning that the acreage of disturbed land cannot be determined until the project progresses. Recommendations for mitigating impacts

to soil resources include procuring the necessary permits, implementing erosion control practices, and conducting other mitigation strategies during all phases of the project.

3.2.4 Vegetation Resources

Tama County is predominantly agricultural, prairie, and timbered with oak (*Quercus* sp.), hickory (*Carya* sp.), and other hardwood tree species. Historically and currently, the vegetation at the project area contains native grasses and forbs. The grasses include big bluestem (*Andropogon gerardii*), switch grass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*); the forbs include purple prairie clover (*Dalea purpurea*), cone flower (*Ratibida* sp.), and rattlesnake master (*Eryngium yuccafolium*.). Deciduous trees and shrubs are only located along the drainages to the east and west and the private property to the south. The use of a herbicide (spot spraying) may be used as a control method, if necessary, once the turbines have been installed. Impacts to site vegetation resources should be minimized by flagging off access and project areas and by isolating vehicular traffic and construction to those areas during all phases of the project.

3.2.5 Air Quality

The IDNR reports air quality for particulates, ozone and combined Air Quality Index (AQI). The AQI is calculated using the five major air pollutants regulated by the clean air act: ground-level ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, and fine particulate matter (PM_{10}) (IDNR 2012b). The pollutant with the highest value determines the AQI for that hour. The two pollutants of most concern in Iowa are ground-level ozone and PM_{10}. Ozone is only a problem in warm weather and therefore is only monitored April through September. PM_{10} is monitored year-round. The closest AQI monitoring station is in Polk County. The average AQI for this station was in the moderate range. Likewise, individual measurements for both ozone and PM_{10} were in the moderate range. A temporary and localized increase in particulate matter may occur during the construction and installation of the wind turbines but no long-term effects are anticipated. The project site is relatively remote with only the medical facility located nearby. Also, prevailing winds typically originate from the west or northwest which will push particulates away from the closest facility, the Meskwaki Health Clinic. Particulate matter will be reduced by wetting exposed soil surfaces during construction.

3.2.6 Visual Resources

The existing view of the project area is a semi-rural setting (some man-made features are evident) with rolling hills and mostly unobstructed views. There are some vertical features currently present, including the anemometer tower for the project. Other features, particularly the Meskwaki Health Clinic, do not have a strong vertical component. The nearest visual receptors are the residents of the Meskwaki Health Clinic, located adjacent to the north of the project area. Scattered residents, located about one quarter mile or greater north and northwest of the project area, have a semi-unobstructed view of the project area. The school and travelers on Highway 30 also have semi-unobstructed views of the project area. Minimal impacts to visual resources are anticipated. Recommendations for reducing any potential visual impacts include neutral-colored painting of components of the turbines and positioning the turbines to minimize shadow flicker.

3.2.7 Water Resources (Including Wetlands)

There are very few surface water resources on the Meskwaki Settlement. Most include only a few isolated wetlands, creeks, and seasonally wet drainages (Exhibit 3). There are no water

resources within the project area other than a small wetland/seep area approximately 10-15 feet in diameter with the National Wetland Inventory (NWI) listing of PEMCh (Exhibit 4). PEMCh means the area is a palustrine, emergent area that is only seasonally flooded due to being diked or impounded. This specific area is a seep that is naturally impounded. Several other small areas of similar size are isolated approximately 1,000 feet to both the east and the west. These areas are classified as PEMCh or PUBGh. PUBGh refers to an NWI classification meaning the area is palustrine with an unconsolidated bottom area that is intermittently exposed that is diked or impounded. These areas are topographically isolated from the project site. It is unlikely that any of these areas will need a Section 404 Clean Water Act (CWA) permit from the U.S. Army Corp of Engineers. The PEMCh seep area located within the northernmost portion of the project site should be demarcated using flagging/staking to prevent impacts from construction traffic, site access, or project activities.

3.2.8 Threatened, Endangered, Candidate, and Proposed Species

A review of existing data revealed two federally protected plants (both threatened) and one protected animal (endangered) within the project area (USFWS, 2012). The federally listed species, their status, and habit are listed below in Table 3-1.

The IDNR database was reviewed (2012c) for rare plants, animals, or important natural features that are known to occur within the county of the project area. Two state endangered species (both avian species) and four threatened species (two plants and two reptiles) are listed in the database. Additionally, there are nine species of special concern listed for Tama County, IA. A list of these species can be found in Table 3-1.

Table 3.1
Threatened and Endangered Species for Tama County, Iowa

Common Name	Scientific Name	Species Status	Habitat
Federal Species			
Mammals			
Indiana Bat	***Myotis sodalist***	**Endangered**	**Caves, mines (hibernacula); stream corridors & upland forests for foraging**
Plants			
Prairie Bush Clover	*Lespedeza leptostachya*	Threatened	Dry to mesic prairies with gravelly soil
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened	Wet prairies and sedge meadows
State Species			
Birds			
Bald Eagle	*Haliaeetus leucocephalus*	Special Concern	Waterways such as rivers, reservoirs, and lakes. Nest in large trees with open crowns (e.g. cottonwood, white pine) along riparian areas.
Barn Owl	***Tyto alba***	**Endangered**	**Savanna sp. nesting in dark, secluded places. Nests in tree cavities of silver maple, American sycamore, and white oak, barns. Hunt in grasslands along field edges, fence rows, and wetland edges.**
Short-eared Owl	***Asio flammeus***	**Endangered**	**Large, open grassland or wetland areas, such as native prairie, hay land, retired cropland, small-grain stubble, shrub steppe, and wet-meadow zones of wetlands**
State Species			

Common Name	Scientific Name	Species Status	Habitat
Plants			
Missouri Lamsquarters	***Chenopodium missouriensis***	**Special Concern**	**Cropland, old fields, gardens, nursery plots, vacant lots, weedy meadows, construction sites, and miscellaneous waste areas, particularly where the soil has been recently disturbed. Lamb's Quarters does not invade high quality natural areas to any significant extent**
Muskroot	*Adoxa moschatelliina*	Special Concern	Vernally moist places in the mountains at the bottom of undisturbed open rock slides that have cold air drainage.
Sensitive Briar	*Schrankia nuttallii*	Special Concern	Dry prairies, glades and rocky savannas
Softleaf Arrow-wood	*Viburnum molle*	Special Concern	Dry, rocky woods in calcareous soil
Glomerate Sedge	***Carex aggregata***	**Special Concern**	**Meadows, thickets, open forests, usually on calcareous soils.**
Green Adder's Mouth	*Malaxis unifolia*	Special Concern	Variety of habitats, but all tend to be characterized by sandy and/or acidic soils. Typical habitats include dry, sandy pine or oak woods
Large-leaf Pondweed	*Potamogeton amplifolius*	Special Concern	Lakes and ponds. Will grow in clear water as deep as 6 meters.
Oval Ladies'-tresses	***Spiranthes ovalis***	**Threatened**	**Moist to mesic woodlands, rocky upland woodlands, open woodlands, areas along paths in woodlands, edges of swamps, and semi-shaded areas along abandoned fields.**
Western Prairie Fringed Orchid	***Platanthera praeclara***	**Threatened**	**Wet prairies and sedge meadows**
Reptiles			
Blanding's Turtle	*Emydoidea blandingii*	Threatened	Wetland complexes and adjacent sandy uplands are necessary to support viable populations of Blanding's turtles. Calm, shallow waters, including wetlands associated with rivers and streams, with rich, aquatic vegetation are especially preferred.
Ornate Box Turtle	*Terrapene ornata*	Threatened	Sandy open areas.
Smooth Green Snake	***Liochlorophis vernalis***	**Special Concern**	**Meadows, grassy marshes, moist grassy fields at forest edges, mountain shrublands, stream borders, bogs, open moist woodland, abandoned farmland, and vacant lots. This snake has been found hibernating in abandoned ant mounds. Eggs are laid under rotting wood, underground, or under rocks.**

Notes: Species listed in bold indicates that suitable/potential habitat exists in the project area.

Of the federal and state listed species eight of the listed species have potential habitat within or adjacent to the project site. This includes:

- One federal-listed endangered species (Indiana bat-adjacent potential feeding habitat).
- Two state-listed endangered avian species (barn owl and short-eared- potential feeding habitat at the project site).
- Two state-listed threatened plant species (oval ladies-tresses and western prairie fringed orchid).
    - Two state-listed plant species of special concern (Missouri lambs quarters and glomerate sedge-growing habitat).
    - One state-listed reptile species of special concern (smooth green snake).

Based on this preliminary PED, it is recommended that further biological evaluations be conducted for the listed species and specific habitats at and adjacent to the project site. Additionally, USFWS and IDNR coordination letters should be prepared and sent to the appropriate office for review and comment.

3.2.9 Wildlife

The area immediately around the project area site is mostly rural and the site itself is native mixed grasses and forbs with adjacent timber to the south. Wildlife potentially occurring at or near the project area is described below. Additional wildlife surveys are recommended and identified as necessary in the following sections.

3.2.9.1 Big Game

Big game found in the region is the white-tailed deer (*Odocoileus virginianus*). Several white-tailed deer were observed during the site visit. White-tailed deer are very common throughout the state, and could occur at the project area. Based on information from the IDNR, populations of white-tailed deer are increasing annually and harvested during hunting seasons.

3.2.9.2 Other Mammals

Based on range maps and lists of mammals in Iowa and habitat requirements, other small mammals could potentially be found on or near the project area. These include shrews, voles, rabbits, bats, several predator species, and others. It is recommended that additional mammal surveys be conducted in or around the project site.

3.2.9.3 Raptors

Although generally considered environmentally friendly, wind power development has been associated with the death of birds that collide with turbines and other wind farm structures (Erickson *et al*. 2001). Raptors are of special concern due primarily to the large numbers of dead raptors found at the Altamont, California wind facility (Orloff and Flannery 1992). The range for migration and habitat for numerous hawks and owls overlaps much of Iowa including the project area.

Raptors utilize areas for a number of different reasons, particularly for nesting and feeding. Potential nesting sites adjacent to the project area for above-ground nesting raptor species are present in the form of scattered trees throughout the eastern and western drainages and the wooded area to the south. These areas could also serve as roost sites. No cliffs or rock outcrops were identified during the site visit, which also could serve as nesting and roosting areas. There are no prominent bluffs in the project area. Raptors are often observed flying along the rim edges of bluffs or ridges, using updrafts to maintain altitude while hunting, migrating, or soaring. Based on the site features observed during a site visit (Derby and Dahl 2007), it does not appear that the proposed project site will support high densities of raptor nests.

Potential raptor prey sources include isolated ground squirrels and other rodents, rabbits, and waterfowl. These types of areas can attract feeding raptors. Since some roost sites and food sources are available in or near the project area, it is likely that raptors could use the area at least periodically. However, raptor use is likely no greater than surrounding areas with similar habitat. It is recommended that additional avian surveys be conducted in and around the project site.

3.2.9.4 Upland Game Birds

The wild turkey (*Meleagris gallopavo*), bobwhite (*Colinus virginianus*), and ruffed grouse (*Bonasa umbellus*) could potentially be found in the project area, according to range maps and habitat requirements. The wild turkey frequents open wooded areas, brushy grasslands, and river bottoms; the ruffed grouse commonly inhabit forests, including aspen forests; and the bobwhite quail can commonly be found in grassland areas interspersed with small openings and heavy cover. Their preferred habitat is limited in the project area but is available. Surrounding areas of isolated, larger ideal habitat around the project area probably limits such use. It is recommended that additional avian surveys be conducted in and around the project site.

3.2.9.5 Other Birds (Including Migratory Birds)

Grasslands and timber provide nesting habitat for many migratory bird species, land that can be found at and near the project area. Given the current conditions, the area does not provide high quality nesting opportunities, but nesting likely occurs at some level. Numerous bird species were observed during the site visit but no avian surveys have been conducted during this initial PED. It is recommended that additional avian surveys be conducted in and around the project site.

3.2.9.6 Amphibians, Reptiles, and Fish

Amphibians

Due to the extremely dry and dense grasslands of the project site it is unlikely that any amphibians utilize the project area on a continual frequency. However, adjacent drainages or timbered areas may receive use by various tree frogs, toads, or other species. It is recommended that additional surveys be conducted for amphibians in and around the project site.

Reptiles

Most reptile species could potentially be found in any habitat in or around the project area, such as open grasslands, near water, or wooded areas. It is recommended that additional surveys be conducted for reptiles in and around the project site.

Fish

The project site does not contain any surface water bodies that will sustain a permanent or temporary fish population. Therefore, the project is not anticipated to adversely affect any fish resources.

3.2.10 Health and Safety

Existing public safety hazards in the project area are very few. A search of available records by Environmental Data Resources, Inc (EDR) indicated there were no mapped sites within a one-mile radius search of the project site. Several sites have been identified but not mapped due to inadequate address information. These are included in Table 3.2. A copy of EDR's database review summaries are provided as Appendix 1

Table 3.2 Unmapped Environmental Sites Identified from Records Reviews

Site Name	Environmental Concern
Rich Farms Inc.	FINDS, UST, LUST
Hoth Hill	LUST, UST
Casey's General Store #2653	LUST, UST, Financial Assurance

Site Name	Environmental Concern
Former Service Station	LUST
Former Horak Chevrolet Dealership	LUST
Former Gas Station/Police Station	LUST
Royce D. Hutton	UST
Arthur Posusta	UST
Murty's Standard	UST
Mark L. Kouba	UST
Don Upah	UST
Frank Sevich	UST
FS Feeds Inc.	UST
Steve Podhajsky	UST
Sac & Fox Tribe of the Mississippi	RCRA-Non Generator, FINDS
K&K Auto Body & Paint	Former Site RCRA-Non Generator, FINDS
Mike Horaks Chevrolet Oldsmobile Inc.	FSO RCRE-Non Generator, FINDS

Hazards identified during the site visit include the adjacent underground storage tank (UST) used for the backup generator at the medical clinic, but no safety incidents have been reported. There are currently no public roads into the project area, therefore there are no traffic hazards. Potential sites should be validated and mapped by performing a detailed site evaluation.

3.2.11 Socioeconomics/Environmental Justice

For the purposes of this PED the area of potential socioeconomic impact includes both the Meskwaki Settlement and the Sac and Fox Indian Tribe. Presently, there are more than 1,250 members with over 650 residing on the Settlement (Meskwaki Education NetWork Initiative, undated). The main sources of employment are the tribal casino, tribal and federal governmental facilities, the school, and the medical clinic. Development is limited to the employment resources and residential housing. Manufacturing industry is present in the region, but not within the Reservation boundaries. Convenience stores, restaurants, and area retailers exist to serve local and nearby populations but only minimally on the Meskwaki Settlement. Electric power is purchased by residences, tribal facilities, and businesses from outside suppliers. Tribal facilities, including the tribal casino, consume the largest amounts of electricity annually. Administrative and service facilities are present along with a tribal school and a Health Service clinic. No adverse socioeconomic or environmental justice impacts are anticipated if the project is completed.

3.2.12 Other Sensitive Areas

Other sensitive areas include a well field used for GSHP operation between the project site and the medical clinic. This area is approximately 1,200 square feet located immediately south of the medical facility building and parking area. Heavy equipment and vehicular traffic should avoid this area as damage could occur. It is recommended that this area be flagged and avoided.

4.0 ENVIRONMENTAL SUMMARY AND RECOMMENDATIONS

4.1 No Action Alternative

Under the No Action alternative, the DOE will not provide funding to the Meskwaki Settlement for their proposed Wind Energy Project. The project will not be built as part of a Federal Action, and no potential impacts will occur to the baseline conditions as described in Chapter 3. No permits will be necessary for the no action alternative.

4.2 Proposed Action

Multiple potential impacts could occur during construction and post-construction project activities. They are all considered to be minimal and/or temporary and likely can be further minimized or avoided based on the provided recommendations (Table 4.1).

Table 4.1 Summary of Environmental Impacts and Recommendations

Environmental Resource	Impact	Recommendation	Time to Implement
Cultural Resources	Unknown	Will be provided in separate study (Sections 2.4.4.1 and 3.2.1)	-
Noise	Potential Temporary and Long Term	Conduct noise studies (Sections 2.4.4.2 and 3.2.2)	Pre and Post Construction
Soil	Potential/Temporary	Procure necessary permits and implement dust suppression, erosion control, and other mitigation strategies (Sections 2.4.4.3 and 3.2.3)	All phases of the project
Vegetation	Potential/Temporary	Minimize impacts to access and construction sites (Sections 2.4.4.3 and 3.2.4)	All phases of the project
Air	Potential/Temporary	Implement dust suppression and other mitigation strategies (Sections 2.4.4.5 and 3.2.5)	Pre Construction
Visual Resources	Potential/Long Term	Strategic painting and positioning of the turbines and associated components (Sections 2.4.4.6 and 3.2.6)	Pre Construction
Water Resources	No Impact	Conduct site visit and flag small area in project site(Sections 2.4.4.7 and 3.2.7)	Pre Construction
Sensitive Species	Potential Temporary and Long Term	Conduct habitat and site evaluations for identified species; coordinate with USFWS and IDNR (Sections 2.4.4.8 and 3.2.8)	Pre and Post Construction
Wildlife	Potential Temporary and Long Term	Conduct avian, mammal, and reptile assessments (Sections 2.4.4.8 and 3.2.9)	Pre and Post Construction
Health and Safety	Potential Temporary and Long Term	Conduct detailed site visit and map sites identified but not previously mapped (Sections 2.4.4.9 and 3.2.10)	Pre Construction
Socioeconomic	No Impact	None (Section 3.2.11)	NA
Environmental Justice	No Impact	None (Section 3.2.11)	NA
Sensitive Areas	Potential Temporary and Long Term	Flag and/or install fencing to segregate this area from project traffic accessing the site (Section 3.2.12).	All phases of the project

5.0 CONSULTATION AND COORDINATION

Persons, groups, and government agencies contacted:

- Larry C. Lasley, Sr. Economic Development Director; Sac & Fox Tribe of the Mississippi in Iowa/Meskwaki Nation-Scoping meeting and site visit-March 14, 2012

6.0 REFERENCES

Advameg, Inc. 2010. Weather Data for Central Iowa. Available online at: http://www.city-data.com/states/Iowa-Climate.html. Accessed March 27, 2012.

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IDNR. 2012c. List of Iowa's Threatened and Endangered Species for Tama County, IA. Available online at: https://programs.iowadnr.gov/naturalareasinventory/pages/Query.aspx. Accessed April 4, 2012.

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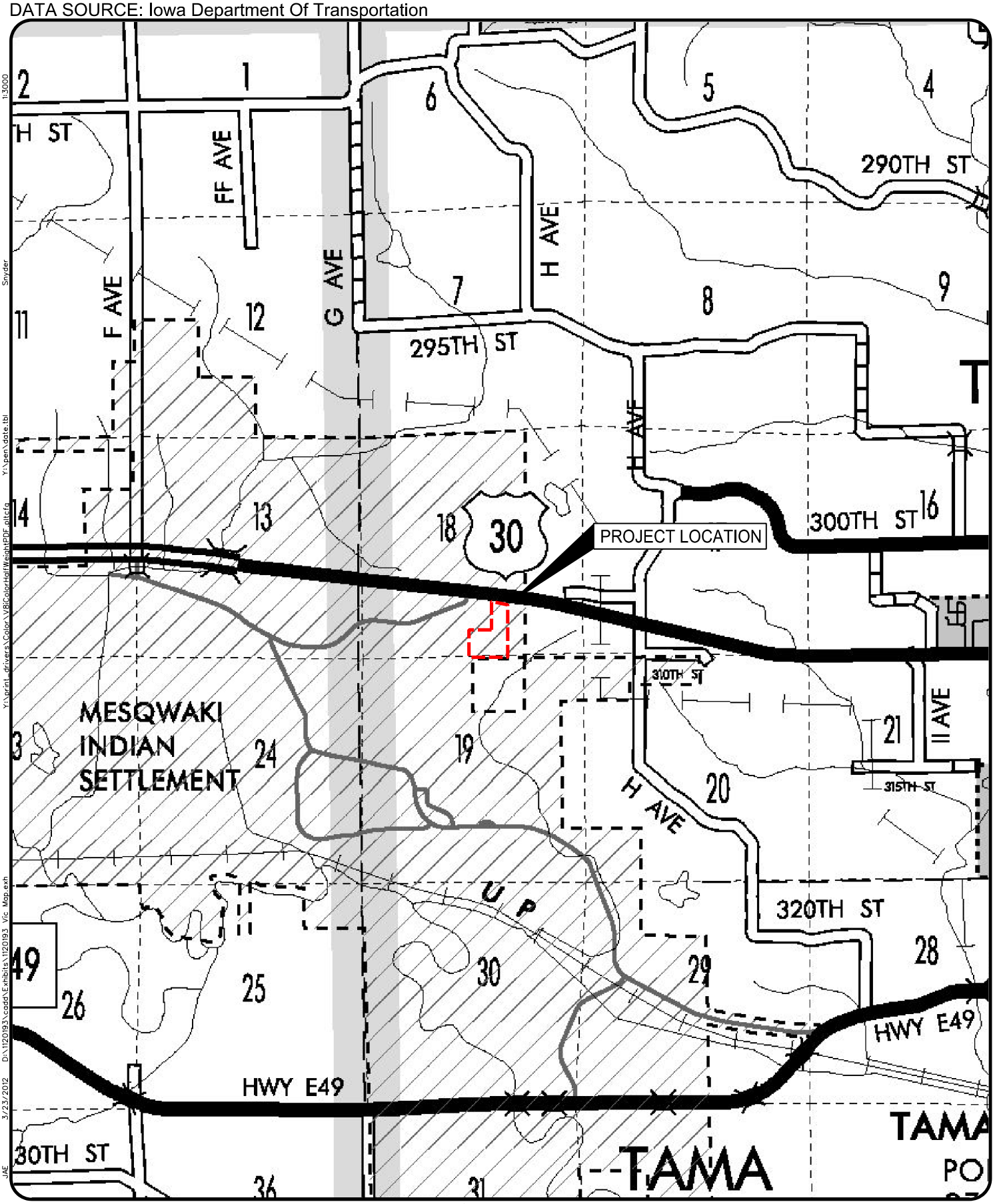
Tipler, P. A. 1991. Physics for Scientists and Engineers. Worth Publishers, 3rd edition.
United States Department of Energy (DOE) Office of NEPA Policy. 2012. Website Accessed: http://energy.gov/nepa/office-nepa-policy-and-compliance. Accessed on March 14, 2012

EXHIBITS

DATA SOURCE: Iowa Department Of Transportation



VICINITY MAP
MESKWAKI WIND TURBINES
ENVIRONMENTAL DOCUMENTATION
TAMA COUNTY, IOWA

3000 0 1500 3000 6000
UNIT

COORDINATE REFERENCE SYSTEM (CRS):Iowa State Plane North

SNYDER & ASSOCIATES
Engineers and Planners

PROJ #:112.0193

EXHIBIT 1

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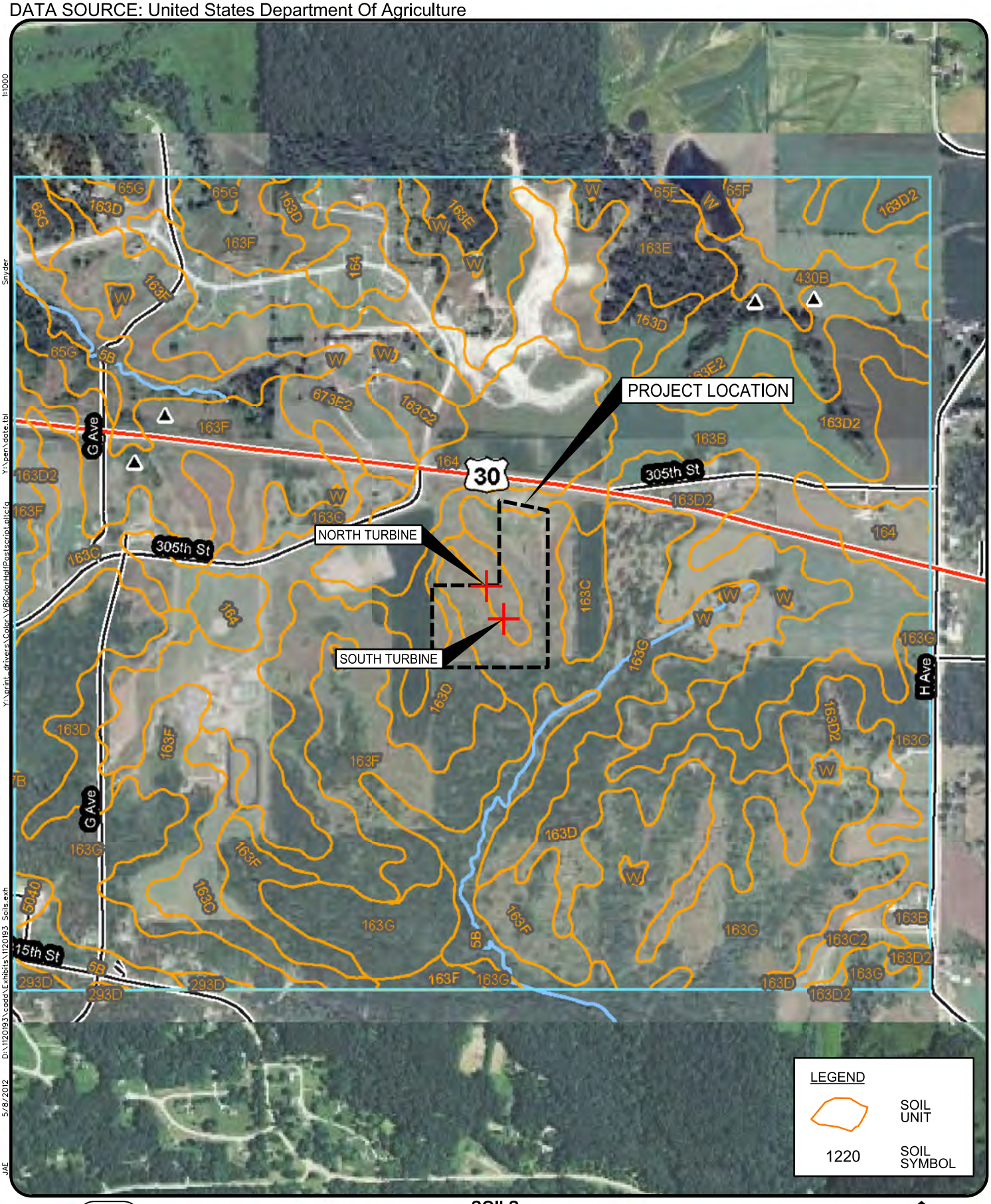
DATA SOURCE: United States Department Of Agriculture



SOILS
MESKWAKI WIND TURBINES
ENVIRONMENTAL DOCUMENTATION
TAMA COUNTY, IOWA

1000 0 500 1000 2000
UNIT

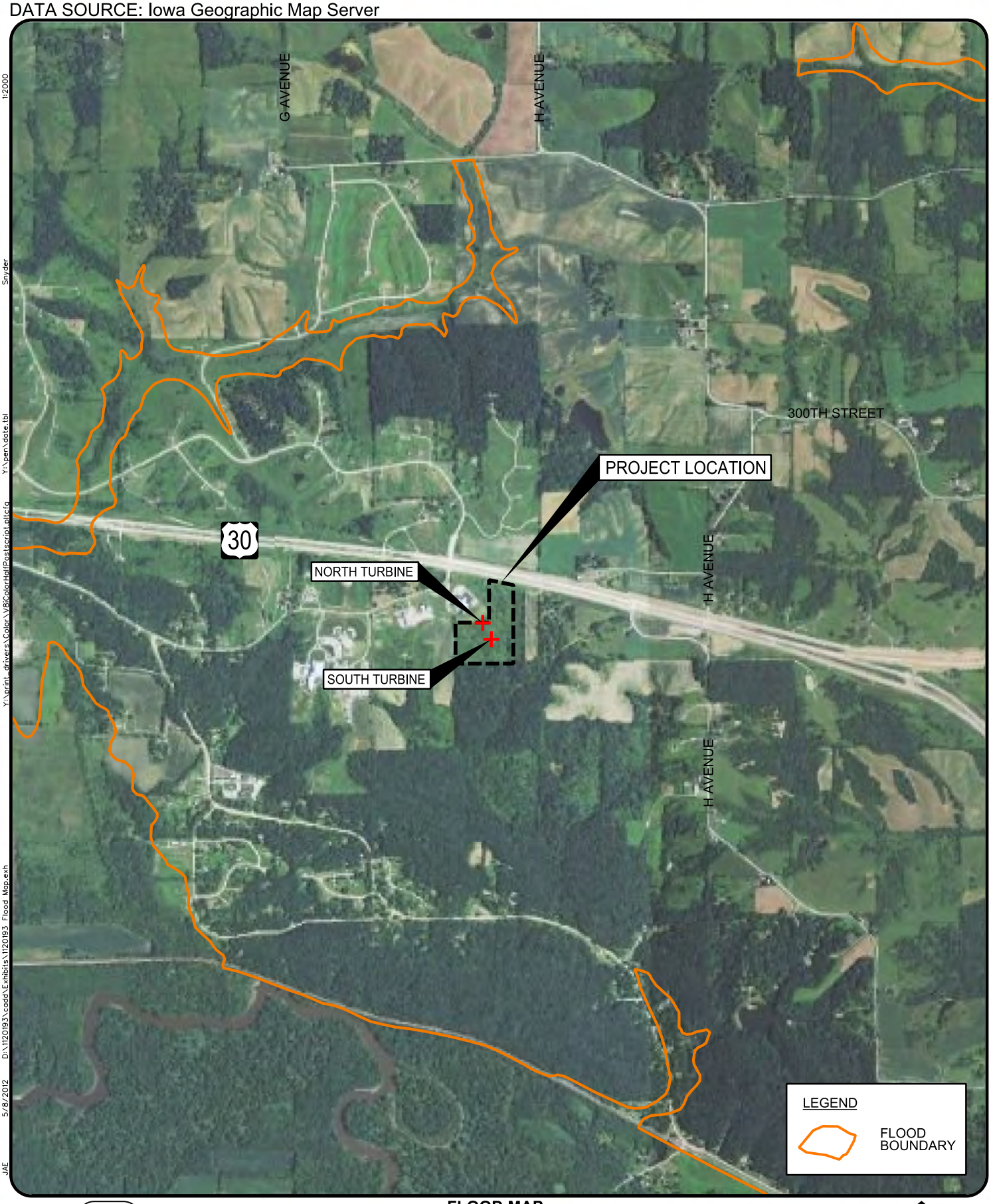
COORDINATE REFERENCE SYSTEM (CRS):Iowa State Plane North

SNYDER & ASSOCIATES
Engineers and Planners

PROJ #:112.0193

EXHIBIT 2

DATA SOURCE: Iowa Geographic Map Server



1:2000 Snyder Y:\pen\dete.tbl Y:\print drivers\Color\V8iColorHalfPostscript.pltcfg D:\112\0193\codd\Exhibits\112\0193_Flood Map.exh 5/8/2012 JAE

FLOOD MAP
MESKWAKI WIND TURBINES
ENVIRONMENTAL DOCUMENTATION
TAMA COUNTY, IOWA

2000 0 1000 2000 4000
UNIT

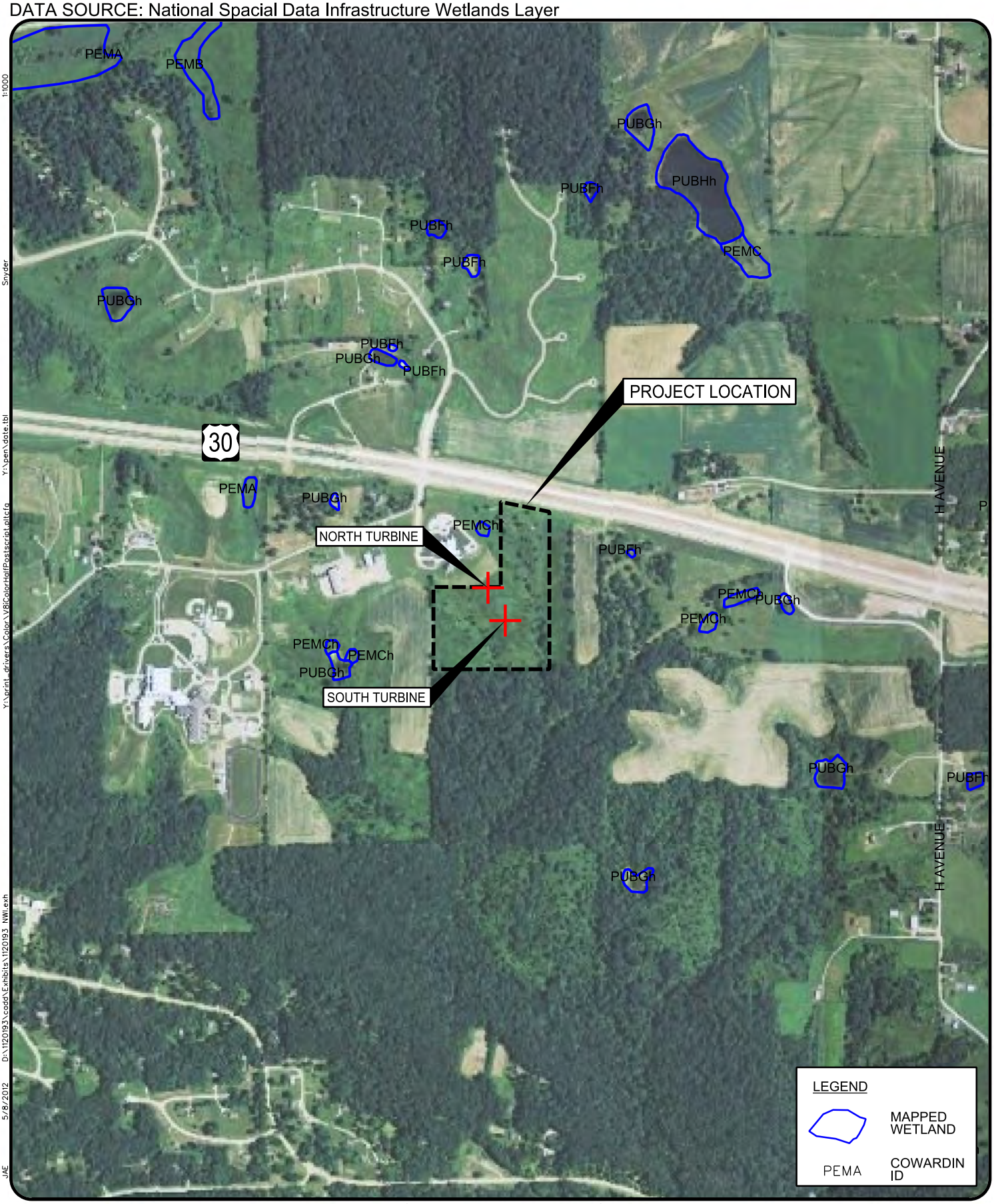
COORDINATE REFERENCE SYSTEM (CRS):Iowa State Plane North

SNYDER & ASSOCIATES
Engineers and Planners

PROJ #:112.0193

EXHIBIT 3

DATA SOURCE: National Spacial Data Infrastructure Wetlands Layer



NATIONAL WETLAND INVENTORY
MESKWAKI WIND TURBINES
ENVIRONMENTAL DOCUMENTATION
TAMA COUNTY, IOWA

1000 0 500 1000 2000
UNIT

COORDINATE REFERENCE SYSTEM (CRS):Iowa State Plane North

SNYDER & ASSOCIATES
Engineers and Planners

PROJ #:112.0193

EXHIBIT 4

PHOTOLOG

Photo 1. North – Representative photo of vegetation and area where wind turbines will be installed

Photo 2.South – Representative photo of the southern portion of the project area depicting the vegetation and slope of the site.

Photo 3. West – Photograph depicting the western portion of the project site that slopes off toward the drainage area below.

Photo 4; East – Photograph depicting the eastern portion of the project site that slopes off toward the drainage below and depicts adjacent pasture and farmed areas.

APPENDIX 1
EDR Database Reviews

Meskwaki Reservation Wind Turbine
305th Street
Tama, IA 52339

Inquiry Number: 3277930.2
March 14, 2012

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

3/14/12

Site Name:
Meskwaki Reservation Wind
305th Street
Tama, IA 52339

Client Name:
Snyder & Associates, Inc.
2727 SW Snyder Blvd.
Ankeny, IA 50021

EDR Inquiry # 3277930.2

Contact: Jeff Walters

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Snyder & Associates, Inc. were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Meskwaki Reservation Wind Turbine
Address: 305th Street
City, State, Zip: Tama, IA 52339
Cross Street:
P.O. # NA
Project: 112.0193
Certification # 3104-49AA-A697

Sanborn® Library search results
Certification # 3104-49AA-A697

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Meskwaki Reservation Wind Turbine
305th Street
Tama, IA 52339

Inquiry Number: 3277930.3s
March 14, 2012

EDR NEPACheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR NEPACheck® DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following items (where available). Search results are provided in the Map Findings Summary on page 2 of this report.

Section	Regulation
Natural Areas Map	
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data (where available)	47 CFR 1.1307(3); 40 CFR 6.302
Historic Sites Map	
• National Register of Historic Places	47 CFR 1.1307(4); 40 CFR 6.302
• State Historic Places (where available)	
• Indian Reservations	
Flood Plain Map	
• National Flood Plain Data (where available)	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data (where available)	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, FAA Markings and Obstructions, Airports, Topographic gradient	47 CFR 1.1307(8)
Key Contacts and Government Records Searched	

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 41 of this report.

TARGET PROPERTY ADDRESS

MESKWAKI RESERVATION WIND TURBINE
305TH STREET
TAMA, IA 52339

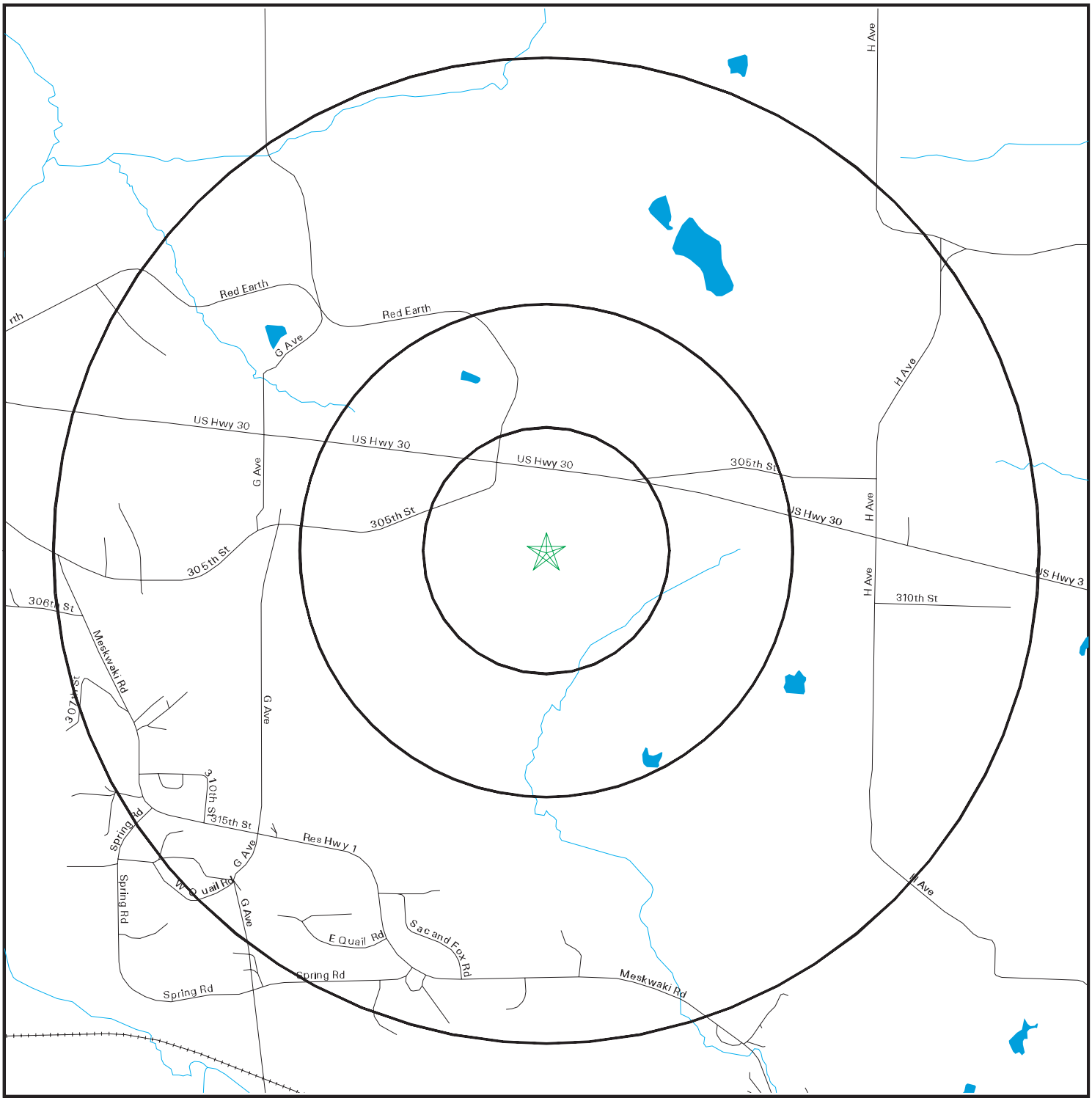
Inquiry #: 3277930.3s
Date: 3/14/12

TARGET PROPERTY COORDINATES

Latitude (North):	41.994598 - 41° 59' 40.6''
Longitude (West):	92.638298 - 92° 38' 17.9''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	529958.5
UTM Y (Meters):	4649026.5

Applicable Regulation from 47 CFR/FCC Checklist	Database	Search Distance (Miles)	Within Search	Within 1/8 Mile
NATURAL AREAS MAP				
1.1307a (1) Officially Designated Wilderness Area	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	US Federal Lands	1.00	NO	NO
1.1307a (3) Threatened or Endangered Species or Critical Habitat	IA Endangered Species	1.00	NO	NO
1.1307a (3) Threatened or Endangered Species or Critical Habitat	County Endangered Species	County	YES	N/A
HISTORIC SITES MAP				
1.1307a (4) Listed or eligible for National Register	National Register of Hist. Pla	1.00	NO	NO
1.1307a (4) Listed or eligible for National Register	IA Historic Sites	1.00	NO	NO
	Indian Reservation	1.00	YES	NO
FLOODPLAIN MAP				
1.1307 (6) Located in a Flood Plain	FLOODPLAIN	1.00	YES	NO
WETLANDS MAP				
1.1307 (7) Change in surface features (wetland fill)	NWI	1.00	YES	YES
FCC & FAA SITES MAP				
	Cellular	1.00	NO	NO
	4G Cellular	1.00	NO	NO
	Antenna Structure Registration	1.00	NO	NO
	Towers	1.00	NO	NO
	AM Antenna	1.00	NO	NO
	FM Antenna	1.00	NO	NO
	FAA DOF	1.00	NO	NO
	Airports	1.00	NO	---
	Power Lines	1.00	NO	---

Natural Areas Map



- Target Property
- Roads
- County Boundary
- Waterways
- Water
- Locations
- Federal Areas
- Federal Linear Features
- State Areas
- State Linear Features

SITE NAME:	Meskwaki Reservation Wind Turbine	CLIENT:	Snyder & Associates, Inc.
ADDRESS:	305th Street Tama IA 52339	CONTACT:	Jeff Walters
		INQUIRY #:	3277930.3s
LAT/LONG:	41.9946 / 92.6383	DATE:	March 14, 2012

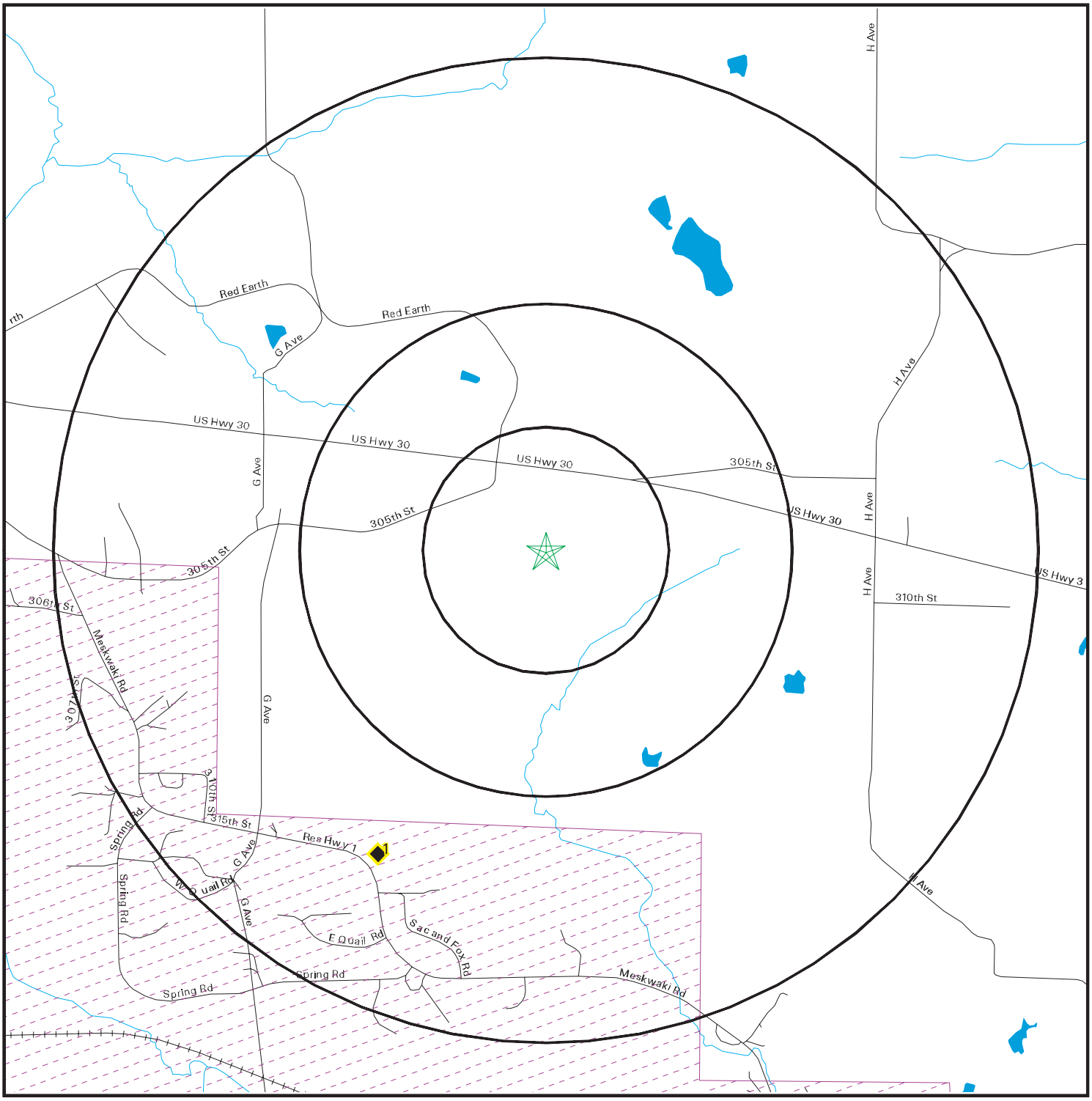
NATURAL AREAS MAP FINDINGS

Endangered Species Listed for: TAMA County, IA.
Source: EPA Endangered Species Protection Program Database
PLANT: ORCHID, WESTERN PRAIRIE FRINGED
PLANT: BUSH-CLOVER, PRAIRIE

Map ID Direction Distance Distance (ft.)	EDR ID Database

No mapped sites were found in EDR's search of available government records within the search radius around the target property.

Historic Sites Map



Target Property
Streets
County Boundary
Waterways
Water
Historic Sites
Federal Historic Areas
State Historic Areas
US Indian Reservations
Scenic Trail

SITE NAME:	Meskwaki Reservation Wind Turbine	CLIENT:	Snyder & Associates, Inc.
ADDRESS:	305th Street Tama IA 52339	CONTACT:	Jeff Walters
LAT/LONG:	41.9946 / 92.6383	INQUIRY #:	3277930.3s
		DATE:	March 14, 2012

HISTORIC SITES MAP FINDINGS

Map ID Direction Distance Distance (ft.)			EDR ID Database
1 South 1/2-1 mi 2967			CIND100225 Indian Reservation
	Feature:	Indian Reservation	
	Admin:	BIA	
	Name:	Sac and Fox Indian Reservation	
	State:	IA	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Unmappable
IA2005SHPO11211
IA Historic Sites

County:	Tama
Property name:	Carey, Dr. L. H., Office and House
Id county:	86
Id seq:	00701
Street number:	107
Streetprefixdirection:	S
Street name:	Main
Street type:	St
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	1870
Circa:	Yes
Subdivision:	Original Town Plat
Block:	7
Lot:	7
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	Not Reported
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	1
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	Yes
Materials foundation:	04
Materials walls:	02
Materials roof:	08A
Materials other:	Not Reported
Significant dates:	1875, 1885
Date entered updated:	12/08/1999

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Date updated: 06/19/2002
Township name: Not Reported
Township: Not Reported
Range: Not Reported
Sec: Not Reported
District id county: Not Reported
District id seq: Not Reported
Edr id: IA2005SHPO11211

Unmappable
IA2005HUD000940
IA Historic Sites

County: Tama
Property name: Carey, Dr. L. H., Office and House
Id county: 86
Id seq: 00701
Street number: 107
Streetprefixdirection: S
Street name: Main
Street type: St
Streetsuffixdirection: Not Reported
Address description: Not Reported
City: Toledo
Zip: 52342
Zip4: Not Reported
Construction year: 1870
Circa: Yes
Subdivision: Original Town Plat
Block: 7
Lot: 7
Non extant: No
Non extant year: Not Reported
Non extant discovered: Not Reported
Rural: No
Criteria a: N
Criteria b: N
Criteria c: Y
Criteria d: N
Consideration a: N
Consideration b: N
Consideration c: N
Consideration d: N
Consideration e: N
Consideration f: N
Consideration g: N
Listed date: Not Reported
Resource type: Building(s)
Cont buildings: 1
Cont sites: 0
Cont structures: 0
Cont objects: 0
Non cont buildings: 1

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	Yes
Materials foundation:	04
Materials walls:	02
Materials roof:	08A
Materials other:	Not Reported
Significant dates:	1875, 1885
Date entered updated:	12/08/1999
Date updated:	06/19/2002
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005HUD000940

Unmappable
IA2005SHPO11214
IA Historic Sites

County:	Tama
Property name:	Hope Fire Company Engine House
Id county:	86
Id seq:	00575
Street number:	109
Streetprefixdirection:	S
Street name:	Broadway
Street type:	Not Reported
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	Not Reported
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	N
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	01/27/1983
Resource type:	Building(s)
Cont buildings:	0
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	1
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	Not Reported
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005SHPO11214

Unmappable
IA2005NR0008621
IA Historic Sites

County:	Tama
Property name:	Hope Fire Company Engine House
Id county:	86
Id seq:	00575
Street number:	109
Streetprefixdirection:	S
Street name:	Broadway
Street type:	Not Reported
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	Not Reported
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	N
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	01/27/1983
Resource type:	Building(s)
Cont buildings:	0
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	1
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	Not Reported
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005NR0008621

Unmappable
IA2005SHPO11213
IA Historic Sites

County:	Tama
Property name:	Hotel Toledo
Id county:	86
Id seq:	00576
Street number:	114
Streetprefixdirection:	S
Street name:	Broadway

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Street type:	Not Reported
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	Not Reported
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	Not Reported
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	Not Reported
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005SHPO11213

Unmappable
IA2005SHPO11204
IA Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

County:	Tama
Property name:	Lincoln Highway Bridge
Id county:	86
Id seq:	00231
Street number:	Not Reported
Streetprefixdirection:	E
Street name:	5th
Street type:	St
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Tama
Zip:	52339
Zip4:	Not Reported
Construction year:	1915
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	03/30/1978
Resource type:	Structure
Cont buildings:	0
Cont sites:	0
Cont structures:	1
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	Yes
Materials foundation:	Not Reported
Materials walls:	Not Reported
Materials roof:	Not Reported
Materials other:	10
Significant dates:	Not Reported
Date entered updated:	12/03/1999
Date updated:	07/02/2003
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Sec: Not Reported
District id county: Not Reported
District id seq: Not Reported
Edr id: IA2005SHPO11204

Unmappable
IA2005NR0008620
IA Historic Sites

County: Tama
Property name: Lincoln Highway Bridge
Id county: 86
Id seq: 00231
Street number: Not Reported
Streetprefixdirection: E
Street name: 5th
Street type: St
Streetsuffixdirection: Not Reported
Address description: Not Reported
City: Tama
Zip: 52339
Zip4: Not Reported
Construction year: 1915
Circa: No
Subdivision: Not Reported
Block: Not Reported
Lot: Not Reported
Non extant: No
Non extant year: Not Reported
Non extant discovered: Not Reported
Rural: No
Criteria a: N
Criteria b: N
Criteria c: Y
Criteria d: N
Consideration a: N
Consideration b: N
Consideration c: N
Consideration d: N
Consideration e: N
Consideration f: N
Consideration g: N
Listed date: 03/30/1978
Resource type: Structure
Cont buildings: 0
Cont sites: 0
Cont structures: 1
Cont objects: 0
Non cont buildings: 0
Non cont sites: 0
Non cont structures: 0
Non cont objects: 0
Date surveyed: Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Photos with no negs: Yes
Materials foundation: Not Reported
Materials walls: Not Reported
Materials roof: Not Reported
Materials other: 10
Significant dates: Not Reported
Date entered updated: 12/03/1999
Date updated: 07/02/2003
Township name: Not Reported
Township: Not Reported
Range: Not Reported
Sec: Not Reported
District id county: Not Reported
District id seq: Not Reported
Edr id: IA2005NR0008620

Unmappable
IA2005SHPO11210
IA Historic Sites

County: Tama
Property name: Tama County Courthouse
Id county: 86
Id seq: 00737
Street number: Not Reported
Streetprefixdirection: Not Reported
Street name: State
Street type: St
Streetsuffixdirection: Not Reported
Address description: Between Main & Broadway
City: Toledo
Zip: 52342
Zip4: Not Reported
Construction year: 1866
Circa: No
Subdivision: Not Reported
Block: Not Reported
Lot: Not Reported
Non extant: No
Non extant year: Not Reported
Non extant discovered: Not Reported
Rural: No
Criteria a: N
Criteria b: N
Criteria c: Y
Criteria d: N
Consideration a: N
Consideration b: N
Consideration c: N
Consideration d: N
Consideration e: N
Consideration f: N
Consideration g: N

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Listed date:	07/02/1981
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	1
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	04
Materials walls:	04
Materials roof:	08
Materials other:	Not Reported
Significant dates:	CA 1866-1867
Date entered updated:	12/08/1999
Date updated:	12/08/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	00
District id seq:	007
Edr id:	IA2005SHPO11210

Unmappable
IA2005NR0008624
IA Historic Sites

County:	Tama
Property name:	Tama County Courthouse
Id county:	86
Id seq:	00737
Street number:	Not Reported
Streetprefixdirection:	Not Reported
Street name:	State
Street type:	St
Streetsuffixdirection:	Not Reported
Address description:	Between Main & Broadway
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	1866
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	07/02/1981
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	1
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	04
Materials walls:	04
Materials roof:	08
Materials other:	Not Reported
Significant dates:	CA 1866-1867
Date entered updated:	12/08/1999
Date updated:	12/08/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	00
District id seq:	007
Edr id:	IA2005NR0008624

Unmappable
IA2005SHPO11215
IA Historic Sites

County:	Tama
Property name:	Tama County Jail
Id county:	86
Id seq:	00553
Street number:	Not Reported
Streetprefixdirection:	Not Reported
Street name:	Broadway
Street type:	Not Reported
Streetsuffixdirection:	Not Reported
Address description:	@ State St
City:	Toledo

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Zip:	52342
Zip4:	Not Reported
Construction year:	1870
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	M
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	08/27/1981
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	CA 1870
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005SHPO11215

Unmappable
IA2005NR0008625
IA Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

County:	Tama
Property name:	Tama County Jail
Id county:	86
Id seq:	00553
Street number:	Not Reported
Streetprefixdirection:	Not Reported
Street name:	Broadway
Street type:	Not Reported
Streetsuffixdirection:	Not Reported
Address description:	@ State St
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	1870
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	M
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	08/27/1981
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	CA 1870
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Sec: Not Reported
District id county: Not Reported
District id seq: Not Reported
Edr id: IA2005NR0008625

Unmappable
83004773
National Register of Hist. Places

Refnum: 83004773
Resname: Tama Public Library
Address: 901 McClellan St.
Resource Type: Building
Number buildings: 000000
Number sites: 000000
Number structs: 000000
Number objects: 000000
Non-contrib bldg: 000000
Non-contrib sites: 000000
Non-contrib structs: 000000
Non-contrib objects: 000000
Primary Certification: Date received/pending nomination
Certification date: 19830408
Acreage: 0
Alternate name: Public Library Buildings in Iowa TR
County: Tama
City: Tama

Unmappable
IA2005SHPO11209
IA Historic Sites

County: Tama
Property name: Toledo Bridge
Id county: 86
Id seq: 00726
Street number: Not Reported
Streetprefixdirection: Not Reported
Street name: Ross
Street type: St
Streetsuffixdirection: Not Reported
Address description: Not Reported
City: Toledo
Zip: 52342
Zip4: Not Reported
Construction year: 1912
Circa: No
Subdivision: Not Reported
Block: Not Reported
Lot: Not Reported
Non extant: No

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	04/07/1998
Resource type:	Structure
Cont buildings:	0
Cont sites:	0
Cont structures:	1
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	Yes
Materials foundation:	Not Reported
Materials walls:	Not Reported
Materials roof:	Not Reported
Materials other:	05
Significant dates:	Not Reported
Date entered updated:	12/08/1999
Date updated:	07/02/2003
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005SHPO11209

Unmappable
IA2005NR0008623
IA Historic Sites

County:	Tama
Property name:	Toledo Bridge
Id county:	86
Id seq:	00726
Street number:	Not Reported
Streetprefixdirection:	Not Reported
Street name:	Ross
Street type:	St

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	1912
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	Y
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	04/07/1998
Resource type:	Structure
Cont buildings:	0
Cont sites:	0
Cont structures:	1
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	Yes
Materials foundation:	Not Reported
Materials walls:	Not Reported
Materials roof:	Not Reported
Materials other:	05
Significant dates:	Not Reported
Date entered updated:	12/08/1999
Date updated:	07/02/2003
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005NR0008623

Unmappable
IA2005SHPO11212
IA Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

County:	Tama
Property name:	Wieting Theatre
Id county:	86
Id seq:	00620
Street number:	101
Streetprefixdirection:	S
Street name:	Church
Street type:	St
Streetsuffixdirection:	Not Reported
Address description:	Not Reported
City:	Toledo
Zip:	52342
Zip4:	Not Reported
Construction year:	1912
Circa:	No
Subdivision:	Not Reported
Block:	Not Reported
Lot:	Not Reported
Non extant:	No
Non extant year:	Not Reported
Non extant discovered:	Not Reported
Rural:	No
Criteria a:	N
Criteria b:	N
Criteria c:	N
Criteria d:	N
Consideration a:	N
Consideration b:	N
Consideration c:	N
Consideration d:	N
Consideration e:	N
Consideration f:	N
Consideration g:	N
Listed date:	04/09/1979
Resource type:	Building(s)
Cont buildings:	1
Cont sites:	0
Cont structures:	0
Cont objects:	0
Non cont buildings:	0
Non cont sites:	0
Non cont structures:	0
Non cont objects:	0
Date surveyed:	Not Reported
Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	Not Reported
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Sec: Not Reported
District id county: Not Reported
District id seq: Not Reported
Edr id: IA2005SHPO11212

Unmappable
IA2005NR0008622
IA Historic Sites

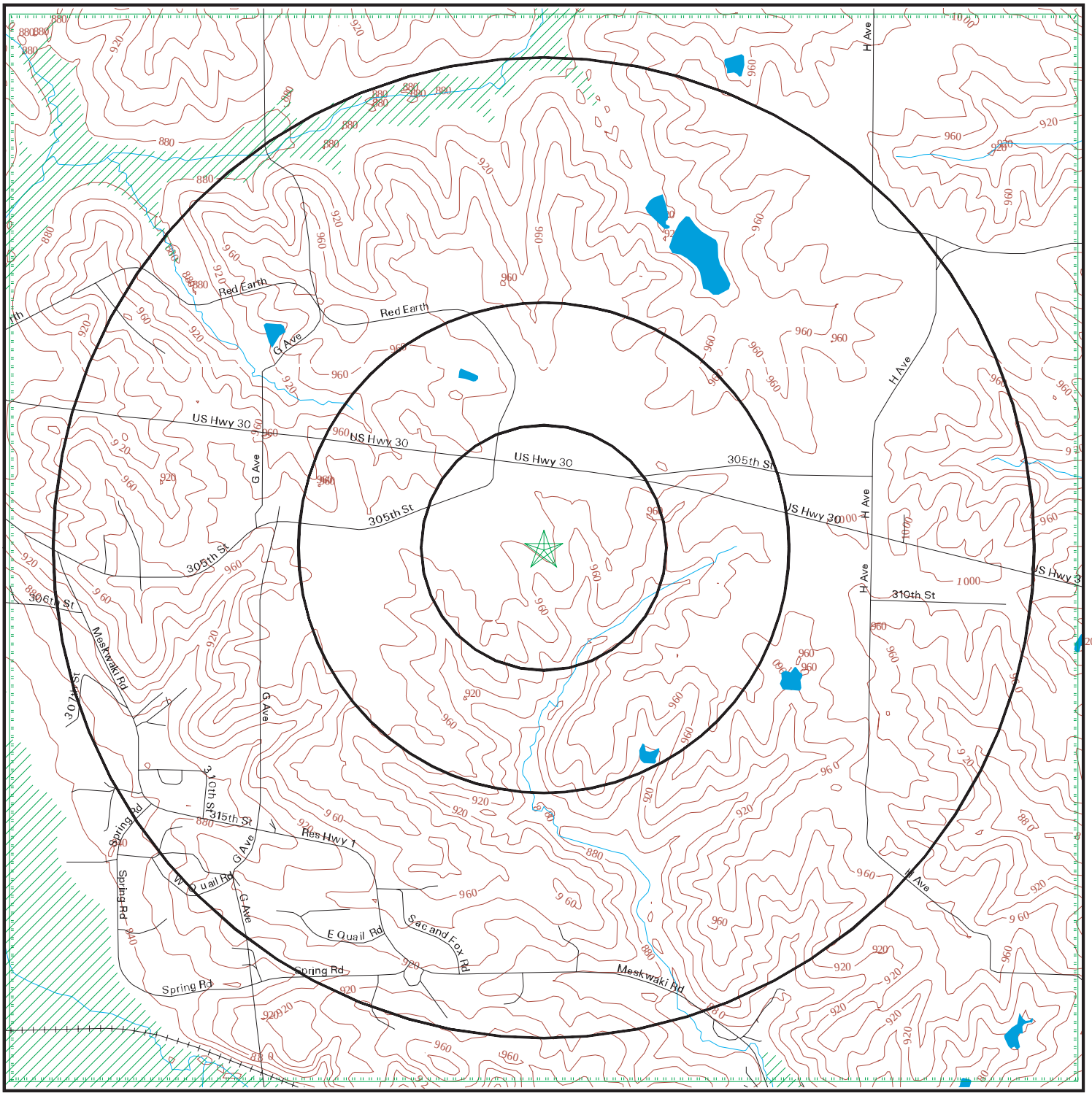
County: Tama
Property name: Wieting Theatre
Id county: 86
Id seq: 00620
Street number: 101
Streetprefixdirection: S
Street name: Church
Street type: St
Streetsuffixdirection: Not Reported
Address description: Not Reported
City: Toledo
Zip: 52342
Zip4: Not Reported
Construction year: 1912
Circa: No
Subdivision: Not Reported
Block: Not Reported
Lot: Not Reported
Non extant: No
Non extant year: Not Reported
Non extant discovered: Not Reported
Rural: No
Criteria a: N
Criteria b: N
Criteria c: N
Criteria d: N
Consideration a: N
Consideration b: N
Consideration c: N
Consideration d: N
Consideration e: N
Consideration f: N
Consideration g: N
Listed date: 04/09/1979
Resource type: Building(s)
Cont buildings: 1
Cont sites: 0
Cont structures: 0
Cont objects: 0
Non cont buildings: 0
Non cont sites: 0
Non cont structures: 0
Non cont objects: 0
Date surveyed: Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped: **Status**
EDR ID
Database

Photos with no negs:	No
Materials foundation:	10
Materials walls:	03
Materials roof:	08
Materials other:	Not Reported
Significant dates:	Not Reported
Date entered updated:	12/07/1999
Date updated:	12/07/1999
Township name:	Not Reported
Township:	Not Reported
Range:	Not Reported
Sec:	Not Reported
District id county:	Not Reported
District id seq:	Not Reported
Edr id:	IA2005NR0008622

Flood Plain Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- 100-year flood zone
- 500-year flood zone
- Electronic FEMA data available
- Electronic FEMA data not available

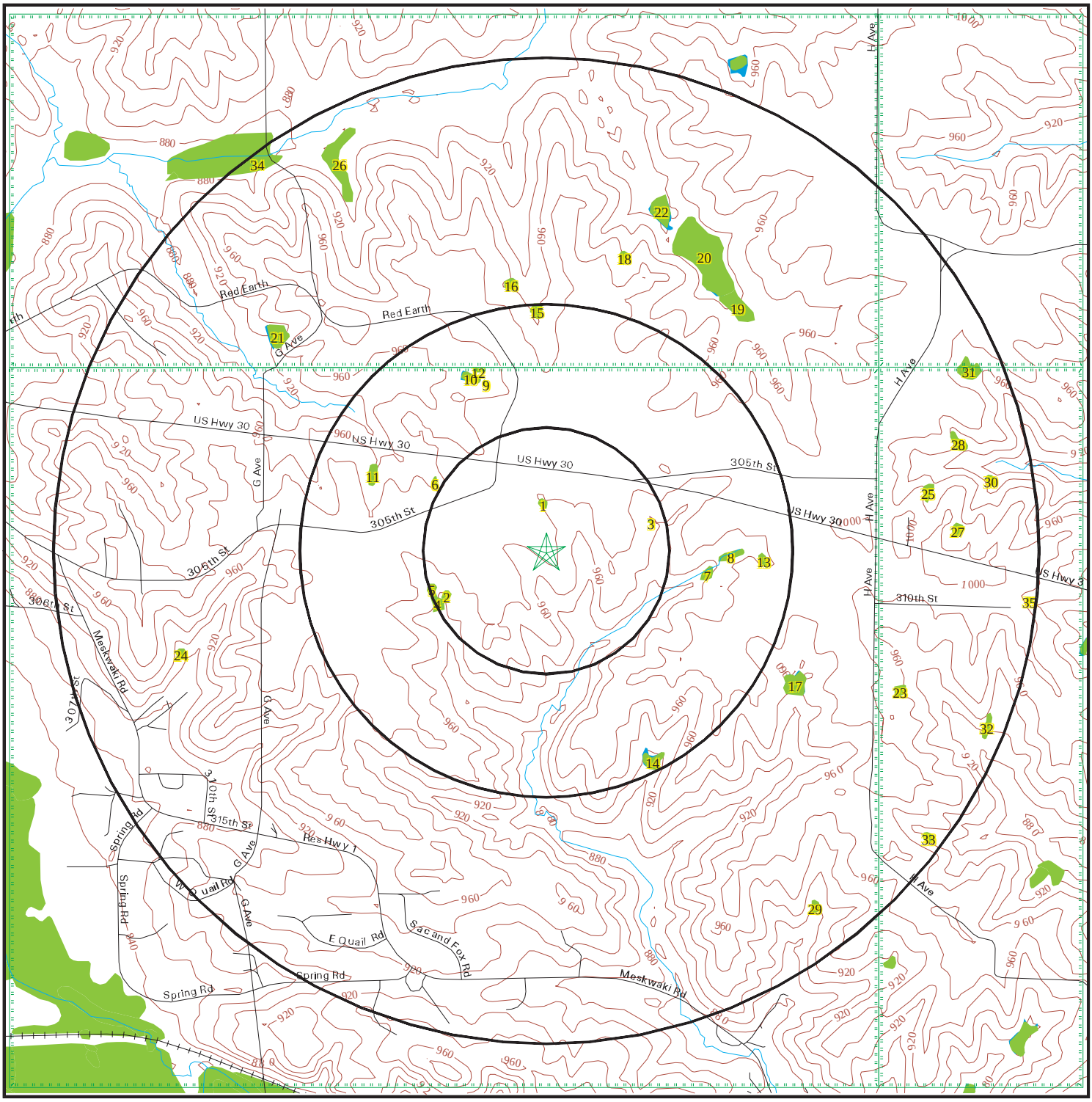
SITE NAME:	Meskwaki Reservation Wind Turbine	CLIENT:	Snyder & Associates, Inc.
ADDRESS:	305th Street Tama IA 52339	CONTACT:	Jeff Walters
LAT/LONG:	41.9946 / 92.6383	INQUIRY #:	3277930.3s
		DATE:	March 14, 2012

FLOOD PLAIN MAP FINDINGS

Source: FEMA DFIRM Flood Data, FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
TAMA, IA	YES
Flood Plain panel at target property:	19171C (FEMA DFIRM Flood data)
Additional Flood Plain panel(s) in search area:	None Reported

National Wetlands Inventory Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- National Wetland Inventory
- Electronic NWI data available
- Electronic NWI data not available

SITE NAME:	Meskwaki Reservation Wind Turbine	CLIENT:	Snyder & Associates, Inc.
ADDRESS:	305th Street Tama IA 52339	CONTACT:	Jeff Walters
LAT/LONG:	41.9946 / 92.6383	INQUIRY #:	3277930.3s
		DATE:	March 14, 2012

WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: Montour
Additional NWI hardcopy map(s) in search area:
Gladbrook SE
Garwin
Tama

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
1 North 0-1/8 mi 452	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.995838 / -92.638290	NWI
2 WSW 1/8-1/4 mi 1116	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.993328 / -92.642036	NWI
3 ENE 1/8-1/4 mi 1130	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.995449 / -92.634300	NWI
4 WSW 1/8-1/4 mi 1198	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.993172 / -92.642273	NWI
5 WSW 1/8-1/4 mi 1232	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.993530 / -92.642601	NWI
6 WNW 1/4-1/2 mi 1341	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.996441 / -92.642570	NWI
7 East 1/4-1/2 mi 1673	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.993797 / -92.632240	NWI
8 East 1/4-1/2 mi 1847	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.994347 / -92.631516	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
9 NNW 1/4-1/2 mi 1861	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.999432 / -92.640518	NWI
10 NNW 1/4-1/2 mi 1935	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.999523 / -92.640961	NWI
11 WNW 1/4-1/2 mi 1970	PEMA [P] Palustrine, [EM] Emergent, [A] Temporarily Flooded Lat/Lon: 41.996540 / -92.645065	NWI
12 NNW 1/4-1/2 mi 2038	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.999832 / -92.640953	NWI
13 East 1/4-1/2 mi 2269	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.994465 / -92.629951	NWI
14 SSE 1/4-1/2 mi 2409	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.988644 / -92.634445	NWI
15 North 1/4-1/2 mi 2483	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 42.001408 / -92.638680	NWI
16 North 1/2-1 mi 2812	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 42.002258 / -92.639557	NWI
17 ESE 1/2-1 mi 2883	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.990875 / -92.628937	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
18 NNE 1/2-1 mi 3171	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 42.002995 / -92.635223	NWI
19 NE 1/2-1 mi 3207	PEMC [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded Lat/Lon: 42.001350 / -92.630722	NWI
20 NNE 1/2-1 mi 3281	PUBHh [P] Palustrine, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [h] Diked/Impounded Lat/Lon: 42.002266 / -92.631966	NWI
21 NW 1/2-1 mi 3576	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 42.000793 / -92.648514	NWI
22 NNE 1/2-1 mi 3687	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 42.004082 / -92.633560	NWI
23 ESE 1/2-1 mi 4002	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.990612 / -92.624573	NWI
24 WSW 1/2-1 mi 4007	PEMCh [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [h] Diked/Impounded Lat/Lon: 41.991642 / -92.652504	NWI
25 East 1/2-1 mi 4082	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.996265 / -92.623444	NWI
26 NNW 1/2-1 mi 4276	PEMB [P] Palustrine, [EM] Emergent, [B] Saturated Lat/Lon: 42.004864 / -92.645927	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
27 East 1/2-1 mi 4351	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.995087 / -92.622299	NWI
28 ENE 1/2-1 mi 4493	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.997940 / -92.622375	NWI
29 SE 1/2-1 mi 4705	PUBGh [P] Palustrine, [UB] Unconsolidated Bottom, [G] Intermittently Exposed, [h] Diked/Impounded Lat/Lon: 41.984310 / -92.627838	NWI
30 East 1/2-1 mi 4764	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.996655 / -92.620987	NWI
31 ENE 1/2-1 mi 4798	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.999828 / -92.622093	NWI
32 ESE 1/2-1 mi 5034	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.989792 / -92.620926	NWI
33 SE 1/2-1 mi 5043	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.986290 / -92.623451	NWI
34 NW 1/2-1 mi 5055	PEMA [P] Palustrine, [EM] Emergent, [A] Temporarily Flooded Lat/Lon: 42.006027 / -92.648849	NWI
35 East 1/2-1 mi 5167	PUBFh [P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h] Diked/Impounded Lat/Lon: 41.993214 / -92.619377	NWI

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.

SYSTEM **MARINE**

SUBSYSTEM **1 - SUBTIDAL** **2 - INTERTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom	AB-AQUATIC BED	RF-REEF	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm		1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

SYSTEM **E - ESTUARINE**

SUBSYSTEM **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	

SUBSYSTEM **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	SB - STREAMBED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	SS-SCRUB SHRUB	FO-FORESTED
Subclass	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM	**1 - TIDAL**	**2 - LOWER PERENNIAL**	**3 - UPPER PERENNIAL**	**4 - INTERMITTENT**	**5 - UNKNOWN PERENNIAL**
CLASS	RB-ROCK BOTTOM UB-UNCONSOLIDATED BOTTOM *SB-STREAMBED AB-AQUATIC BED RS-ROCKY SHORE US-UNCONSOLIDATED SHORE **EM-EMERGENT OW-OPEN WATER/ Unknown Bottom				
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM — **1 - LIMNETIC**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	

SUBSYSTEM — **2 - LITTORAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

SUBSYSTEM — **P - PALUSTRINE**

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown
Bottom									
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME

Non-Tidal

A Temporarily Flooded
B Saturated
C Seasonally Flooded
D Seasonally Flooded/ Well Drained
E Seasonally Flooded/ Saturated
F Semipermanently Flooded
G Intermittently Exposed

Tidal

H Permanently Flooded
J Intermittently Flooded
K Artificially Flooded
W Intermittently Flooded/Temporary
Y Saturated/Semipermanent/ Seasonal
Z Intermittently Exposed/Permanent
U Unknown

CoastalHalinityInlandSalinitypHModifiersfor all Fresh Water

K Artificially Flooded
L Subtidal
M Irregularly Exposed
N Regularly Flooded
P Irregularly Flooded

*S Temporary-Tidal
*R Seasonal-Tidal
*T Semipermanent -Tidal
V Permanent -Tidal
U Unknown

*These water regimes are only used in tidally influenced, freshwater systems.

WATER CHEMISTRY

1 Hyperhaline
2 Euhaline
3 Mixohaline (Brackish)
4 Polyhaline
5 Mesohaline
6 Oligohaline
0 Fresh

7 Hypersaline
8 Eusaline
9 Mixosaline
0 Fresh

a Acid
t Circumneutral
i Alkaline

SOIL

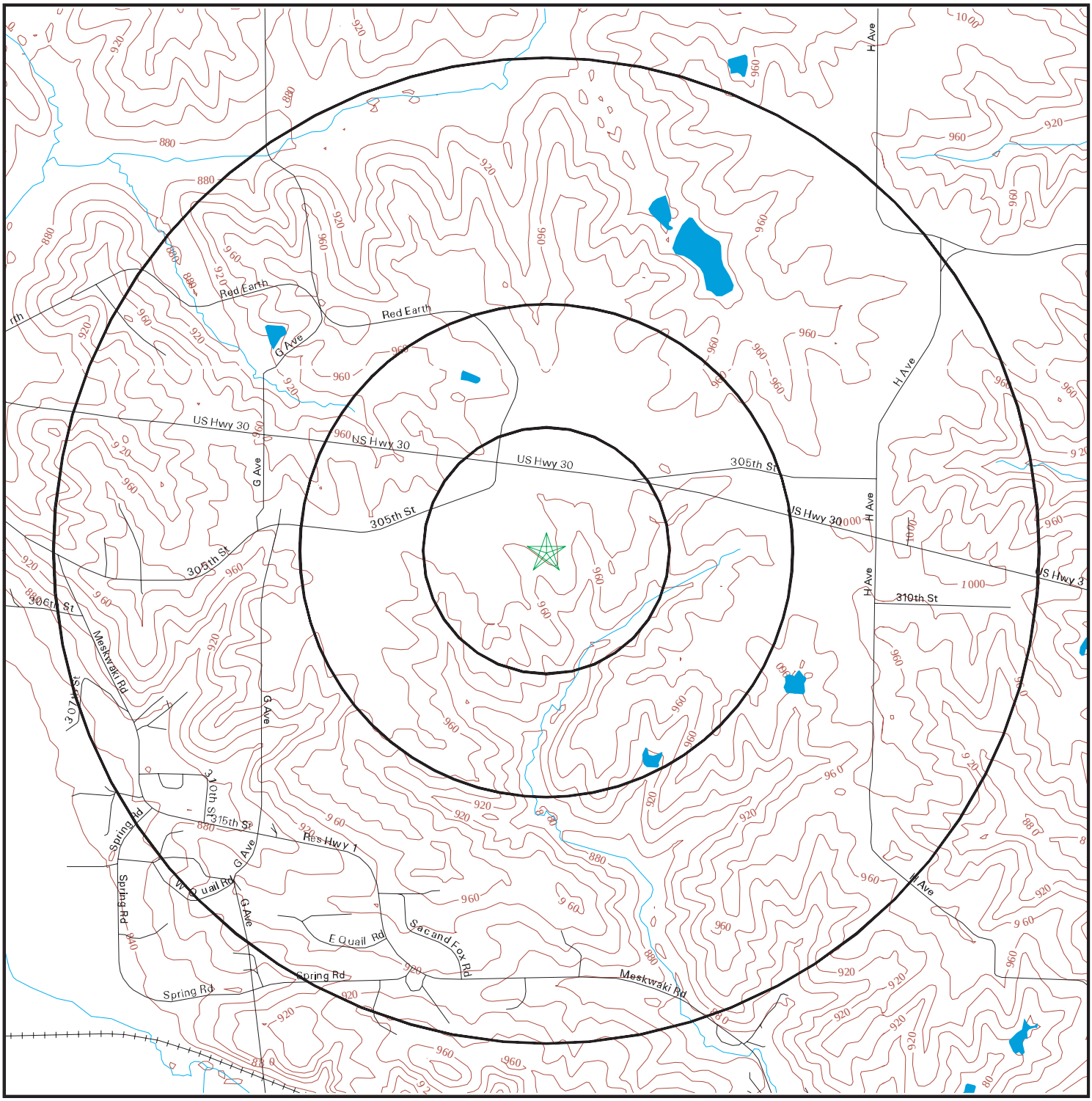
g Organic
n Mineral

SPECIAL MODIFIERS

b Beaver
d Partially Drained/Ditched
f Farmed
h Diked/Impounded
r Artificial Substrate
s Spoil
x Excavated

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



- Streets
- Contour Lines
- County Boundary
- Waterways
- Power Lines
- Water
- Sites

SITE NAME:	Meskwaki Reservation Wind Turbine	CLIENT:	Snyder & Associates, Inc.
ADDRESS:	305th Street Tama IA 52339	CONTACT:	Jeff Walters
		INQUIRY #:	3277930.3s
LAT/LONG:	41.9946 / 92.6383	DATE:	March 14, 2012

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database

No Sites Reported.

FCC & FAA SITES MAP FINDINGS
AIRPORTS

EDR ID
Database

No Sites Reported.

FCC & FAA SITES MAP FINDINGS
POWERLINES

EDR ID
Database

No Sites Reported.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

National Park Service, Midwest Region
1709 Jackson Street
Omaha, NE 68102
402-221-3471

USDA Forest Service, Eastern
310 West Wisconsin Avenue
Milwaukee, WI 53203
414-297-3693

BLM - Eastern States Office
7450 Boston Blvd.
Springfield, VA 22153
703-440-1713

Fish & Wildlife Service, Region 3
BHW Federal Building One Federal Drive
Fort Snelling, MN 55111-4056
612-713-5230

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 3
BHW Federal Building One Federal Drive
Fort Snelling, MN 55111-4056
612-713-5230

State Contacts for Additional Information

Dept. of Natural Resources 515-242-5948

Wild and scenic rivers

Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 3
BHW Federal Building One Federal Drive
Fort Snelling, MN 55111-4056
612-713-5230

Endangered Species

Government Records Searched in This Report

Endangered Species Protection Program Database
A listing of endangered species by county.
Source: Environmental Protection Agency
Telephone: 703-305-5239

IA Endangered Species: Endangered Species Occurrence Records
This coverage contains records of occurrences of threatened and endangered species and natural communities in the state of Iowa
Source: Dept. of Natural Resources.
Telephone: 515-281-3891

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 3
BHW Federal Building One Federal Drive
Fort Snelling, MN 55111-4056
612-713-5230

State Contacts for Additional Information

Natural Areas Inventory, Dept. of Natural Resources 515-281-8524

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES
Historic Places
Government Records Searched in This Report

National Register of Historic Places:
The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.
The National Register includes:
- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/23/2006

IA Historic Sites: Iowa National Register of Historic Places
Listing of historic sites included on the National Register of Historic Places for Iowa.
Source: Department of Cultural Affairs.
Telephone: 515-281-5111

Federal Contacts for Additional Information

Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information

State Historical Society of Iowa 515-281-8824

Indian Religious Sites
Government Records Searched in This Report

Indian Reservations:
This map layer portrays Indian administrated lands of the United States that have any area equal to or greater than 640 acres.
Source: USGS
Phone: 888-275-8747
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

State Contacts for Additional Information
A listing of local Tribal Leaders and Bureau of Indian Affairs Representatives can be found at:
http://www.doi.gov/bia/areas/agency.html

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management
Government Records Searched in This Report
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information
Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information
Iowa Emergency Management 515-281-3231

Wetlands Protection
Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2004 from the U.S. Fish and Wildlife Service.

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Dept. of Natural Resources 515-242-5948

Coastal Zone Management
Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report

Cellular
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

4G Cellular
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

Antenna Structure Registration
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

Towers
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

AM Antenna
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

FM Antenna
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

FAA Digital Obstacle File
Federal Aviation Administration (FAA)
1305 East-West Highway, Station 5631
Silver Sprinng, MD 20910-3281
Telephone: 301-713-2817
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

Airport Landing Facilities
Federal Aviation Administration
Telephone (800) 457-6656
Private and public use landing facilities.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Electric Power Transmission Line Data
Rextag Strategies Corp.
14405 Walters Road, Suite 510
Houston, TX 77014
281-769-2247
U.S. Electric Transmission and Power Plants systems Digital GIS Data.

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information
Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

OTHER CONTACT SOURCES

NEPA Single Point of Contact
State Contacts for Additional Information
Division of Community & Rural Development
Iowa Department of Economic Development
200 East Grand Avenue
Des Moines, IA 50309
515-242-4719

STREET AND ADDRESS INFORMATION

Meskwaki Reservation Wind Turbine
305th Street
Tama, IA 52339

Inquiry Number: 3277930.1s
March 14, 2012

The EDR Radius Map™ Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

305TH STREET
TAMA, IA 52339

COORDINATES

Latitude (North):	41.9946000 - 41° 59' 40.56''
Longitude (West):	92.6383000 - 92° 38' 17.88''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	529958.5
UTM Y (Meters):	4649026.5
Elevation:	985 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	41092-H6 MONTOUR, IA
Most Recent Revision:	1980
North Map:	42092-A6 GARWIN, IA
Most Recent Revision:	1971
East Map:	41092-H5 TAMA, IA
Most Recent Revision:	1980

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2009, 2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS ---------- Registry of Hazardous Waste or Hazardous Substance Disposal Sites

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Permitted Solid Waste Management Facilities

State and tribal leaking storage tank lists

LUST ---------- Leaking Underground Storage Tank Data
HIST LUST ---------- Leaking Underground Storage Tank Database
LAST ---------- Leaking Aboveground Storage Tank Sites
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ---------- Underground Storage Tank Data
AST ---------- Aboveground Storage Tank Sites
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL ---------- Sites with Institutional Controls

State and tribal voluntary cleanup sites

VCP ---------- Land Recycling Program Sites
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Brownfields Site Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
ALLSITES ---------- Contaminated Sites Tracking Database
DEL SHWS ---------- Delisted Contaminated Sites Listing
US HIST CDL ---------- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

LUCIS Land Use Control Information System
LIENS Liens Filed Listing

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
SPILLS Spills Database

Other Ascertainable Records

RCRA-NonGen RCRA - Non Generators
DOT OPS Incident and Accident Data
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
MINES Mines Master Index File
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
RADINFO Radiation Information Database
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System
DRYCLEANERS Iowa Drycleaner List
NPDES List of NPDES Permittees
AIRS Minor and Title V Sources Listing
TIER 2 Tier 2 Information Listing
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
COAL ASH DOE Sleam-Electric Plan Operation Data
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
COAL ASH Coal Ash Disposal Site Listing
FINANCIAL ASSURANCE Financial Assurance Information Listing
PCB TRANSFORMER PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

INDIAN RESERV: This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

A review of the INDIAN RESERV list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 INDIAN RESERV site within approximately 1 mile of the target property.

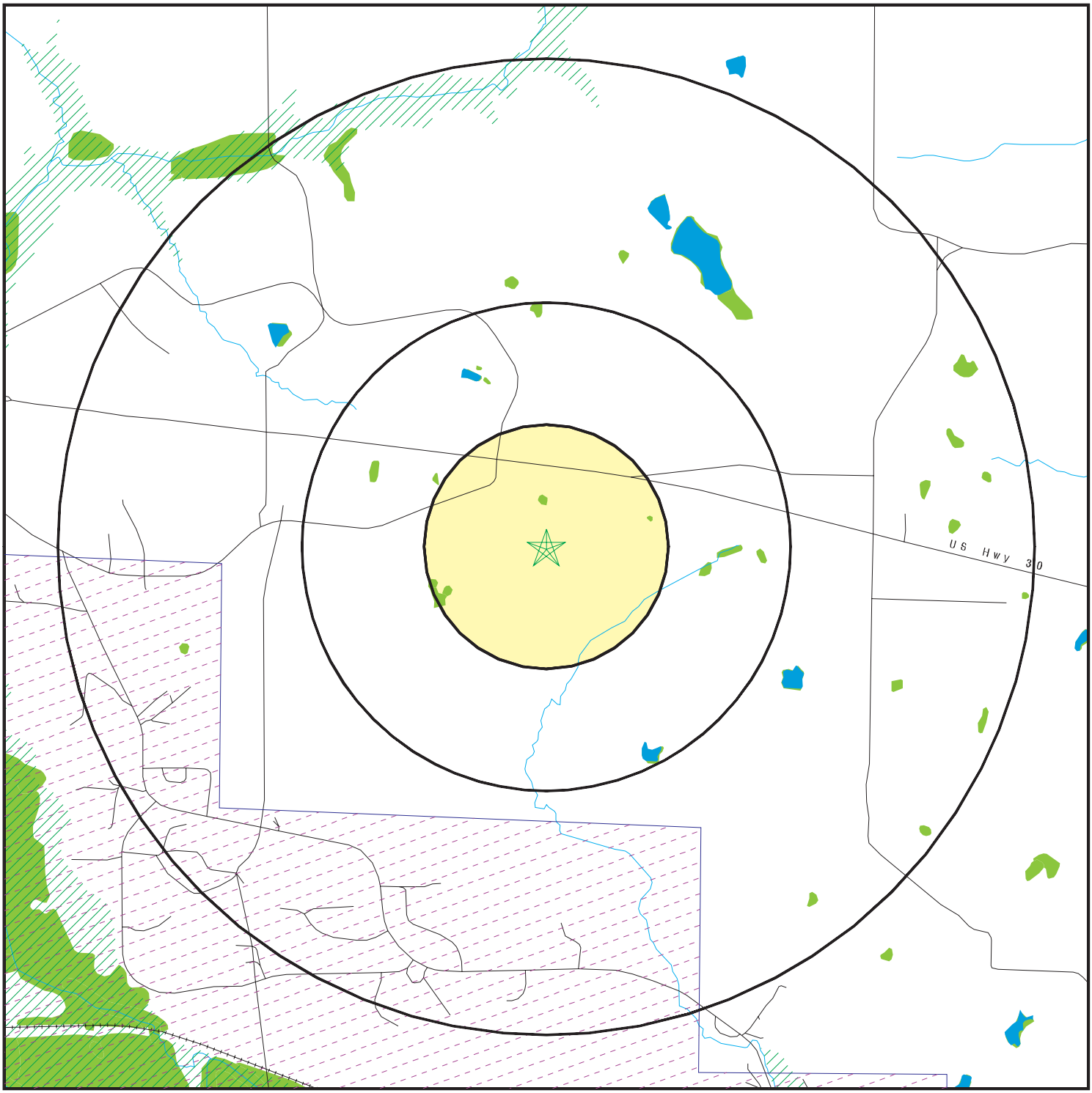
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAC AND FOX INDIAN RESERVATION		S 1/2 - 1 (0.562 mi.)	0	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 17 records.

Site Name	Database(s)
RICH FARMS INC	FINDS, LUST, UST
HOTH HILL	LUST, UST
CASEY'S GENERAL STORE #2653	LUST, UST, FINANCIAL ASSURANCE
FORMER SERVICE STATION	LUST
FORMER HORAK CHEVROLET DEALERSHIP	LUST
FORMER GAS STATION/POLICE STATION	LUST
ROYCE D HUTTON	UST
ARTHUR POSUSTA	UST
MURTY'S STANDARD	UST
MARK L KOUBA	UST
DON UPAH	UST
FRANK SEVICH	UST
FS FEEDS INC	UST
STEVE PODHAJSKY	UST
SAC & FOX TRIBE OF THE MISSISSIPPI	RCRA-NonGen, FINDS
K & K AUTO BODY & PAINT-FORMER SIT	RCRA-NonGen, FINDS
MIKE HORAKS CHEV OLDS INC - FSO	RCRA-NonGen, FINDS

OVERVIEW MAP - 3277930.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

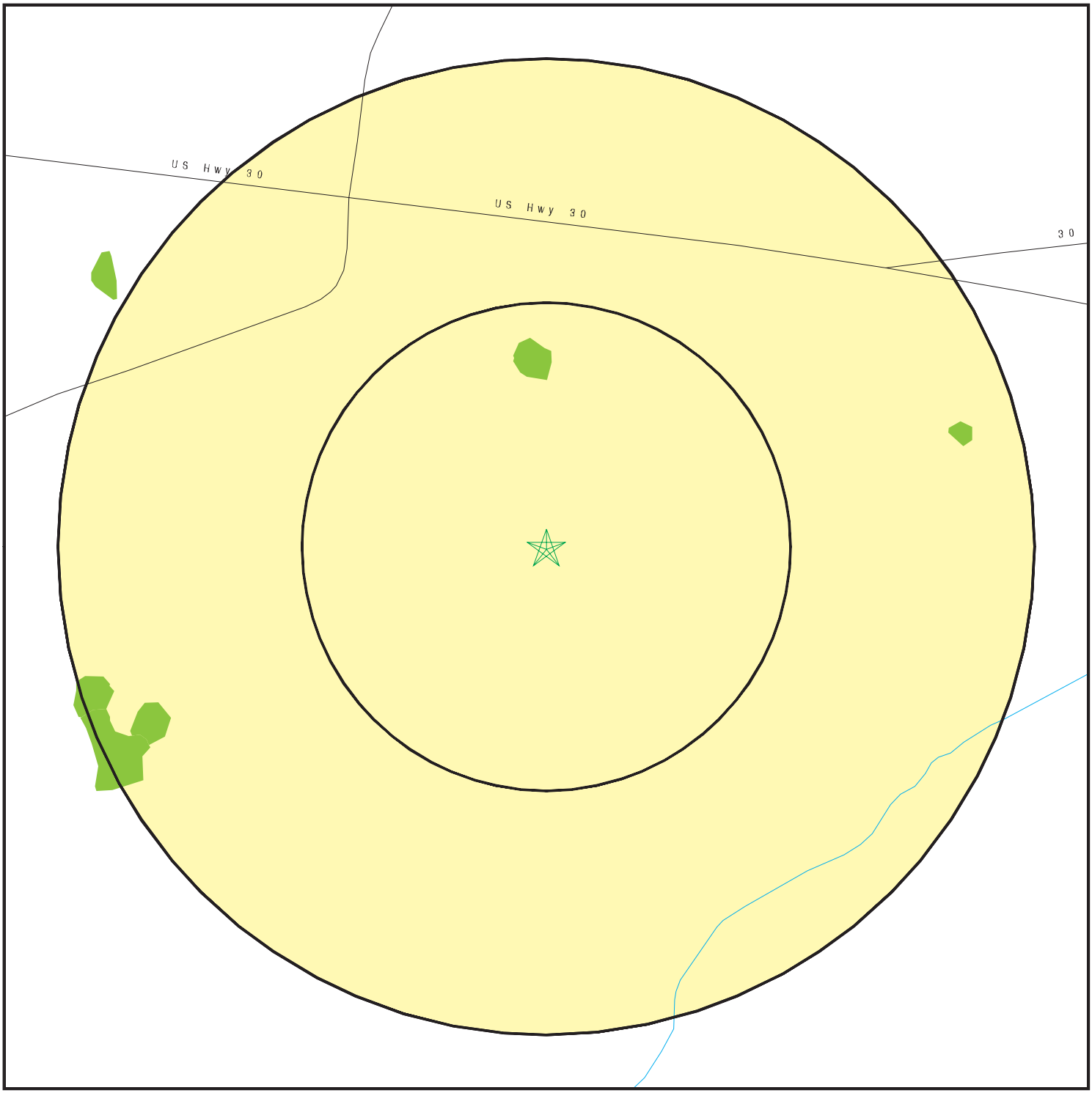
0 1/4 1/2 1 Miles

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Meskwaki Reservation Wind Turbine ADDRESS: 305th Street Tama IA 52339 LAT/LONG: 41.9946 / 92.6383	CLIENT: Snyder & Associates, Inc. CONTACT: Jeff Walters INQUIRY #: 3277930.1s DATE: March 14, 2012 6:19 pm

DETAIL MAP - 3277930.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Meskwaki Reservation Wind Turbine ADDRESS: 305th Street Tama IA 52339 LAT/LONG: 41.9946 / 92.6383	CLIENT: Snyder & Associates, Inc. CONTACT: Jeff Walters INQUIRY #: 3277930.1s DATE: March 14, 2012 6:19 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0
HIST LUST	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
ALLSITES	0.500		0	0	0	NR	NR	0
DEL SHWS	1.000		0	0	0	0	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
TIER 2	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	1	NR	1
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
FINANCIAL ASSURANCE	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants	1.000		0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

IND RES **SAC AND FOX INDIAN RESERVATION** **INDIAN RESERV** **CIND100225**
Region **N/A**
South
1/2-1
2967 ft. **SAC AND FOX INDIAN RESERV (County), IA**

INDIAN RESERV:
Feature: Indian Reservation
Name: Sac and Fox Indian Reservation
Agency: BIA
State: IA

Count: 17 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MONTOUR	1011285565	RICH FARMS INC	RT 2	50173	FINDS, LUST, UST
TAMA	U003640474	ROYCE D HUTTON	RTE 1 BOX 10	52339	UST
TAMA	U003639351	ARTHUR POSUSTA	RTE 1	52339	UST
TAMA	1004690867	SAC & FOX TRIBE OF THE MISSISSIPPI	ROUTE 2 BOX 56C	52339	RCRA-NonGen, FINDS
TAMA	U003169630	HOTH HILL	2095 E HWY 30	52339	LUST, UST
TAMA	U003171792	MURTY'S STANDARD	308 STATE STREET	52339	UST
TOLEDO	U003639763	MARK L KOUBA	RTE 1	52342	UST
TOLEDO	U003639933	DON UPAH	RTE 2	52342	UST
TOLEDO	U003638071	FRANK SEVICH	RTE 2	52342	UST
TOLEDO	U003638673	FS FEEDS INC	HWY 30 WEST	52342	UST
TOLEDO	U004134669	CASEY'S GENERAL STORE #2653	109 HWY 30 W	52342	LUST, UST, FINANCIAL ASSURANCE
TOLEDO	U003639271	STEVE PODHAJSKY	HIGHWAY 30	52342	UST
TOLEDO	1004690307	K & K AUTO BODY & PAINT-FORMER SIT	HWY 30 W GRANDVIEW DR	52342	RCRA-NonGen, FINDS
TOLEDO	1000197038	MIKE HORAKS CHEV OLDS INC - FSO	HWY 63S	52342	RCRA-NonGen, FINDS
TOLEDO	S111284205	FORMER SERVICE STATION	202 W HWY 30	52342	LUST
TOLEDO	S106059058	FORMER HORAK CHEVROLET DEALERSHIP	1003 S HWY 63	52342	LUST
TOLEDO	S109944160	FORMER GAS STATION/POLICE STATION	JUNCTION OF HWY 63RD & CARLTO	52342	LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 02/29/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 02/29/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/07/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 141

Source: EPA
Telephone: N/A
Last EDR Contact: 02/29/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/27/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/13/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/28/2011
Date Data Arrived at EDR: 02/27/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 14

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 08/19/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 132

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 913-551-7003
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 913-551-7003
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 913-551-7003
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 913-551-7003
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011
Date Data Arrived at EDR: 12/30/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/18/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Registry of Hazardous Waste or Hazardous Substance Disposal Sites

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/10/2012
Date Made Active in Reports: 03/07/2012
Number of Days to Update: 26

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 01/23/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Solid Waste Management Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/13/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 03/13/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Data

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 11/16/2011
Date Made Active in Reports: 11/28/2011
Number of Days to Update: 12

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

HIST LUST: Leaking Underground Storage Tank Database

A listing of leaking underground storage tank site locations with detailed information. The information is from the UST System Database which is no longer updated or current. It has been replaced by the LUST listing.

Date of Government Version: 05/03/2007
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 05/27/2009
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LAST: Leaking Aboveground Storage Tank Sites

A listing of leaking aboveground storage tank sites.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/10/2007
Date Made Active in Reports: 12/04/2007
Number of Days to Update: 55

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/07/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/01/2011
Date Data Arrived at EDR: 11/21/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 50
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Data
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 10/31/2011
Number of Days to Update: 27
Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Sites
Bulk fuel facilities, commercial fuel operations, private farm sites, and any other storage facility that meets the Department of Public Safety?s registration criteria. They register any class I, II or III petroleum product (gas, diesel and oil) above 1,100 gallons.

Date of Government Version: 12/21/2011
Date Data Arrived at EDR: 12/23/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 28
Source: Department of Public Safety
Telephone: 515-281-5821
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2011
Date Data Arrived at EDR: 11/21/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 50

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/28/2011
Date Data Arrived at EDR: 11/29/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 42

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 18

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/16/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls

Sites currently enrolled in the Land Recycling Program that have Institutional Controls.

Date of Government Version: 01/24/2012
Date Data Arrived at EDR: 01/24/2012
Date Made Active in Reports: 03/07/2012
Number of Days to Update: 43

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 01/24/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Land Recycling Program Sites

Sites currently enrolled in the Land Recycling Program.

Date of Government Version: 12/09/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/06/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Site Listing
Brownfields are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

Date of Government Version: 12/09/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38

Source: Department of Natural Resources
Telephone: 515-281-8489
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/27/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 10/07/2011
Date Data Arrived at EDR: 12/09/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 32
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/06/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Quarterly

ALLSITES: Contaminated Sites Tracking Database
All the sites included in the Contaminated Sites Tracking Database. The database includes several regulatory complinace programs and actions.

Date of Government Version: 12/09/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38
Source: Department of Natural Resources
Telephone: 515-281-4171
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Quarterly

DEL SHWS: Delisted Contaminated Sites Listing
A listing of sites delisted from the Contaminated Sites Listing.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 02/25/2011
Date Made Active in Reports: 03/28/2011
Number of Days to Update: 31
Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 01/23/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Annually

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

LIENS: Liens Filed Listing

A listing of liens filed with the Iowa Comprehensive Petroleum Underground Storage Tank Fund.

Date of Government Version: 02/13/2012
Date Data Arrived at EDR: 02/14/2012
Date Made Active in Reports: 03/07/2012
Number of Days to Update: 22

Source: Department of Natural Resources
Telephone: 515-281-5523
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/03/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Annually

SPILLS: Spills Database

Spill reporting data that is collected during the initial report of an incident.

Date of Government Version: 12/13/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38

Source: Department of Natural Resources
Telephone: 515-281-4367
Last EDR Contact: 03/13/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/10/2011
Date Data Arrived at EDR: 01/05/2012
Date Made Active in Reports: 03/12/2012
Number of Days to Update: 67
Source: Environmental Protection Agency
Telephone: 913-551-7003
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 94
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/07/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62
Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 01/25/2012
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 36
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/27/2011
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/28/2011
Date Data Arrived at EDR: 12/14/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 27
Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/14/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/28/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/07/2012
Next Scheduled EDR Contact: 06/18/2012
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/28/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/27/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012
Date Data Arrived at EDR: 01/12/2012
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 49

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/12/2012
Next Scheduled EDR Contact: 04/23/2012
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 79

Source: EPA
Telephone: (913) 551-7003
Last EDR Contact: 03/13/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Biennially

DRYCLEANERS: Iowa Drycleaner List

A listing of drycleaners in Iowa.

Date of Government Version: 02/26/2009
Date Data Arrived at EDR: 02/27/2009
Date Made Active in Reports: 04/02/2009
Number of Days to Update: 34

Source: Department of Natural Resources
Telephone: 515-242-5100
Last EDR Contact: 01/23/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

NPDES: List of NPDES Permittees

The files listed below contain information on facilities that hold NPDES permits, or those that are authorized to discharge wastewater to surface waters in Iowa.

Date of Government Version: 01/31/2012
Date Data Arrived at EDR: 02/20/2012
Date Made Active in Reports: 03/07/2012
Number of Days to Update: 16

Source: Department of Natural Resources
Telephone: 515-281-4736
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

AIRS: Minor and Title V Sources Listing
A listing of Minor and Title V sources.

Date of Government Version: 12/15/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-281-8468
Last EDR Contact: 12/15/2011
Next Scheduled EDR Contact: 04/02/2012
Data Release Frequency: Varies

TIER 2: Tier 2 Information Listing
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 04/12/2011
Date Made Active in Reports: 05/19/2011
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-725-0302
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: N/A

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
Information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay

Date of Government Version: 12/13/2011
Date Data Arrived at EDR: 12/14/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/28/2011
Number of Days to Update: 55

Source: Department of Natural Resources
Telephone: 515-242-5086
Last EDR Contact: 03/12/2012
Next Scheduled EDR Contact: 06/25/2012
Data Release Frequency: Quarterly

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/08/2011
Next Scheduled EDR Contact: 03/26/2012
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/18/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing

A listing of coal combustion residue landfill locations.

Date of Government Version: 12/13/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 01/20/2012
Number of Days to Update: 38

Source: Department of Natural Resources
Telephone: 515-281-8308
Last EDR Contact: 03/13/2012
Next Scheduled EDR Contact: 03/26/2012
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/21/2011
Date Data Arrived at EDR: 11/22/2011
Date Made Active in Reports: 12/22/2011
Number of Days to Update: 30

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/20/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 22

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/10/2012
Date Data Arrived at EDR: 02/09/2012
Date Made Active in Reports: 03/09/2012
Number of Days to Update: 29

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/09/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/24/2011
Date Made Active in Reports: 06/30/2011
Number of Days to Update: 6

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/15/2011
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/19/2011
Next Scheduled EDR Contact: 04/02/2012
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facilities
Source: Department of Human Services
Telephone: 515-281-4357

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION