The Impact Of Power Transmission Lines On Rural Residential Property Values

Prepared For

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1.0 INTRODUCTION

1.1 BACKGROUND

Electricity is generated primarily from coal in certain rural locations in Alberta. The electricity is then used in all of the developed urban and rural areas of the province, with the largest cities in Alberta, Edmonton and Calgary being the primary users. The transportation of the electricity through transmission lines, must travel from where it is generated to the user. Therefore, it must also traverse through rural areas near these cities, within developed rural residential subdivisions, to be distributed to the cities residential, industrial and commercial users. The transmission of electricity to the user has been carried out throughout the province for many years and demand has grown with the growth in residential and industrial usage. Many of these lines cross private lands by way of easements or other forms of rights-of-way. For the purposes of this study, 240 to 500 kV transmission lines currently in place have been utilized.

The Alberta economy has grown at tremendous rates over the past ten years, and so too has the population and industrial development. This growth requires increases in power generation which results in an increase in the demand for the transmission of power. Due to this demand, new transmission lines are being proposed and the routing and construction of new 500 kV lines are in the planning stages. Within rural residential subdivisions, the lots are adjacent to these rights-of-way, and therefore do not have their property physically encumbered. However, as new lines are required, concerns are raised by landowners adjacent to existing and proposed new developments, as to the potential negative impact these lines may have on the value of their lands. One of the most prevalent questions posed: “Is there any impact on the value of my property due to the proposed line?” To address this question, the appraisers will be studying existing lines and determine if any impact exists to buyers and sellers of rural residential acreage properties adjacent to power transmission line rights-of-way.

1.2 OBJECTIVES AND SCOPE

Serecon Valuation & Agricultural Consulting Inc. has been asked to determine, if possible, if there is any impact on the value of residential property on rural acreages in Alberta, resulting from power transmission lines being located adjacent to these properties. This request is summarized into the following objective:

- To determine if there is an impact from existing adjacent power transmission lines on the market value of unencumbered improved and unimproved existing rural residential acreage properties.

Serecon completed the study based on the following assumptions and scope.

To address this objective, the study included analyzing various developed multi-unit subdivisions in rural municipalities in close proximity to the Calgary and Edmonton metropolitan areas, which then provided a broad cross section of market areas. AltaLink provided maps indicating where their existing transmission lines crossed through or adjacent to existing rural multi-unit residential subdivisions. In total, over 20 subdivisions were researched for recent sales activity. Properties were analyzed that are located adjacent to these existing 240 kV and 500 kV lines to determine recent sales activity. Of this total, 16 subdivisions had one or more arm's-length sale of properties adjacent to the transmission lines.

The Edmonton area subdivisions with sales included:

- Parkland County (west of Edmonton) – 10 subdivisions
- Strathcona County (east of Edmonton) – 3 subdivisions.

The Calgary area subdivisions with sales included:

- Municipal District of Rocky View (west, north and east of Calgary) – 3 subdivisions.

To determine the impact (if any) on existing rural residential properties adjacent to a transmission line right-of-way, we completed the following analysis:

- sales of bareland (unimproved) acreage lots;
- sales of improved acreage lots; and,
- a quantitative and qualitative analysis.

2.0 STUDY METHODOLOGY

As indicated within the scope of this study, Serecon will attempt to complete a comprehensive analysis of market participants, to address the impact of existing power transmission lines on rural residential acreage property values within multi-unit subdivisions. This was completed by analyzing sales information and interviewing market participants.

The following analysis will combine statistical techniques with a "common sense" market driven approach to analyze the question of impact.

The study methodology is based on proven approaches utilized by Serecon in undertaking similar land use and impact studies, primarily emphasizing first hand buyer/seller opinions and hard data. There are many potential methods but in our opinion the three most supportable approaches to address the impact or influence of any one market factor or feature on the market value of residential properties, and utilized in this study, is outlined as follows:

- **Quantitative Analysis – Paired Sales:** This approach in many cases is utilized as part of a statistical or quantitative study. This approach takes "like rural residential properties", one with a transmission line adjacent to it, and compares it to another "like property" that sold in a "control" area, or that sold without an adjacent transmission line. The properties must have similar market features, including: time of sale; physical and locational features; access; residence size, age; lot size, etc. The properties are compared and this comparison should identify any difference in value between the properties. If the only major difference between the properties is the powerline, then one should then be able to identify the impact of the power transmission line and its influence on the market value.

  The criteria utilized for the "paired sales" data collection and analysis, in the appraisers' opinion, provides the basis for reliability in the results regarding an indication of any impact of the transmission line on value. If the lands including building improvements are comparable with the exception of the one factor, the powerline, this should be a reliable approach that reflects market participants opinions. The criteria in establishing the comparable "control zone" or "off line" sales were as follows:

  - an arm's-length sale; exposed to the open market;
  - a similar lot size, lot shape, configuration and orientation;
  - a similar size and age of residence;
  - similar residential features and development;
  - the same or similar date of sale; and,
  - an analysis of motives involved in the transaction to determine any factors that may have influenced the price paid in one transaction versus the other.

- **Qualitative Analysis:** This approach involves compiling market transactions which meet the study criteria, and then surveying the market participants through a questionnaire to identify whether actual market participants perceive any impact of power transmission lines on property values. The market participants utilized are the vendors/purchasers of the subject property sales utilized in the paired sale analysis, as well as those "on line" sales within those same subdivisions where a paired sale could not be found. The data compiled through interviewing these participants under these circumstances will provide further support to draw conclusions.
- **Statistical Analysis:** Though the sample size utilized within this study will not be large, it will be complete, containing all sales within a certain time frame in these subdivisions. A statistical analysis will be carried out comparing the sale price of "on line" versus "off line" sales. This analysis will determine if statistically there is any significance in the difference in values between "on line" and "off line" sales.

2.1 DEFINITIONS

- **Adjacent Property:** A property whose boundary directly abuts the transmission line, in this case the transmission line does not actually cross the boundaries of the property, rather it runs along the edge of the property. These properties have been considered "on line" sales.
- **Encumbered Property:** A property which is covered to some extent by the transmission line right-of-way. The transmission line right-of-way will be registered on the title of this type of property. These properties have been considered "on line" sales.
- **Unencumbered Property:** A property that is neither adjacent to or encumbered by a transmission line right-of-way. This property will be considered "off line" and thus unaffected by the transmission line right-of-way.
- **Multi-Unit Subdivision:** A rural residential subdivision containing 10 or more lots.
- **"On Line" Sale:** A transfer of an acreage property between 1 and 10 acres which is either adjacent to, or encumbered by a transmission line right-of-way.
- **"Off Line Sale":** A transfer of an acreage property between 1 and 10 acres which is neither adjacent to nor encumbered by a transmission line right-of-way.

3.0 QUANTITATIVE ANALYSIS – PAIRED SALES COMPARISON

3.1 METHODOLOGY

As indicated previously, the basic premise behind this approach is the process of comparing the sale prices of like properties that have the same physical characteristics and locational features; one considered an "on line" sale due to the fact it is adjacent to a transmission line, and the comparable an "off line" sale not adjacent to a transmission line. Due to the small sample of sales, a statistical analysis could only be completed on the total sample, not by specific region. In the appraisers' opinion, if adequate comparables are utilized and the comparison is made based on sound appraisal principles, this approach provides supportable conclusions based on the reactions of market participants, with respect to any impact of the transmission line on improved and unimproved rural residential values.

In the appraisers' opinion, a determination had to be made as to whether it was possible to complete "paired sales" comparisons on sales where there are significant building improvements. As the residence is the most important and most valuable feature of the properties, the major limitation would be whether properties with truly comparable houses could be found. The premise behind the "paired sales comparative approach", is to analyze like sales and to limit or minimize any adjustments for different features between the properties, leaving as much as possible only the unadjusted difference to be the presence of transmission line on or immediately adjacent to the subject property. The residence types, size, age, lot size and shape, must be similar to conduct a paired comparison analysis. Many of the rural subdivisions were developed in the mid to late 1970's with minimal architectural controls, therefore the residences can be very dissimilar. In order for the paired sales analysis to provide accurate and meaningful results, the appraiser must be sure to include only adjustments which are proven to be justified by market evidence. Wherever possible, subjective adjustments should be avoided. Adjustments are most accurate when made to quantifiable details of the properties such as house size and age, and lot size. These adjustments are also more accurately determined by other market activity.

Some subjective adjustments may still be warranted, such as adjusting for features such as walkout basements, fireplaces, ensuite and additional bathrooms, etc., where market evidence can support the adjustments to be applied and their quantum.

If significant subjective adjustments are required for differences, and if the houses are not generally similar, it can defeat the purpose of this approach. Therefore, the appraisers have limited the paired comparison to those "on line" and "off line" sales that can be considered comparable, where the

adjustments required are primarily objective and their quantum can be based on market evidence. This obviously is very difficult due to the differences in building improvements.

The following steps provide the process undertaken in completing the "paired sales" analysis:

- As previously indicated, certain transmission lines were identified in rural municipalities adjacent to the Cities of Calgary and Edmonton. All multi-unit rural subdivisions were identified in which the lines cross. Sales of acreages along these lines within these subdivisions were researched. Due to the changing market conditions, we first researched only recent sales, those sales that occurred between 2004 and 2006. In the initial research, there was an inadequate number of sales in this time period; therefore, we researched back to 2002 in these same subdivisions. Data was researched through the Edmonton Real Estate Board (EREB) and Calgary Real Estate Board (CREB) to confirm and provide accurate data regarding the characteristics of the acreage and residence (size, style, age, lot size, sale price, etc.).
- To have an adequate number of sales from which to draw conclusions, the appraisers attempted to look at all sales within these subdivisions over that four plus year period.
- Once certain "on line" sales were identified and divided into improved and unimproved acreages, then all sales were researched through the EREB and CREB throughout these same specific subdivisions to identify comparable sales. These comparable sales were reduced to only those that provided the best direct comparison to the "on line" sales.
- All sales were mapped and inspected to confirm that the data provided was accurate and that the sales "on line" and "off line" were comparable and provided the basis for a true "paired sales" analysis. After inspection, the comparables were reduced to the one true comparable.
- As indicated, we attempted to identify comparables which sold at the same time, with a similar size and age of house, etc. However, even if a similar house was found with respect to size and age, other adjustments were still required for any differences in features in the house, service buildings, and lot configuration/size/orientation, etc. As indicated these adjustments were minimized by producing the most comparable property sales. Time adjustments were made based on changes in value within that particular region.
- Adjustments:
  - Time adjustments were made on the basis of 1% per month in difference between the date of sale of the comparable and the subject. The overall time adjustment of 12% per year was obtained from Edmonton and Calgary Real Estate Board sales statistics.
  - Size adjustments were made by finding the difference in house size (in square feet) and applying an adjustment to compensate for the standard cost of this difference in square footage between the comparable and the subject.
  - Lot size adjustments were made based on applying a standard cost adjustment to the difference between the lot size of the comparable and the subject.

- Other adjustments were made for items such as: additional fireplaces and bathrooms; differences in size and or finish of the garages; differences in finishing of basement and whether the basement was a walkout; other features such as decks, ponds, hot tubs; and differences in septic systems. The quantum of these adjustments was determined by applying the standard difference in cost between the comparable and the subject.

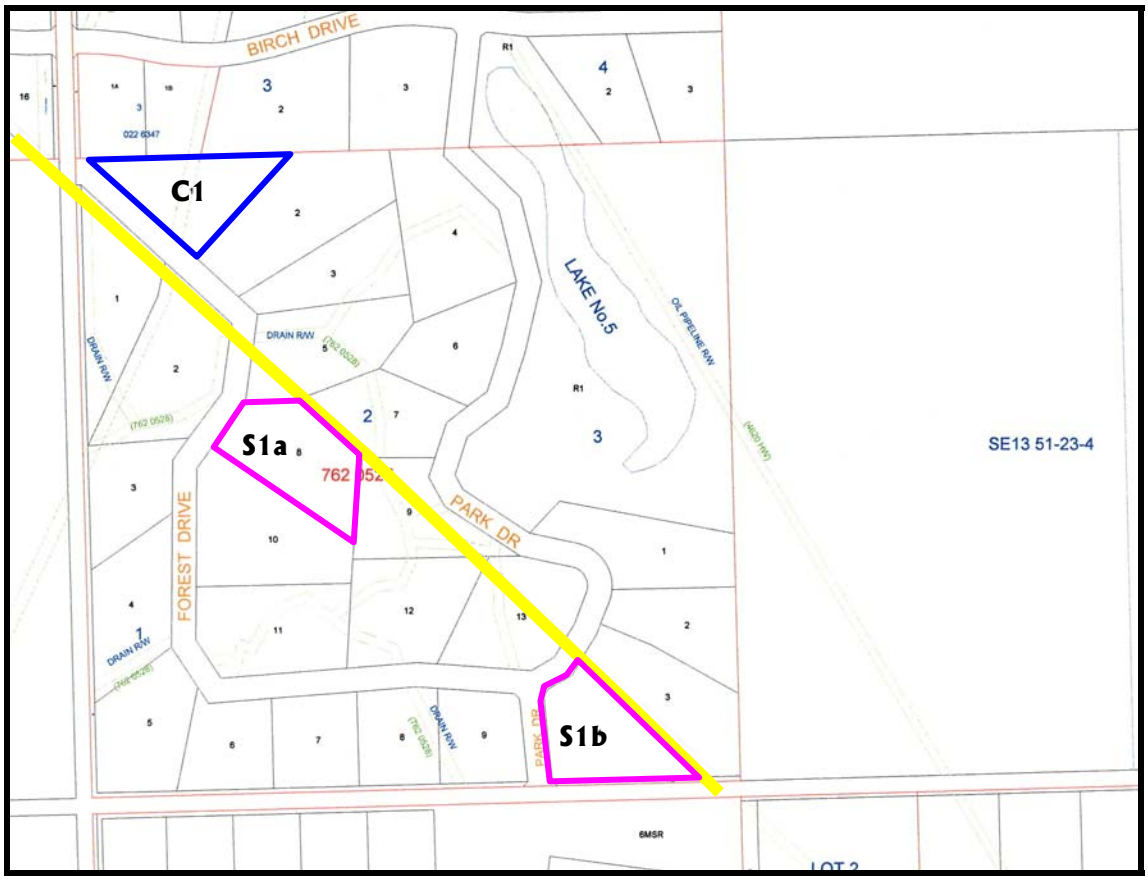
The adjustments are as outlined on the tables on pages 17, 18 and 19 of this report.

3.2 FINDINGS

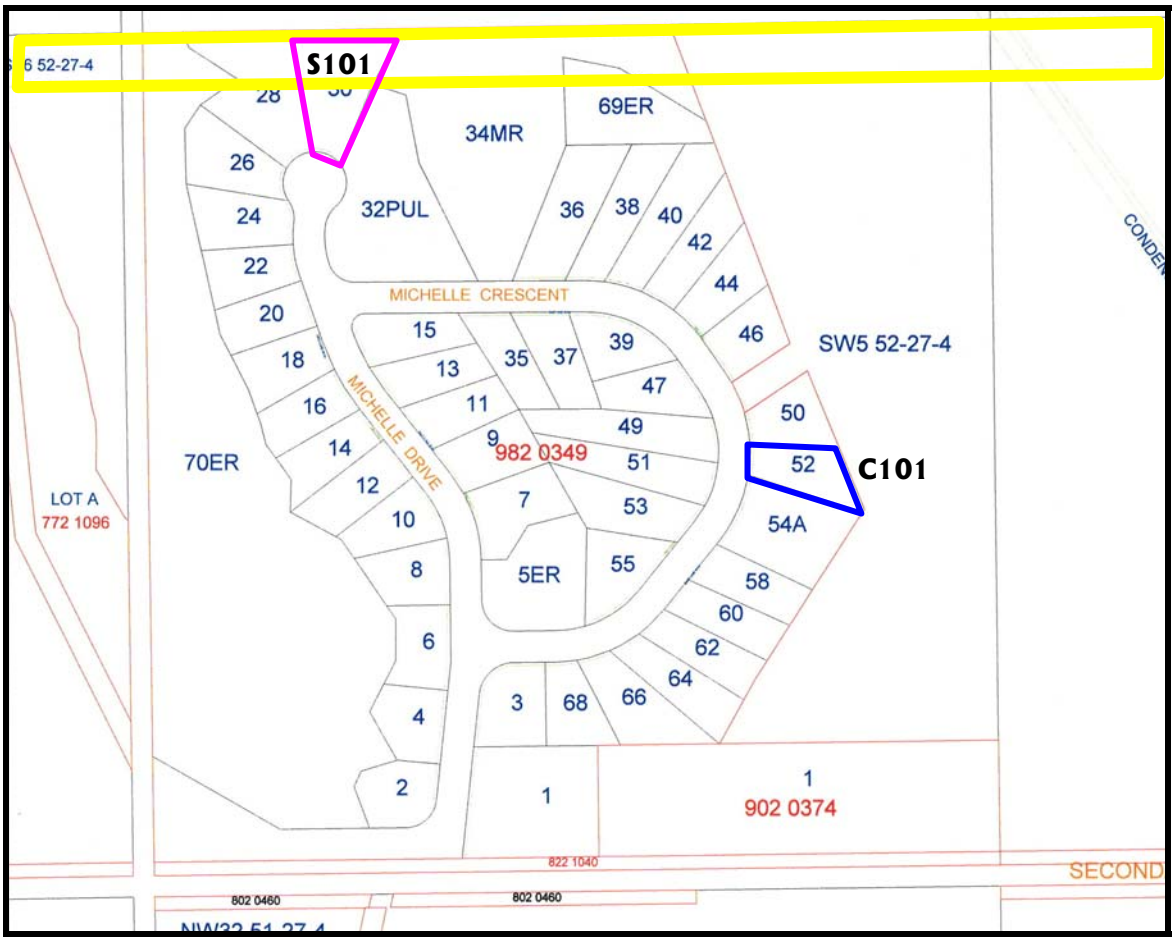
The following maps identify those rural subdivisions studied where "on line" arm's-length sales were found. The maps provide the "on line" sales and the "off line" or comparable sales utilized to complete the paired sale comparisons.

Following the maps are two tables. These tables provide the analysis of differences and adjusted values, providing the ultimate difference in sale price between the "on line" property and the comparable "off line" property.

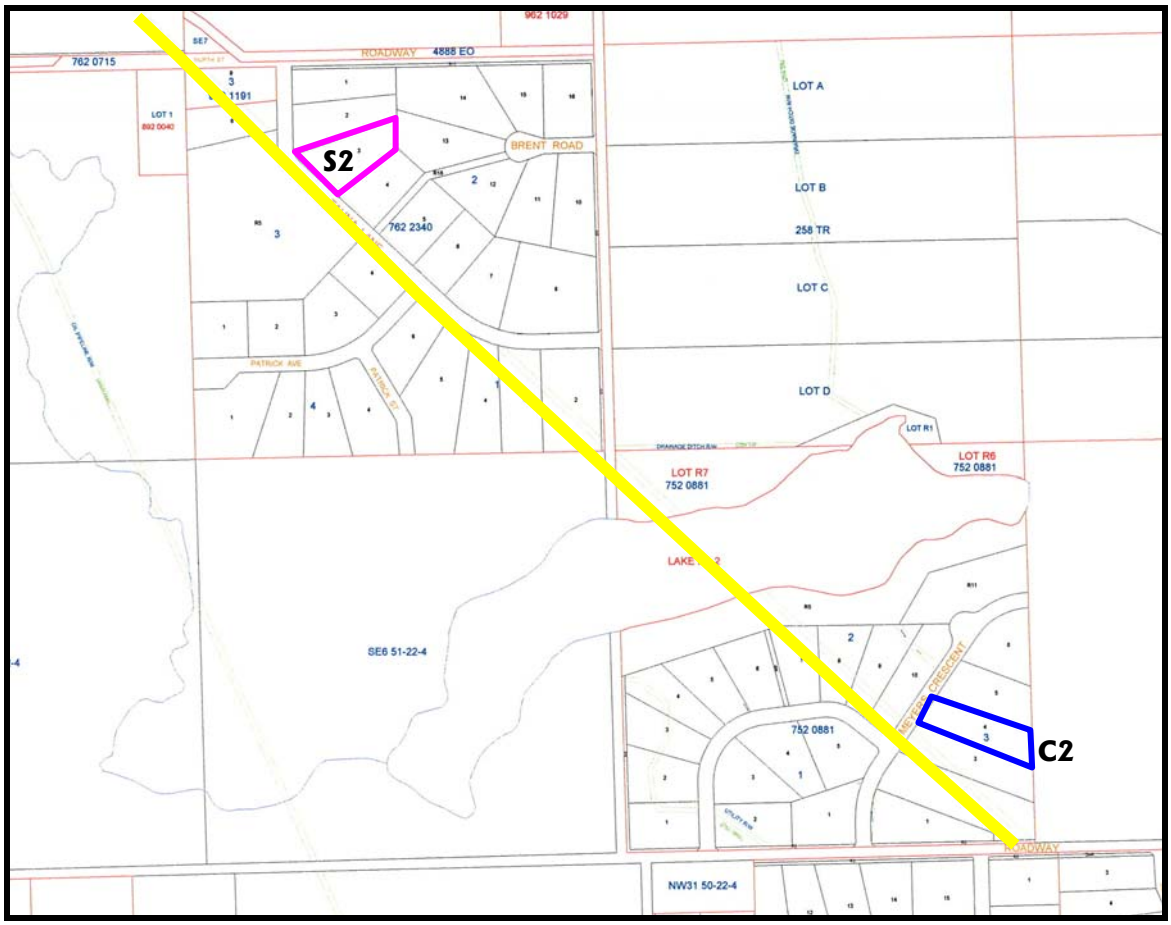
Strathcona County – SW 13-51-23-W4



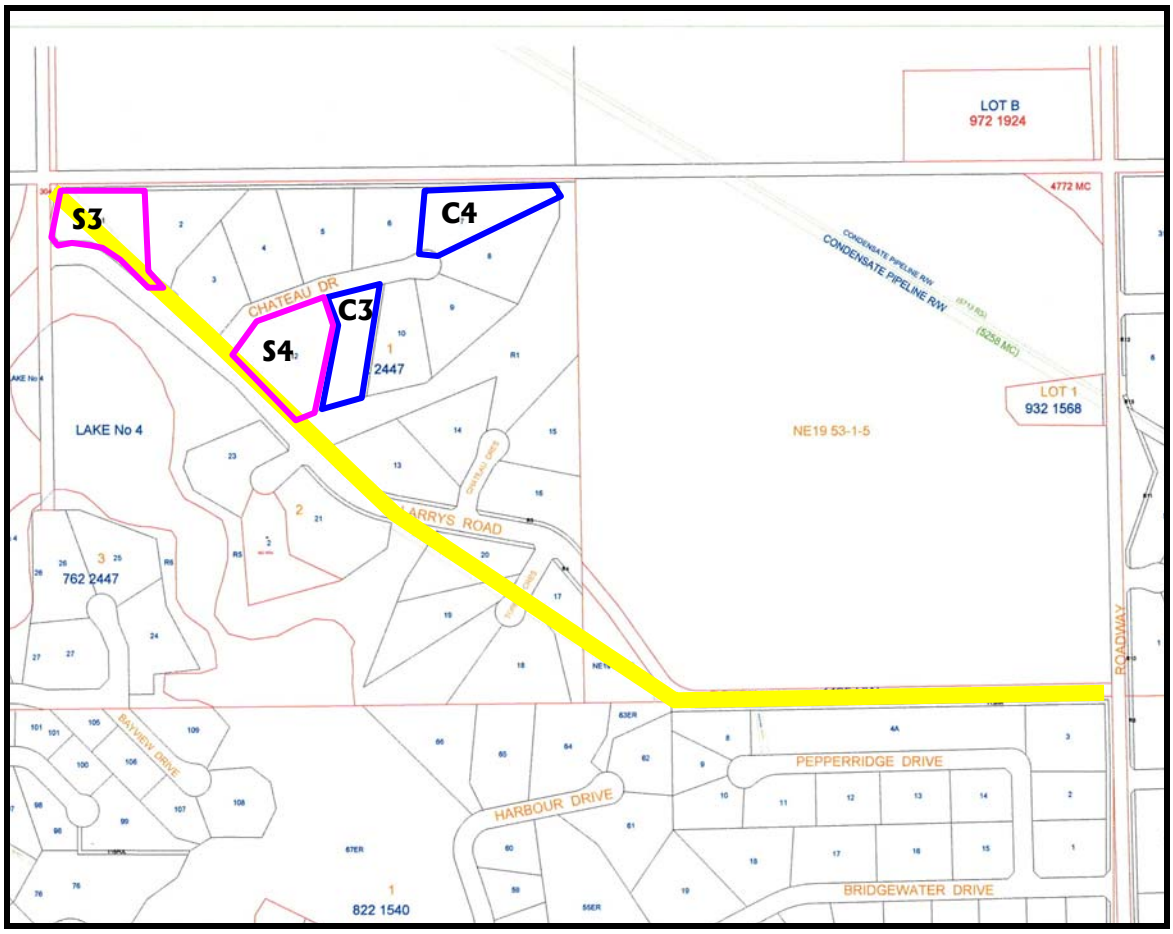
Parkland County – SW 5-52-27-W4



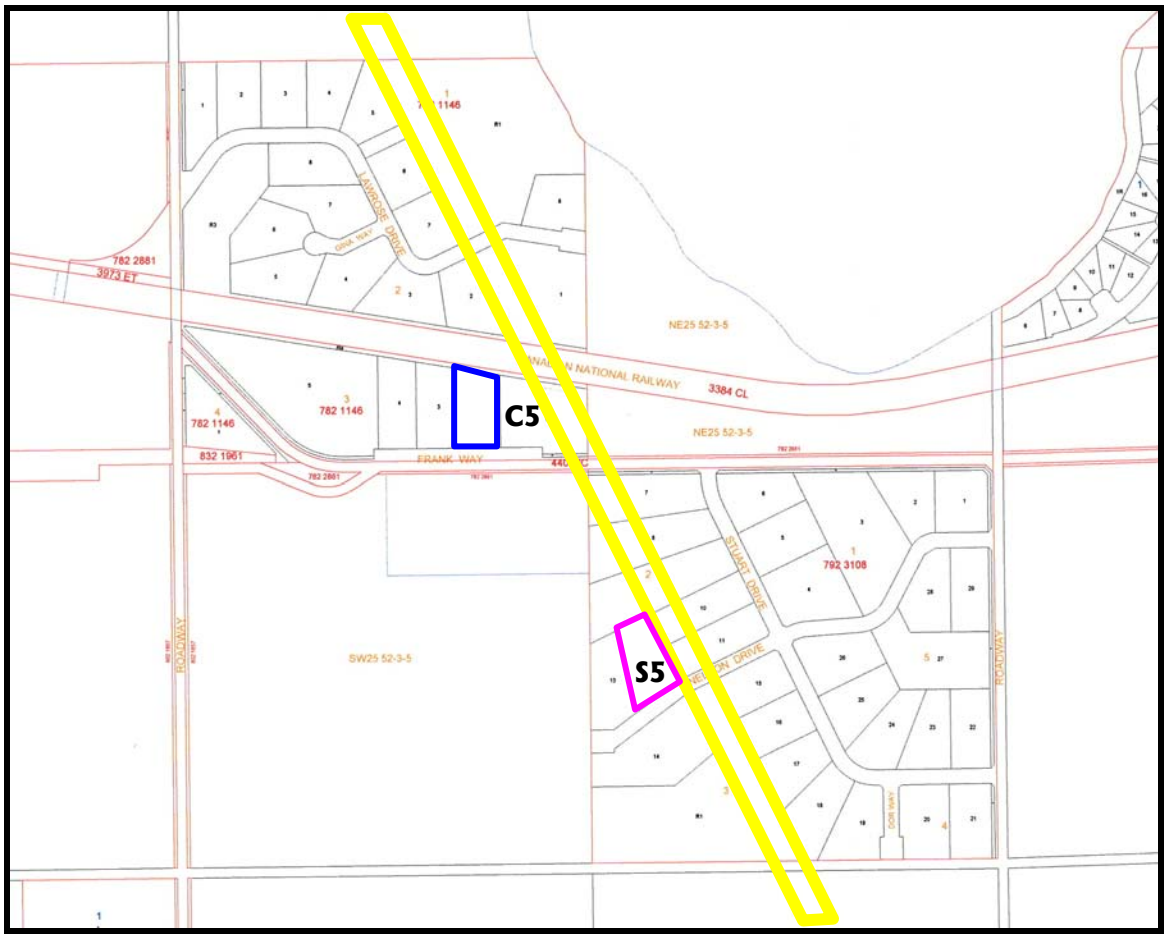
Strathcona County – NE 6, SW 5-51-22-W4



Parkland County – N ½ 19-53-1-W5



Parkland County – Section 25-52-3-W5



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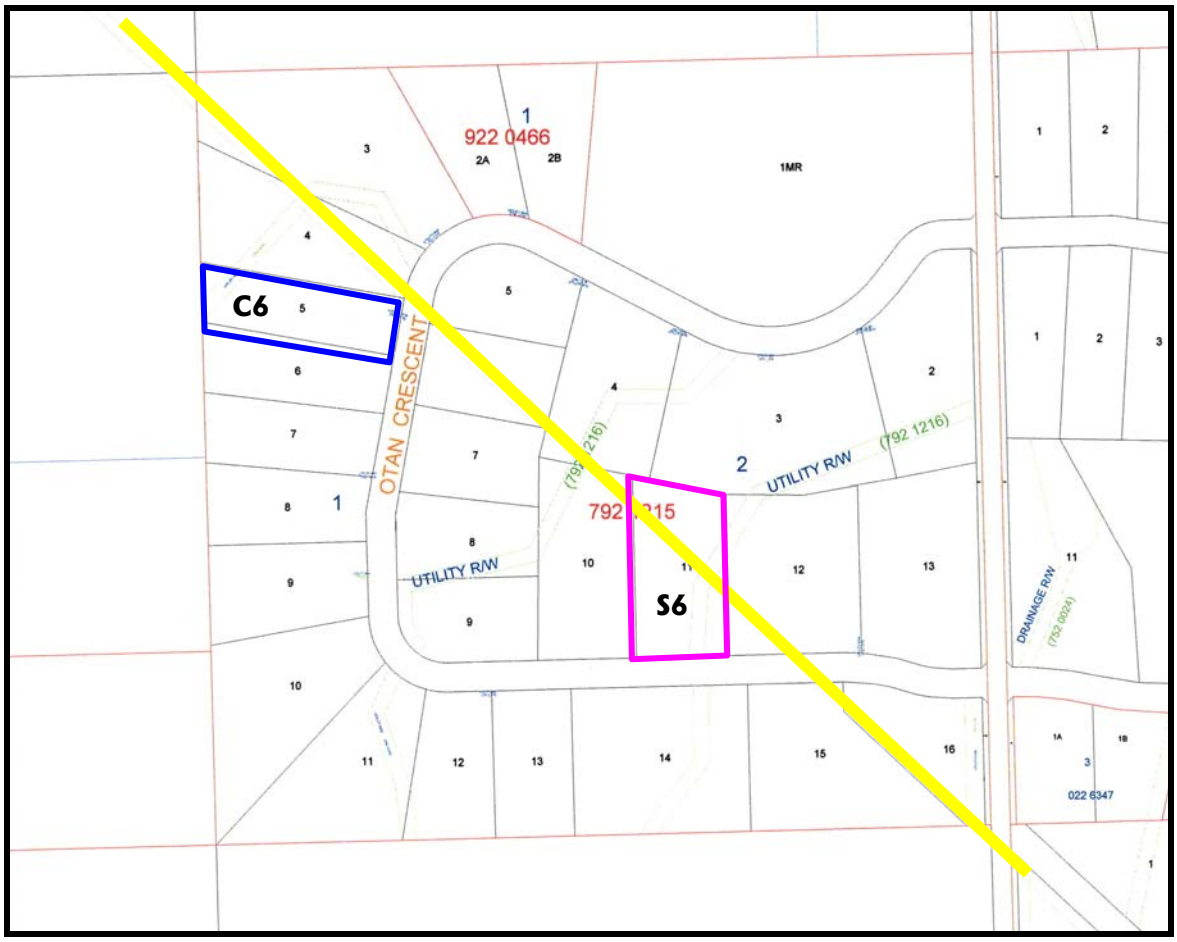
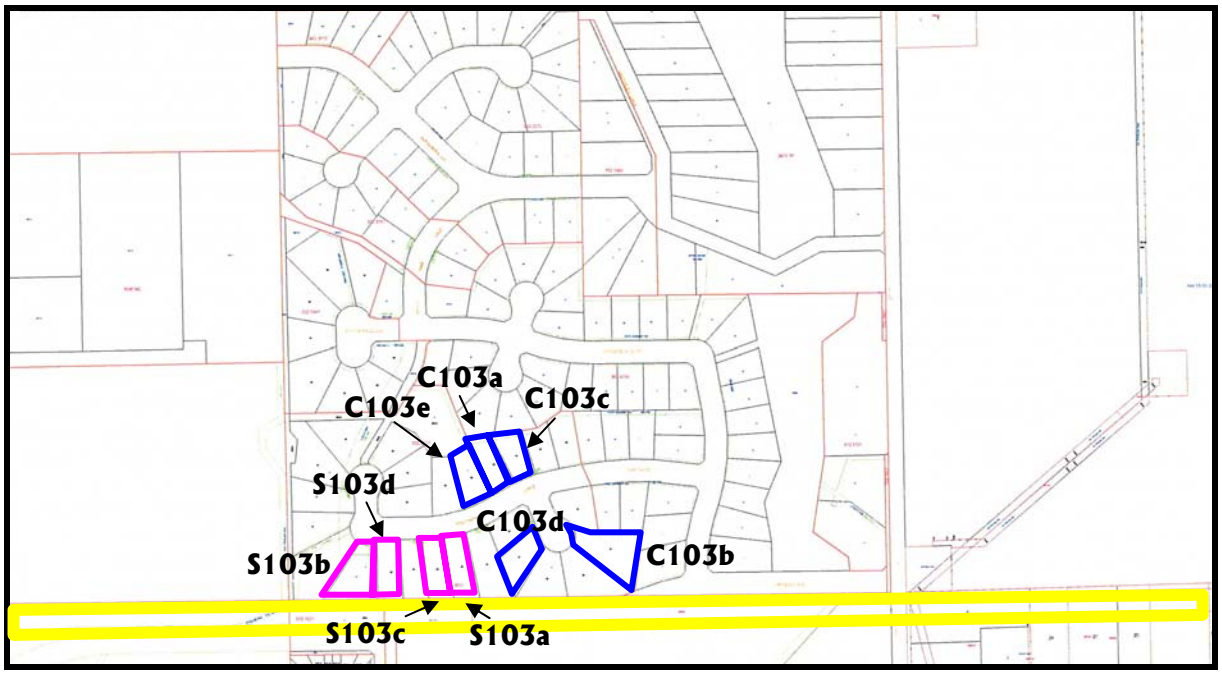
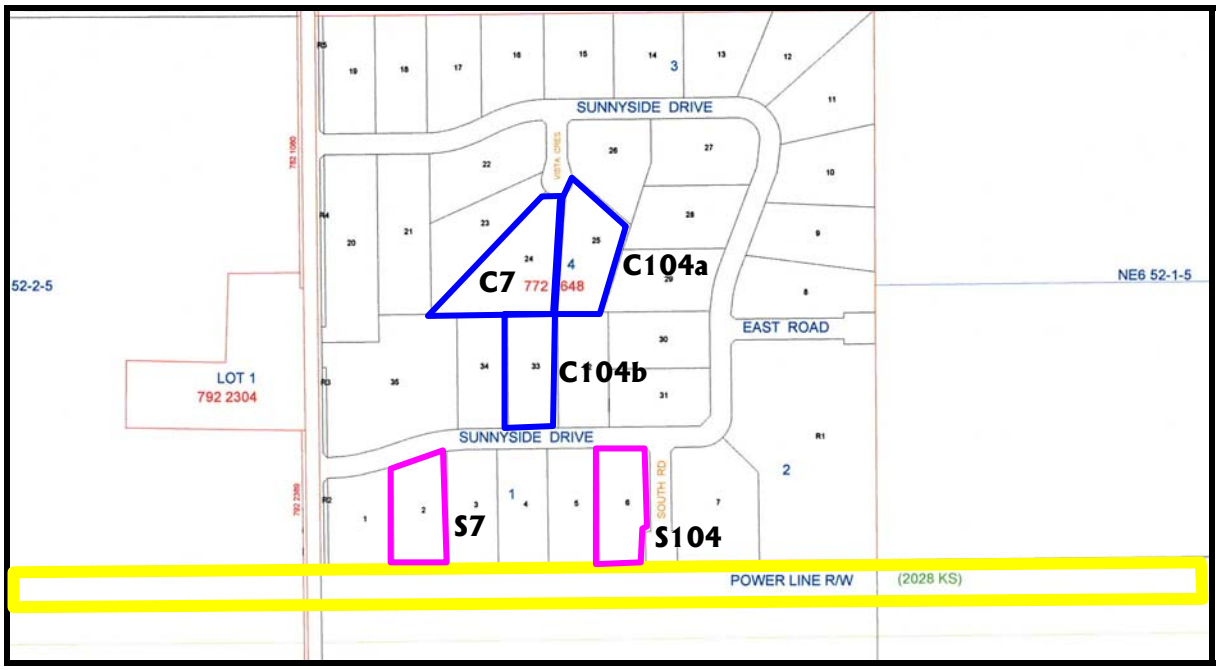


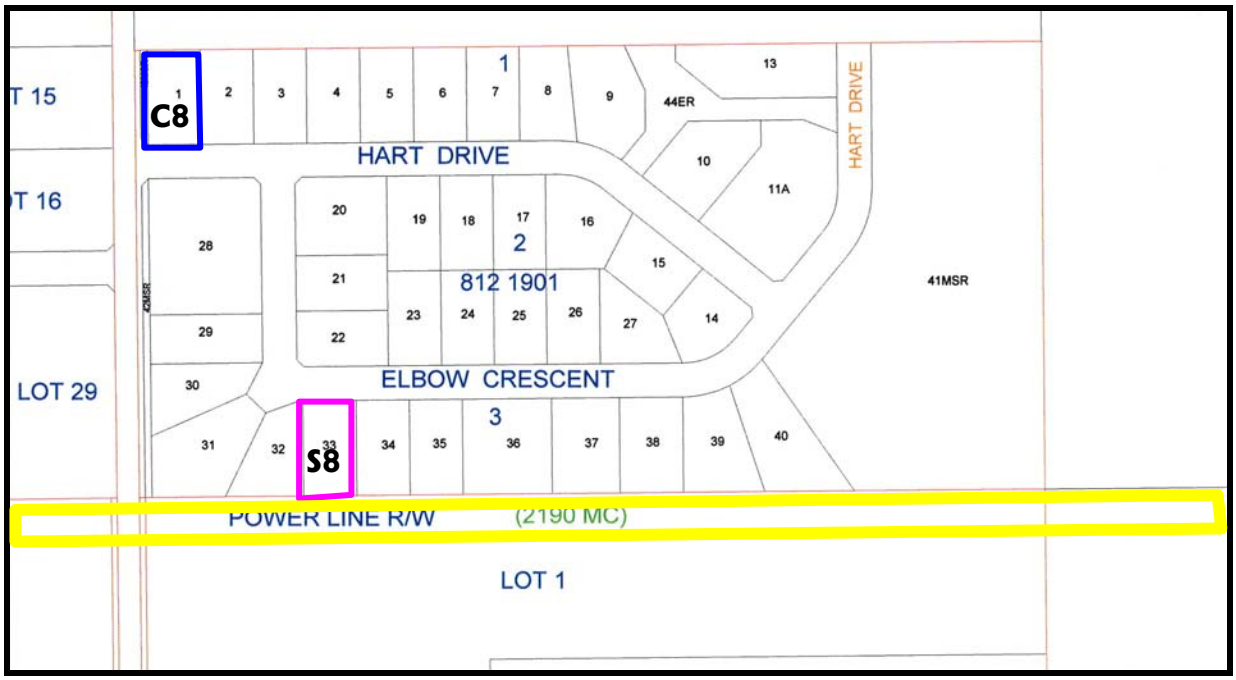
Parkland County – NE 14-53-26-W4



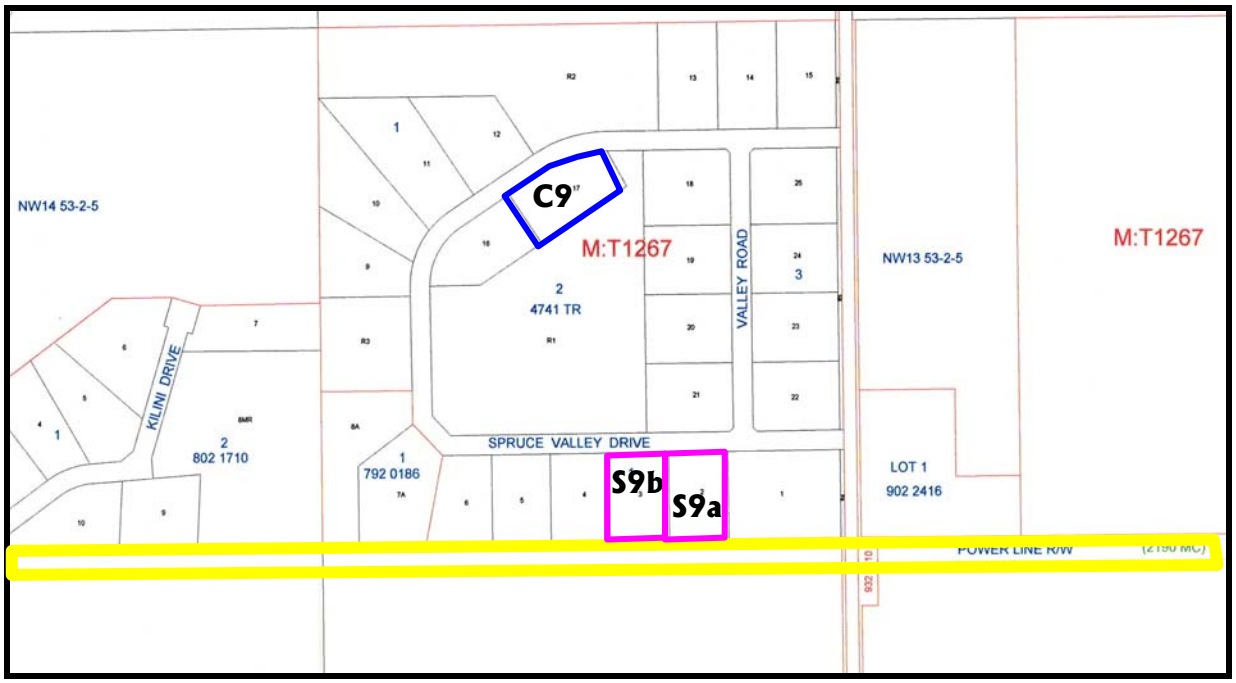
Parkland County – NW 6-52-1-W5



Parkland County – NW 17-53-2-W5



Parkland County – NE 14-53-2-W5



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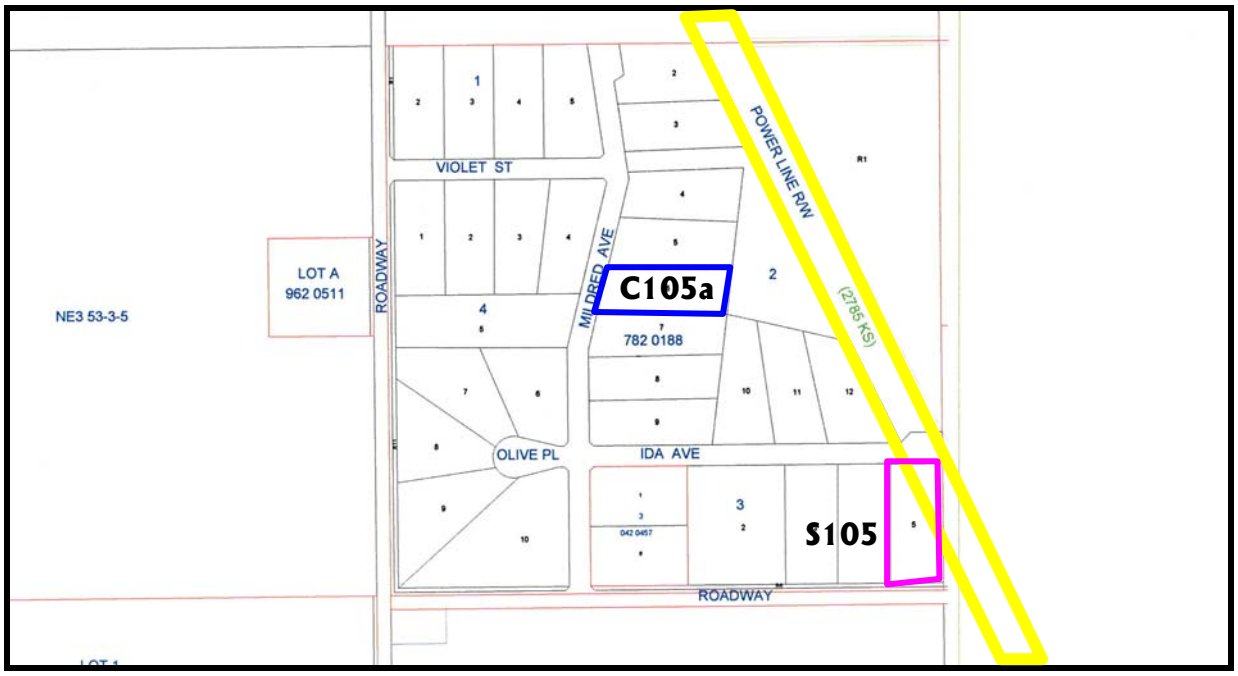
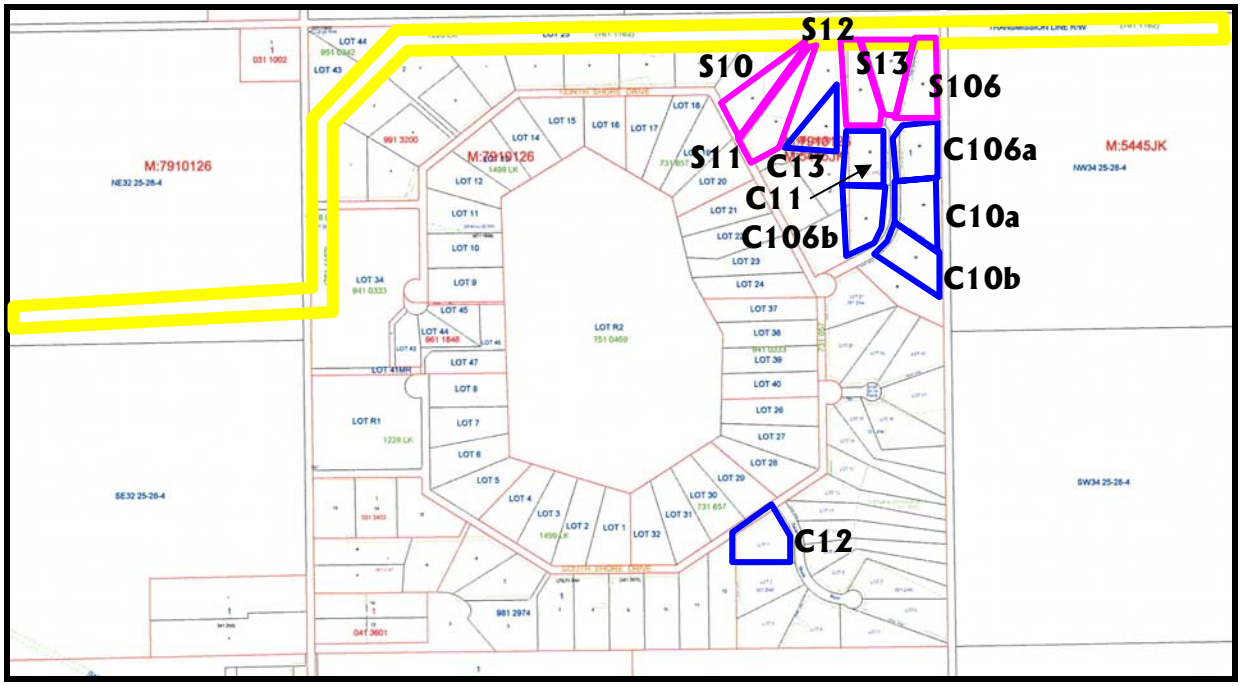
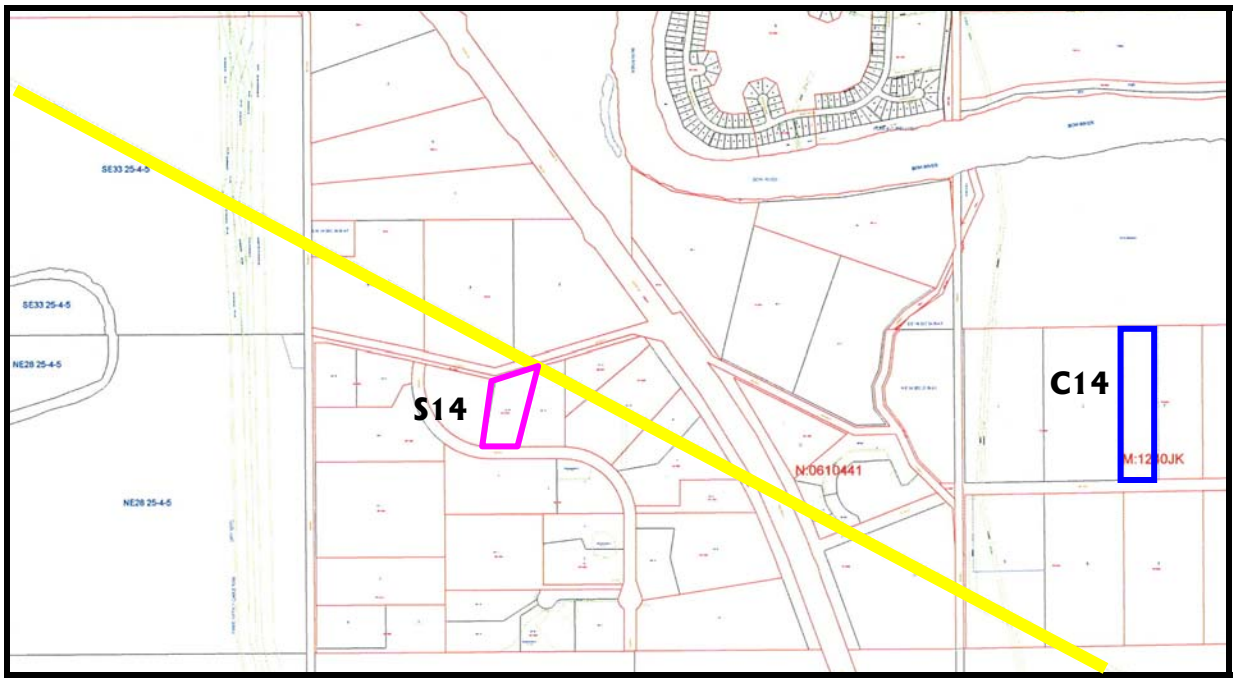


Municipal District of Rocky View – Section 33-25-28-W4



Municipal District of Rocky View – N ½ 27-25-4-W5



Unimproved Properties – Paired Sales Comparison

	Sale Price	Time Adjusted Price	Adjustments Lot Size	Adjusted Price	Comp-Subject	Price Diff. Comp-Subject	% Change Sale Date	Time	Lot Size
*S101	$61,000						May-03		1.00
C101	$58,000	$57,420	$0	$57,420	-$3,580	-5.87%	Jun-03	-1%	1.00
*S102	$18,900						Oct-05		3.04
C102c	$30,000	$28,500	-$600	$27,900	$9,000	47.62%	Mar-06	-5%	3.16
*S103a	$89,000						Nov-02		0.50
C103a	$103,041	$98,919	$0	$98,919	$9,919	11.15%	Mar-03	-4%	0.50
*S103b	$99,900						Nov-02		0.50
C103a	$103,041	$98,919	$0	$98,919	-$981	-0.98%	Mar-03	-4%	0.50
*S103c	$153,500						Dec-05		0.50
C103d	$102,700	$118,105	$0	$118,105	-$35,395	-23.06%	Sep-04	15%	0.50
*S103d	$89,000						Apr-04		0.50
C103c	$95,600	$101,336	$0	$101,336	$12,336	13.86%	Oct-03	6%	0.50
*S104	$42,000						Sep-04		3.01
C104b	$35,000	$35,000	-$100	$34,900	-$7,100	-16.90%	Sep-04	0%	3.03
*S105	$19,500						Aug-05		3.32
C105d	$32,000	$31,040	$450	$31,490	$11,990	61.49%	Nov-05	-3%	3.23
*S106	$91,000						Apr-02		4.03
C106a	$95,000	$94,050	$0	$94,050	$3,050	3.35%	May-02	-1%	4.03

Improved Properties – Paired Sales Comparison

	Style	Sale Price	Time Adjusted Price	Adjustments				Adj'd Price	Comp-Subj	Price Diff. Comp-Subj	% Change Sale Date	Adjustment Factors			
				Age	Size	Lot	Other					Time	Yr Blt	Area	Lot
*S1a	BUNG	$285,000									Aug-02		1976	2,425	4.50
C1	BUNG	$362,000	$202,720	$0	$10,600	$1,700	-$31,785	$183,235	-$101,765	-35.71%	Apr-06	-44%	1976	2,319	4.16
*S1b	BUNG	$265,000									Apr-05		1977	1,897	4.23
C1	BUNG	$362,000	$322,180	$2,416	-$42,200	$350	-$10,393	$272,353	$7,353	2.77%	Apr-06	-11%	1976	2,319	4.16
*S2	BUNG	$275,000									Dec-05		1977	2,153	3.61
C2	BUNG	$334,500	$354,570	$0	-$73,700	$500	-$11,500	$269,870	-$5,130	-1.87%	Jun-05	6%	1977	2,890	3.51
*S3	2str	$185,000									Jan-02		1979	1,864	3.21
C3	BUNG	$175,000	$166,250	$0	$3,400	$1,050	-$9,500	$161,200	-$23,800	-12.86%	Jun-02	-5%	1979	1,830	3.00
*S4	BUNG	$145,900									May-05		1979	782	4.15
C4	BUNG	$215,000	$215,000	-$4,838	-$71,900	$4,200	$4,258	$146,721	$821	0.56%	May-05	0%	1982	1,501	3.31
*S5	BUNG	$156,000									Sep-05		2002	1,769	3.16
C5	2.5str	$149,000	$175,820	$19,780	-$8,500	$300	-$48,350	$139,050	-$16,950	-10.87%	Mar-04	18%	1987	1,854	3.10
*S6	split	$210,000									Jun-04		1976	1,968	4.23
C6	BUNG	$310,000	$300,700	-$13,532	$23,500	$5,450	-$55,323	$260,796	$50,796	24.19%	Sep-04	-3%	1982	1,733	3.14
*S7	bilevel	$226,600									Sep-04		1993	1,453	3.06
C7	split	$174,900	$264,099	$9,904	-$700	-$7,700	$7,000	$272,603	$46,003	20.30%	Jun-00	51%	1988	1,460	4.60
*S8	mobile	$117,500									Jan-05		1990	1,292	1.00
C8	mobile	$157,800	$138,864	-$2,083	$4,300	$0	$6,000	$147,081	$29,581	25.18%	Jan-06	-12%	1992	1,249	1.00
*S9a	BUNG	$229,000									Nov-02		2002	1,529	3.10
C9	1.5str	$250,000	$192,500	$37,538	-$86,000	-$1,700	-$23,918	$118,420	-$110,581	-48.29%	Oct-04	-23%	1976	2,389	3.44
*S9b	BUNG	$209,000									Jul-04		1978	1,555	3.10
C9	1.5str	$250,000	$242,500	$3,638	-$83,400	-$1,700	-$2,000	$159,038	-$49,963	-23.91%	Oct-04	-3%	1976	2,389	3.44

Improved Properties – Paired Sales Comparison

	Style	Sale Price	Time Adjusted Price	Adjustments				Adj'd Price	Comp-Subj	Price Diff. Comp-Subj	% Change Sale Date	Adjustment Factors			
				Age	Size	Lot	Other					Time	Yr Blt	Area	Lot
*S10	2str	$343,250									Apr-04		2002	2,019	4.00
C10a	2str	$340,000	$380,800	-$2,856	-$8,600	$0	-$6,000	$363,344	$20,094	5.85%	Apr-03	12%	2003	2,105	4.00
*S11	BUNG	$500,000									Oct-05		2000	2,150	4.40
C11	BUNG	$385,000	$508,200	-$7,623	$39,000	$2,000	$13,700	$555,277	$55,277	11.06%	Dec-02	32%	2002	1,760	4.00
*S12	bilevel	$371,800									Mar-03		2003	2,240	4.00
C12	bilevel	$359,900	$363,499	$0	$42,200	$0	-$2,000	$403,699	$31,899	8.58%	Feb-03	1%	2003	1,818	4.00
*S13	2str	$485,000									Jan-06		2003	2,107	4.03
C13	2str	$368,000	$441,600	$9,936	$14,000	-$850	$12,753	$477,439	-$7,561	-1.56%	May-04	20%	2000	1,967	4.20
*S14	2str	$469,000									May-03		2002	2,285	4.40
C14	1.5str	$585,000	$456,300	$51,334	-$50,300	-$19,700	-$6,000	$431,634	-$37,366	-7.97%	Mar-05	-22%	1987	2,788	8.34

Note: All comparable properties must have same style and subdivision location & 'similar' no. of rooms, basement development, flooring, parking and lot size/shape.

3.3 QUANTITATIVE CONCLUSIONS

Overall, the paired sales comparisons provided varied results between the adjusted sale price of "on line" and "off line" properties, whether they were improved or unimproved. The following summarizes the general findings.

- The number of sales were very limited, but all properties adjacent to transmission lines that sold through the Multiple Listing Services within the Edmonton or Calgary Real Estate Boards in the subdivisions researched, were analyzed. Comparables or "off line" sales were found where possible for all "on line" sales. However, many of the comparables, as evidenced by the significant adjustments or wider price differential between the subject and comparable, were not what could be termed ideal comparables.
- The right-of-way varied in width and in some cases appeared to cross the "on line" property, and in other cases would have been considered adjacent to the boundary of the property. In addition, in many cases there were no actual steel towers adjacent to the "on line" properties, but rather the right-of-way only.
- A general observation was that the subdivision did not appear to have been developed or designed to minimize the impact of the transmission line.

3.4 STATISTICAL ANALYSIS OF THE IMPACT OF POWER LINES ON RURAL RESIDENTIAL PROPERTY VALUE

A variety of statistical tests were performed with respect to the possible impact of the presence of power lines on rural residential property values in the rural subdivisions in close proximity to the Edmonton and Calgary markets.

The simplest form of statistical tests such as mean values between the subject "on line" and comparable "off line" properties were performed. In addition, the standard deviations of the "on line" and "off line" properties were analysed. Finally, standard statistical hypotheses tests were performed to determine if the average prices of the rural acreages "on line" were different or the same as those "off line".

The following analysis has been done to establish statistically, if the means, or average sale prices of properties "on line" and "off line" are different. The analysis is also separated into two sets of property sales: those that have improvements, and those that have no improvements.

The following tables present the results of the analysis. The explanation of the statistical calculations is summarized in a Statistical Note following the tables.

This analysis is based on establishing first the hypothesis, that the average prices between these samples are not different, then conducting a statistical analysis to determine if this hypothesis is true, or if we have to reject the hypotheses, that there may in fact be differences between the sale prices of "on line" and "off line" properties.

The important results from each of the tables below, is the determination of the "t" statistic. This is a well known method of determining if the means of samples that come from different populations are different. T statistics refer to the number of standard deviations that the mean of a sample can vary from the mean, at different confidence levels.

For this analysis a confidence level of 10% was applied. Using standard "t" value tables, for a sample size of say 10, the "t" value is 1.812. This means that if a comparative sample had a "t" that was greater than this number, then there is a statistical significance to the difference in sale prices.

The "t" values for each of these pared samples has been calculated. The "t" values are highlighted for each of these combinations. What is evident, is that, in all cases, the "t" value is well within the limits of confidence limit (1.812). The "t" values are 0.73 and 0.75 for each of the two comparison samples.

This would infer, that there we would be 90% confident that these comparative samples are from the same sample.

One major reason that these particular results were achieved (i.e., the samples are considered similar), is due to the relatively high degree of variability in the property prices within the "on line" and "off line" sales. The measure of this variability is the coefficient of variation (the standard deviation expressed as a percent of the mean). In all cases, this variability measure is quite high, varying from a low of 36%, to a high of 71%. To interpret what a coefficient of variation of say 36% means, is that 67% of the time, the average property price will have varied from between minus one and plus one standard deviations from the mean. Therefore, as this percent gets higher, the variability of the sample gets larger, and the confidence and meaning of the data is increasingly questionable. The coefficients of variations of all these samples is quite high. As such, it is difficult to then reject the possibility that the mean of one sample does not overlap with another comparable sample.

In summary, the results are as follow. The "t" value for the comparison of the average sale prices for the properties with improvements was found to be 0.73. Comparing this to the allowable statistical limit for a sample of this size, and for a confidence level of 10%, this value would have to have been greater than 1.684 (for average sample size of 40). As such we would accept the hypothesis that the mean or average prices of the "on line" properties are similar to the "off line" comparables with improvements.

Similarly in comparing the unimproved properties with "on line" to those "off line" properties leads to a similar result. The statistical analysis shows that one cannot reject the hypothesis that the average sale prices are statistically different, for this 10% level of confidence.

	Properties With Improvements	
	"On Line" With Improvements	"Off Line" With Improvements
Average	282,957	405,678
Std dev	122,797	146,607
Coefficient of Variation (%)	43	36
N (sample size)	22	59
Comparison of Means	Pop std deviation	130,541.53
	sample std dev	32,610.23
	Difference of Means	-23,810.13
	t value	-0.73

	Properties Without Improvements	
	"On Line" Without Improvements	"Off Line" Without Improvements
Average	72,569	69,249
Std dev	37,323	49,224
Coefficient of Variation	51	71
N (sample size)	16	13
Comparison of Means	Pop. std. deviation	42,658.18
	sample std. dev.	15,928.31
	Difference of Means	-11,900.75
	t value	-0.75

Statistical Note

When conducting a statistical analysis of paired samples, in which the population standard deviation is not known, then statistical analysis, using the Student Distribution is used.[1]

To calculate the population standard deviation (sigma), the estimate of this can be made, using the standard deviation of the two populations. In a simplifying way, this population standard deviation can be approximated from the weighted average of the two sample standard deviations.

The mathematics of the calculations are as follows[2].

$$t = \frac{X_1 - X_2}{S_D}$$

[1] Named after the work of William Gosset, who wrote under the name of "Student", because as a student of the Guinness Brewery in Dublin, was not allowed to use his own name.
[2] This analysis is based on Richmond, S. Statistical Analysis, Second Edition, 1964, P. 190-193.

Where X1 and X2, are the means of the two populations being tested, and S_D is the variance of the difference between the two means.

S_D in turn, in its reduced form is determined by the weighted average of the standard variances of the samples.

S_D = S x root of ((n1+ns)/n1xn2))

Where S is the population standard deviation. S is the weighted average of the standard deviations of the two samples.

Conclusions

The statistical analysis does not provide conclusive evidence as to whether the power transmission lines have any impact on adjacent rural residential acreage properties. However, this particular statistical test does indicate that the mean values of the rural residential improved and unimproved properties "on line" or adjacent to the lines that were researched, are not significantly different than the values of those improved and unimproved properties "off line". It should also be noted that one reason for this result is due to the high degree of variability in the sale prices of the properties utilized in the analysis. This factor makes it very difficult to then reject the possibility that the mean of one sample does not overlap with the mean of the other sample.

4.0 QUALITATIVE RESULTS

Attempts were made, using various methods, to contact the purchaser or vendor for all of the "on line" sales that were a part of the paired sales comparisons. In addition, interviews were attempted with those "on line" sales where no comparable property could be found. However, it was very difficult to contact the purchaser or vendor involved in many of the sales along the transmission lines being studied, due to unlisted telephone numbers and others who chose not to answer. There were also a number of purchasers and vendors who were unwilling to participate in the survey. As a result we were able to survey either vendor or purchaser in only 17 of the 36 transactions, where a property adjacent to a power line right-of-way had been sold. Of the 17 transactions where an interview was completed, the following results were obtained from purchasers or vendors of properties adjacent to the transmission lines:

- The most important feature that influenced the buying decision was location/distance to city. This factor was noted by 9 out of 17 participants.
- The next most important feature was the lot size, open space and aesthetic features which was indicated in 8 out of 17.
- The third most important feature was a combination of privacy and distance from neighbours, mentioned by 7 out of 17.
- The majority (10/17) of respondents indicated they felt there were no negative features of the property at all.
- Two respondents mentioned the power transmission line when questioned about negative features. One of these parties indicated it was a negative feature. However, this one respondent that felt it was a negative factor indicated that they did not think it impacted price. The other respondent mentioned that one of the main reasons they purchased the property was because it backed onto green space (which was in fact the power line right-of-way), and they valued the increased privacy (no neighbours due to presence of power line right-of-way).
- Of the seven respondents indicating some negative feature of the property, the other features listed by respondents included: poor water, poor snow removal, landscaping issues, house quality, on highway.

In summary, the qualitative results indicate that the power transmission line was not a negative feature in their purchase decision. The only respondent that indicated the power line as a negative feature did not feel it impacted price.

5.0 STUDY CONCLUSIONS

5.1 SUMMARY OF FINDINGS

Residential properties, whether in an urban or a rural setting, are purchased by buyers that have strong personal reasons for buying one property over another. As the reasons are personal, the influence or impact of one feature of a property in the ultimate sale price will vary between buyers/sellers. Therefore, in comparing two residential properties with comparable features there may be two different prices paid to two different buyers under the same market conditions.

As outlined within the objectives of this study, the appraisers have attempted to determine, through market transactions, whether an adjacent transmission line will impact the value of rural residential acreage properties. We have attempted to have the transmission line as the only feature different between properties that have sold, in rural municipalities in close proximity to the two major residential markets in Alberta, Calgary and Edmonton.

The methodologies utilized provide a cross-section of quantitative and qualitative approaches to address the question. In addition, we have attempted to provide the most in-depth analysis of actual sales by completing the paired sales comparison and subsequently a survey of the same properties, interviewing the market participants.

Strengths of the Analysis:

- market driven:
  - based on actual sales data
  - all sales through MLS; exposed to the market
- quantitative and qualitative analysis:
  - personal interviews and inspections
  - relied on market observations
  - limited global analysis

Weaknesses of the Analysis:

- limited sales data:
  - some areas lacked sales
- difference in tower/right-of-way:
  - right-of-way width varied
  - size of steel towers and distance of tower to residence varied

- difficulty to find ideal comparables:
  - some areas lacked sales data and comparison required large adjustments

Following are the results of the study under the various approaches.

5.2 QUANTITATIVE ANALYSIS

Summary of Paired Sales Analysis				
Improved Acreages				
# of Sales Comparisons	**# of Sales Indicating Impact**	**Range of Impact (Average)**	**# of Sales Indicating No Impact**	**Range of Impact (Average)**
16	8	0.56% – 25.18% (12.19%)	8	1.56% 48.29% (17.88%)
Unimproved/Bareland Acreages				
# of Sales Comparisons	**# of Sales Indicating Impact**	**Range of Impact (Average)**	**# of Sales Indicating No Impact**	**Range of Impact (Average)**
9	5	3.35% – 61.49% (27.49%)	4	0.98% – 23.06% (11.70%)

The purpose of the paired comparison was to attempt to determine, based on arm's-length market transactions, whether the transmission line impacted the value of the adjacent rural residential acreage property. We have also provided a comparison of bareland or unimproved acreages, prior to any residences being constructed. By comparing "on line" to "off line" sales, with similar features, the premise is that the data should provide an objective approach to draw conclusions as to any impact that the transmission line may have on adjacent property values. The difficulty in completing this approach was to find ideal comparables; i.e., the same residential features (size, age, type), location, access, time of sale, lot size/shape, as well as the other property features being comparable. The results speak for themselves as evidenced by the significance of the adjustments comparing "off line" to "on line". There were clearly some rural acreage subdivisions where "paired" comparables could not be found.

Out of the 16 improved sales comparisons analyzed after adjustments for any dissimilarities, 8 or 50% of the "off line" sale prices were higher than the "on line" prices. The difference where the paired analysis indicated an impact, varied from 0.56 to 25.18% on those 8 comparisons. However, there were also 8 or 50% of sales comparisons analyzed, after being adjusted for any dissimilarities, that indicated the value of the "on line" sales were in fact higher than the "off line" sales, or there was no market indication of any impact on value, with a range of 1.56% to 48.29% difference.

Of the 9 unimproved sales comparison, there were 5 that indicated an impact of the line and 4 that did not. There were wide ranges after adjustments from 0.98 to 61.49%.

In our opinion, based on this quantitative analysis, comparing "on line" versus "off line" properties with similar characteristics, it would be difficult to draw any conclusions. The data varies so significantly and it does not provide any pattern or trend of results.

The final step in the quantitative analysis was to complete a statistical test to determine if the data provided any statistical significance in the price difference of the paired sales.

These findings concluded that the average difference or mean prices paid "on line" versus "off line" was not statistically significant.

5.3 QUALITATIVE ANALYSIS

Summary			
Total Arm's-Length "On Line" Transactions	**Total Surveyed**	**Perceived as Negative Factor**	**Did Not Perceive as a Negative Factor**
36	17	1	16

The overwhelming majority of market participants surveyed, involving the purchase of a rural residential property adjacent to a transmission line, 94% (16/17), did not indicate that the transmission line had any negative impact on the value of their country residential purchase.

The one market participant that indicated the transmission line is a negative factor, felt the transmission line did not actually affect value. One other buyer indicated that the power line was a factor in the purchase, but the green space was a positive feature offsetting any negative impact.

5.4 CONCLUSIONS

In the opinion of the appraisers, this study provided varied results for the following reasons:

- Purchasing residential real estate, whether in an urban or rural setting, is a very personal decision and the features that attract, or are important to one buyer, are less important and may in fact be the reason another buyer may not consider that property.
- In completing the paired sales comparisons, the strength of the exercise is that it is market driven, providing market based conclusions. However, its limitations are dependent upon the reliability of the sales data. It appears obvious when analyzing and interpreting the results in this analysis, that it is difficult to find good comparables. Therefore, there are wide ranges in values, both when analyzing any impacts of the lines. In some comparisons, the "off line" property may have had a similar house size and design, but there were too many other differences in the property. In most

areas it was difficult to find comparable residences. Other factors on rural acreages are all the other property features; landscaping, service buildings (shops, etc.), that make it difficult to compare with others.

- When interviewing buyers of properties adjacent to power transmission lines, 94% of those interviewed did not indicate that the power transmission lines impacted the value of their rural residential property. However, the sample size of those interviewed was small.
- The paired sale comparisons did not provide a trend or specific conclusion. Also, the quantitative data analyzed in this report provides no statistically significant difference between the mean sale prices of "on line" versus "off line" properties.

The results of the study appear to be very inconclusive. However, there are definable trends. The results are quite variable in both directions and as such, no specific conclusions can be supported. We believe that any impact on value is site specific. In our opinion, circumstances of buyers and sellers vary so much, resulting in what appears to be inconclusive study results. "Beauty is in the eye of the beholder" and to some buyers under certain circumstances, the transmission line right-of-way is green space providing a positive feature and to the next buyer, it is a detriment or negative feature.

Due to the wide variation in results, it is difficult to draw a conclusion of any impact related to transmission lines on the value of adjacent rural residential properties from this study. For encumbered properties, we would recommend a site specific appraisal may be required to identify a more accurate quantum of impact.

The Impact Of Power Transmission Lines On Agricultural Land Values

Prepared For

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Edmonton, Alberta

April, 2005

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1.0 INTRODUCTION

1.1 BACKGROUND

Electricity is generated primarily from coal in certain rural locations in Alberta. The electricity is then used in all of the developed urban and rural areas of the province. The transportation of the electricity through transmission lines, must also traverse through these developed portions of the province. The transmission of electricity to the user has been carried out throughout the province for many years and has grown with the increased demand for residential and industrial usage. Many of these lines cross private lands by way of easements or other forms of rights-of-way. For the purposes of this study, a transmission line is considered to be the transmission of 138 to 500 kV of electricity.

The Alberta economy has grown at tremendous rates over the past ten years, and so too has the population and industrial development; therefore requiring increases in power generation which results in increasing demands for transmission of power. As new lines are required, concerns are raised by landowners where these lands are crossed by these proposed developments, as to the potential negative impacts of these lines on the value of their lands. One of the most prevalent questions posed: "is there any impact on the value of my property due to the proposed line?" The routing and construction of new 240 and 500 kV lines to be located in central Alberta are in the planning stages. These lines will essentially traverse across rural lands utilized for agricultural purposes.

1.2 OBJECTIVES AND SCOPE

Serecon Valuation & Agricultural Consulting Inc. has been asked to determine, if possible, if there is any impact on the value of agricultural lands in rural Alberta, resulting from power transmission lines being located on the property. This we believe can be summarized into the following study objective:

> *The main objective is to determine if there is an impact of existing power transmission lines on the market value of lands encumbered with a transmission line with an agricultural Highest and Best Use, in rural Alberta.*

Serecon completed the study based on the following assumptions and scope.

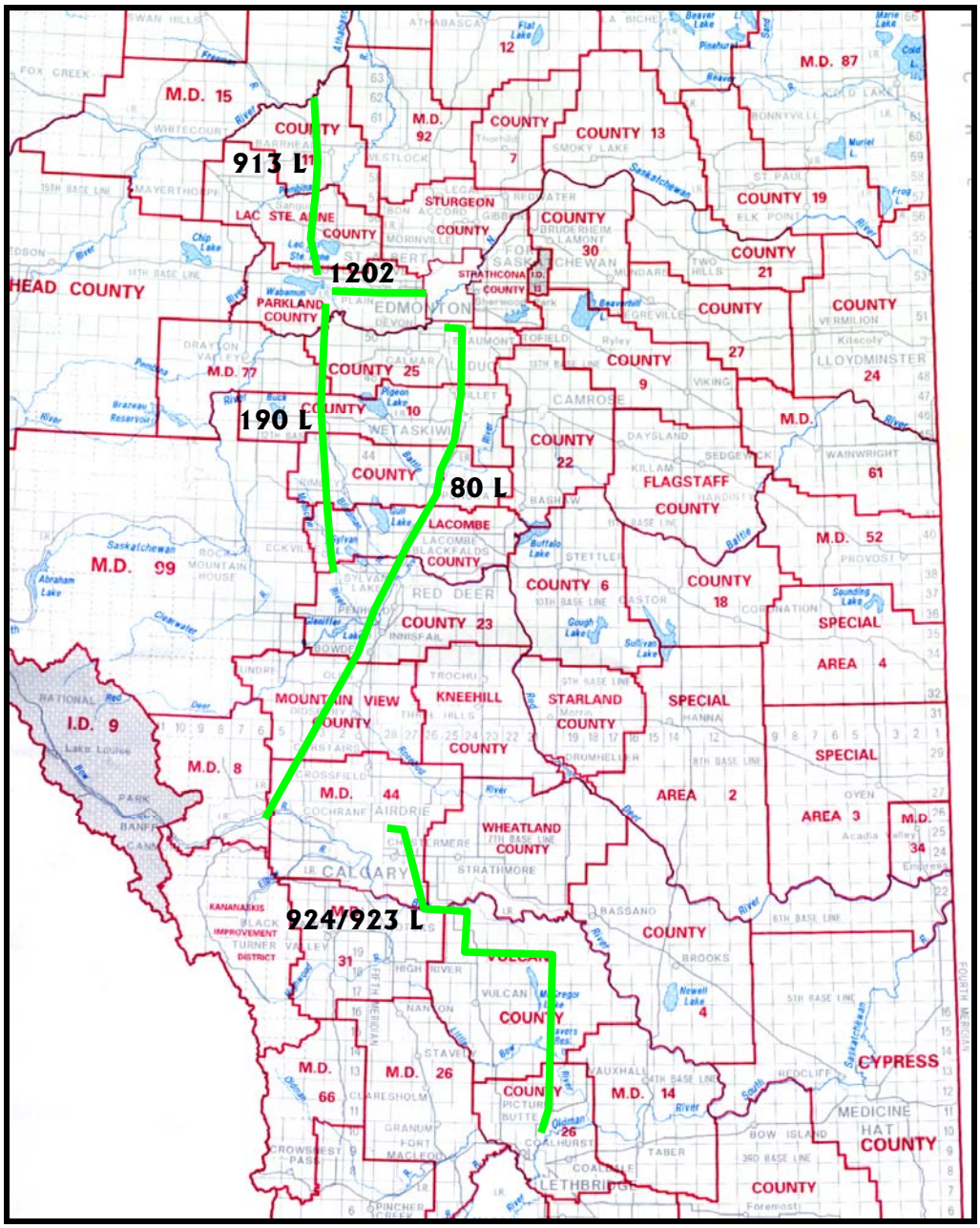
To address the main objective, the study encompassed various market regions within the areas developed for agricultural purposes in rural Alberta. In addition, we analyzed the impact if any, based on the structure type that transports 138 to 500 kV of electricity throughout these regions. To incorporate these different market areas and structure types, the following lines were studied:

- 913 L – 240 kV single steel tower with guy wires – Wabamun to Neerlandia;
- 190 L/903 L – 2 parallel single circuit 240 kV steel towers – Keephills to Benalto;

- 924/923 L –240 steel towers – Langdon to Lethbridge;
- 1202 L – 500 kV steel towers – Keephills to Ellerslie; and,
- 80 L – 138 kV H-frame wood – Nisku to Cochrane.

The following map outlines the line locations and line number for each of the five separate lines analyzed in this study.

Map Outlining Transmission Lines Studied



To determine if there is any impact on the value of land adjacent to these transmission lines, Serecon studied only those properties that were actually crossed or encumbered by the transmission line. These were therefore considered to be "on line" sales. To maintain the objective of addressing any potential impact on those lands with an agricultural Highest and Best Use, the following criteria were followed:

- sales researched were those parcels with a land base of 80 acres or greater;
- the time frame was from January, 2000 through October, 2004; and,
- only sales that occurred up to within 1 mile (1.6 km) of the boundary of an urban centre were utilized.

Photos of the different types of structures are shown as follows:

240 kV Double Circuit Tower – 4.08 m x 5.27 m.

Note: This is the type of tower within the 924/923 L line from Langdon to Lethbridge.

240 kV Single Circuit Guyed Tower – 20.42 m x 20.42 m (913 L).

240 kV Single Circuit Tower – 4.01 m x 5.0 m (190/903 L).

500 kV Tower – 7.67 m x 6.11 m (1202 L).

138 kV H-frame – 6.1 m apart (80 L).

2.0 STUDY METHODOLOGY

As indicated in the scope of this study, rural land sales along transmission lines covering a broad cross-section of the province was researched to address any differences of opinion relative to market area. When viewing rural lands across Alberta that are utilized for agricultural purposes, you will find significant differences such as: farm type, crops grown, intensity of operations, and dryland versus irrigation. Our research reflects these differences by providing a cross-section of agricultural land use by looking at land sales along the five lines studied. In addition, to address whether structure type has any bearing on the opinions of buyers and sellers, we have looked at the various structures that currently exist, that would transport power through a transmission line, 138 kV to 500 kV in size.

The following criteria were utilized in sales data collection and study:

- researched all market transactions; January, 2000 through to October, 2004. Only sales that were arm's-length were utilized in the analysis.
- parcel size of 80 acres or greater. Typically purchasers of agricultural land are not in the market for smaller parcels, therefore this decision removed any obvious sales that may not have an agricultural Highest and Best Use.
- only sales beyond 1.6 km outside a developed urban area were considered to be within the Highest and Best Use agriculture definition.

The study methodologies are based on proven approaches utilized by Serecon in undertaking similar land use and impact studies. There are many potential methods but the three most supportable approaches to address the impact or influence of any one market factor or feature on the market value of real estate are outlined as follows:

- **Qualitative Analysis:** This approach involves compiling market transactions which meet the study criteria, and then surveying the market participants through a questionnaire to identify whether the marketplace perceives any impact of power transmission lines on property values. This data then provides the basis from which to draw conclusions. This approach was considered applicable and utilized in the study.
- **Paired Sales Analysis:** This approach in many cases is utilized as part of a statistical or quantitative study. This approach takes "like properties", one with a transmission line on it, and the other in a "control" area, or not with a transmission line on it. The properties must have the same physical and locational features, similar access, similar buildings or improvements, and all other market features. In addition, any adjustment for time of sale must be addressed. The properties are compared and this comparison should identify any difference in value between the properties. If the only difference between the properties is the powerline, then the comparison is

simplified. In the subject example, one should then be able to identify the impact of the power transmission line as one, or the only factor, influencing market value. This approach or methodology was utilized.

The criteria utilized for the "paired sales" data collection and analysis, in the appraisers' opinion, provides the basis for reliability in the results regarding an indication of any impact of the transmission line on value. If the lands are truly comparable with the exception of the one factor, the powerline, this should be a reliable approach that reflects market participants opinions. The criteria in establishing the comparable "off line" or control zone sales were as follows:

- an arm's-length sale: exposed to the open market;
- a similar size to the "on line" parcel size;
- the same CLI or soil capability for agriculture class;
- the same topography;
- the same cultivation or area improved within the property;
- the same date of sale;
- an analysis of motives involved in the transaction to determine any factors that may have influenced the price paid in one transaction versus the other; and,
- similar buildings or improvements: an attempt to find sales with no buildings or improvements was undertaken due to the difficulty in completing any kind of comparison where buildings or improvements are involved.

➸ **Quantitative Analysis:** Essentially this approach involves the use of a statistical sample to develop a conclusion based on a confidence level established through the analysis of an adequate sample of market sales. A large number of sales are required to provide any statistical basis for a conclusion on any one factor, such as whether transmission lines have an impact on adjacent land values.

Due to the specific criteria for our analysis ("on line" sales, rural, five specific lines), the number of actual arm's-length sales fitting this criteria, available along the lines, are too few to provide a statistical basis for any conclusions. However, we do provide a general analysis of the actual "on line" sales compiled, which we believe provides a verification of the reliability of any conclusions derived from this data based on the potential or expected "on line" sales.

3.0 DESCRIPTION OF LINES STUDIED

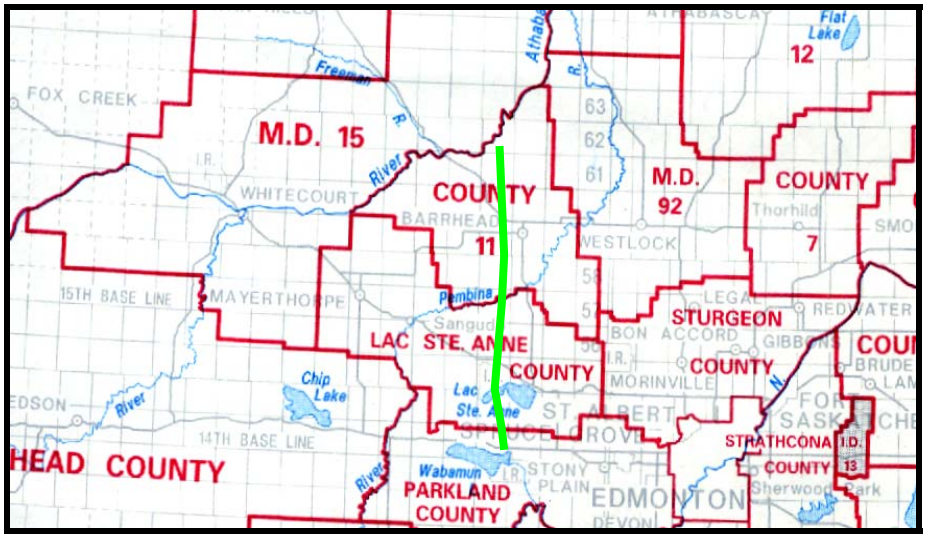
3.1 BACKGROUND DATA

The first step in completing the qualitative and quantitative analysis was to determine the lines to be studied based on the criteria outlined in the scope of the report. Following is a description of the lines studied.

3.1.1 Line "913 L" – Wabamun to Neerlandia (North of Barrhead)

The line runs north from Sundance generating plant to the area west of Neerlandia. The structure is a 240 kV single guyed tower. The line runs north/south primarily out from the property lines on the west quarters or road side quarters. The right-of-way is 26 m (85') in width. Therefore the structures are in the fields and must be farmed around. The right-of-way runs through the north end of Parkland County, through County of Lac St. Anne and through the County of Barrhead. In total, the line is approximately 100 km (60 miles) long.

Map Outlining Line 913 L

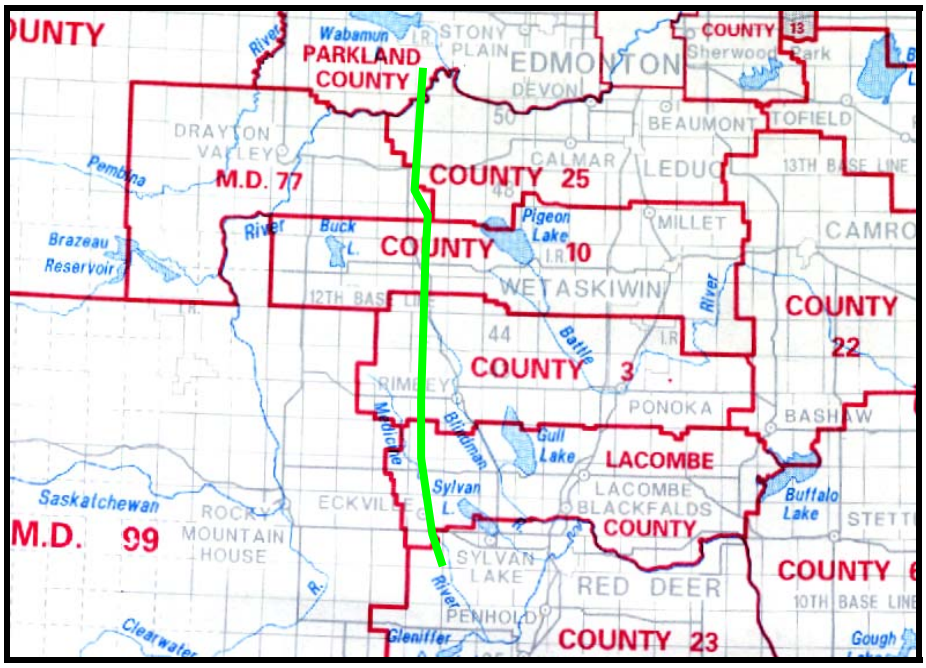


3.1.2 Line "190 L/903 L" – Keephills (South of Wabamun) to Benalto (West of Red Deer)

This line runs south of the Keephills generating plant to Benalto. The structures are 2-parallel 240 kV single circuit steel towers. The line runs north/south primarily down the middle of the sections, but on the east quarters of the section. The structures are therefore near the property line but as they are two parallel rights-of-way, they are located in the fields and must be farmed around. The total right-of-way

is 46 m (150') in width. The right-of-way crosses the north edge of the County of Red Deer, across Lacombe County, Ponoka County, Wetaskiwin County, the eastern edge of Brazeau County, Leduc County and the southern edge of Parkland County to the Keephills plant. In total, the line is approximately 130 km (80 miles) in length.

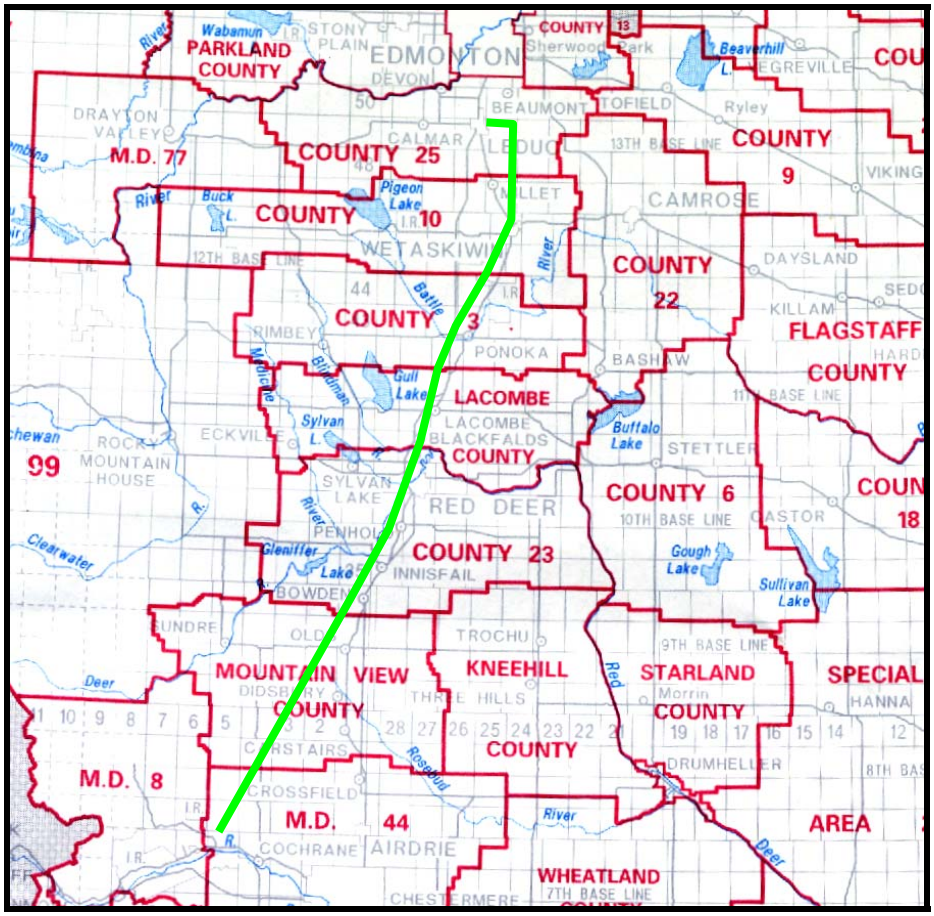
Map Outlining Transmission Line 190 L/903 L



3.1.3 Line "80 L" – Nisku to Cochrane (West)

The line runs south from the eastern boundary of Nisku to around Wetaskiwin and then in a southwest direction to west of Cochrane. The structure is a 138 kV H-frame wood pole and the right-of-way is 15.24 m (50') in width. The line runs south to the Wetaskiwin area along the west property boundary adjacent to the road. As the line runs diagonally from that point to Cochrane, it does not follow any property lines. Therefore the structures interfere with farming operations along the right-of-way. The line traverses through Leduc County, Wetaskiwin County, Ponoka County, Red Deer County, Mountain View County, and across the northwest quadrant of the Municipal District of Rocky View. In total the line is approximately 310 km (190 miles) in length.

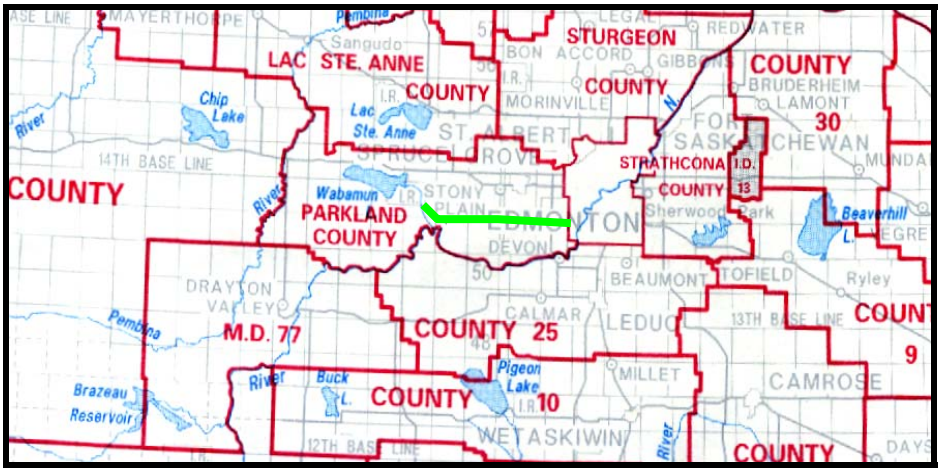
Map Outlining Transmission Line 80 L



3.1.4 Line "1202 L" – Keephills to Edmonton/Ellerslie

This line runs east from the Keephills plant to the City of Edmonton/Ellerslie. The structure is a 500 kV steel tower. The line runs west to east along the middle of the section, on either the south or north quarter property boundary. Due to the width of the right-of-way, the structures are farmed around. The right-of-way is 50 m (164') in width. The right-of-way runs through Parkland County and is approximately 70 km (30 miles) in length. There is in fact a portion of the line that traverses the Enoch First Nation and the western boundary of the City of Edmonton, thereby reducing the potential sales meeting the study criteria.

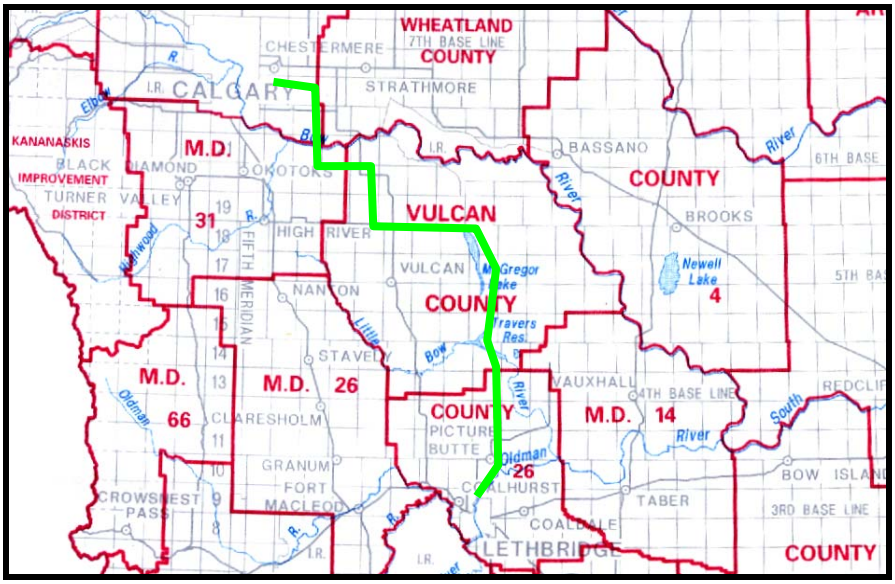
Map Outlining Transmission Line 1202 L



3.1.5 Line "923/924 L" – Langdon (East Calgary) to Lethbridge

The line runs south and then east from Langdon to the boundary of City of Lethbridge. The structure is 240 kV steel towers. The line runs north/south and then east/west primarily along the middle of the section on the property line. Due to the width of the right-of-way, field operations are impacted. The right-of-way is 24 m (80') in width. The right-of-way starts in the Municipal District of Rocky View, then the western edge of Wheatland County, back into Rocky View, then east along the north boundary of the County of Foothills, south and east through Vulcan County and then through Lethbridge County, to the City of Lethbridge. In total the line is approximately 210 km (130 miles) in length.

Map Outlining Transmission Line 923/924 L



4.0 QUALITATIVE APPROACH

4.1 RESEARCH METHODOLOGY

The qualitative approach required a research of sales of land along the lines studied that met our study scope and criteria. In addition, based on the length of lines studied (close to 800 km or 500 miles), it was hoped that adequate data could be analyzed under this approach to provide reliable market driven conclusions. To identify whether the typical open market participants perceive whether transmission lines impact on property value, it was necessary to interview either buyers or sellers that had recently bought or sold land that was encumbered with a transmission line right-of-way. In addition, it was important that the sales analyzed be arm's-length, between non-related parties, where the property was exposed to the open market to reflect market value.

Market value is defined as:

> *"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:*
>
> *1) buyer and seller are typically motivated;*
>
> *2) both parties are well informed or well advised, and acting in what they consider their best interests;*
>
> *3) a reasonable time is allowed for exposure in the open market;*
>
> *4) payment is made in terms of cash in Canadian dollars or in terms of financial arrangements comparable thereto; and,*
>
> *5) the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."*
>
> Source: Canadian Uniform Standards of Professional Appraisal Practice, Appraisal Institute of Canada.

The last and most important component to the qualitative analysis was to conduct the interview of the market participants based on a standardized questionnaire. The goal was to have, through these standard questions, a survey of these buyers/sellers, providing their unbiased perception of whether the power transmission line impacted the value of the land they purchased/sold.

The following steps provide the process that was undertaken in completing this approach:

- Maps were completed identifying the location of each line being studied, which were based on maps obtained from AltaLink. These maps identified the exact location of the line with respect to which legal description was crossed and therefore encumbered with a power transmission line.
- The municipalities crossed by the lines were identified. Listings of all transfers of titles were obtained from the relevant municipalities (that contained the lines) for the years from January 1, 2000 through October 31, 2004.
- All parcels over that 4.8 year period that were encumbered by lines ("on line" transfers), were identified. As indicated, the size of parcel analyzed was limited to those greater than 80 acres.
- Once identified, initial screening was completed for obvious non-arm's-length transactions ($1.00 value, or the same vendor/purchaser name).
- After initial screening was done, the transfer document, including the Affidavit of Value were obtained from the Land Titles Office. This process assisted in identifying arm's-length transactions and the vendor and purchaser which would then be used in the market participant questionnaire stage of the study.
- The appraisers then mapped all sales that appeared to be valid transactions along the 800 km of line. Then, all sales were inspected from the roadside. This further identified the features of the parcel: cultivation, topography, buildings, improvements, access, etc. These factors would assist in completing the market participant questionnaire.
- Once sales were determined to be valid, the contact names on the title documents were researched and telephone numbers were found where possible. This formed our survey pool.
- A questionnaire was developed to provide consistent questions for the market participants (copy in the Appendix of this report).
- For all those that appeared to be valid sales, attempts were made to contact both the vendor and the purchaser. This process identified persons active in the marketplace and provided a sample of individuals who very likely would have given a great deal of thought as to how a parcel is valued and who could offer opinions as to what factors influenced their buying decision and ultimately impacted the value. These market participants would have considered many features specific to the properties and the surrounding area, and would have weighed the positives and the negatives before arriving at their purchase decision.

4.2 SALES RESEARCHED

4.2.1 Line "913 L"

There were eleven market transactions which were encumbered by the right-of-way. Following is the breakdown after inspecting the sites and conducting the questionnaire with the vendor/purchaser:

- arm's-length bareland sales 4
- arm's-length improved sales (building improvements) 2
- non-arm's-length transactions (family) 14

Total 20

4.2.2 Line "190 L/903 L"

There were thirteen market transactions which were encumbered and met the criteria. Following were the outcomes after inspection of the property and completion of the questionnaire with the vendor/ purchaser:

- arm's-length bareland sales 3
- arm's-length improved sales (building improvements) 5
- non-arm's-length transactions (family, others) 17

Total 25

4.2.3 Line "80 L"

There were a total of forty market transactions which were encumbered, and met the criteria. After inspection of the property, and completion of the questionnaire with the vendor or purchaser, the following provides the breakdown:

- arm's-length bareland sales 10
- arm's-length improved sales (building improvements) 4
- non-arm's-length transactions (family, others) 51
- less than 80 acres size category 5

Total 70

4.2.4 Line "1202 L"

There were only three sales that met the study criteria. Following is the breakdown after the inspection of the properties, and completion of the questionnaire with the vendor or purchaser:

- arm's-length bareland sales 3
- non-arm's-length transactions (family, others) 9

Total 12

4.2.5 Line "923/924 L"

There were thirty-one transactions that met the study criteria. Following is the breakdown after inspection of the properties and the completion of the questionnaire with the vendor or purchaser:

➡ arm's-length bareland sales	18
➡ arm's-length improved sales (building improvements)	5
➡ less than 80 acres size category	1
➡ non-arm's-length transactions (family)	36
Total	60

4.2.6 Summary

In summary, the number of questionnaires completed that were arm's-length sales meeting the size and location criteria and with an agricultural Highest and Best Use, are summarized as follows:

➡ total arm's-length bareland properties	38
➡ total arm's-length improved properties	16
Overall Total	54

4.3 Results Of Market Survey/Questionnaire

To maintain the integrity of the results from the qualitative analysis, a consistent and reliable compilation method and data analysis are required. The same questions must be asked of the market participants are to have consistent results. Therefore the appraisers developed a questionnaire with specific questions asked in a similar manner for all interviewees. The second and most important component of this analysis is to provide a method to determine if there is any impact on an encumbered property, from a transmission line without asking the question directly. In our opinion, a direct question of something that is perceived by people to have a negative impact, will automatically get a negative response. Value is established for rural land with an agricultural Highest and Best Use based on certain negative and positive factors or features, some of which are listed as follows:

- quality of land – soil, productivity, arable land, cultivation, topography;
- location – distance to markets; feedlots, grain terminals, packing plants, service centres, distance from existing land base;
- economies of scale – location of land with respect to other holdings, farm equipment complement and recovery of fixed costs;
- access – road access, quality of road;
- quality and availability of water and other services; and,
- parcel size.

Some or all of these factors influence buyers/sellers in a negative or positive way. Essentially value is established based on the combination of the above list applicable to any specific agricultural property.

Our line of questioning of the market participants was based on them identifying the positive and negative features that influenced their purchase/sale decision and to rate which ones had the greatest influence on value. This line of questioning did not lead to influence the interviewee and provided them the opportunity to identify all negative factors, but more importantly without prompting, whether the powerline across their property that they recently purchased or sold, influenced the purchase price, market value or liquidity.

Following are the comments from market participants, through the completion of the questionnaire on all "on line" sales.

4.3.1 Line "913 L"

- four "on line" bareland and two "on line" improved sales.

Sale #31
- expanding farm operation
- purchased land due to location, near other holdings; good access and quality of land
- no impact of the transmission line on the buying decision or price paid

Sale #42
- purchased for son, primarily a rural residential property, poor land
- residence on property
- no impact of transmission line on value

Sale #107
- purchased as a rural residential parcel (only 80 acres)
- talked to vendor and he felt that the transmission line impacted saleability and price. Interesting factor was that the right-of-way crossed his land but there was no structures. Therefore he did not receive any annual compensation.
- he indicated some buyers were not interested in purchasing the land when they knew there was a transmission line across it

Sale #137
- farm expansion, close to other holdings
- no impact of transmission line on value

Sale #122
- expanding farm, close to other land
- had rented the land for a long time, knew the land
- transmission line did not decrease the value of the land
- payment for towers covers property taxes

Sale #305
- purchased for recreational/country residential
- no impact of transmission line on value of land

4.3.1.1 Line "913 L" Summary

There were six "on line" sales and five indicated no impact of the transmission line on the value of their land. There was one "on line" sale where the vendor indicated that in his view the transmission line had a negative impact on the value of his land. His observation was based on comments that came from potential buyers. On this particular land he indicated that in addition, there was no compensation for the transmission line right-of-way on this property as there were no structures located on his land. Therefore this was a very unusual situation and the fact there was no compensation may have had a bearing on his opinion.

4.3.2 Line "190L/903 L"

- three "on line" bareland sales
- five "on line" improved sales (one transaction, vendor/purchaser unwilling to complete questionnaire or unable to contact)

Sale #419
- expanding farm operation
- important factors in the purchaser's decision included: the creek, future recreation potential and quality of the farmland
- purchaser felt the transmission line had no impact on the value of the land

Sale #380
- purchased to expand farm operation
- location with respect to other holdings and soil/cultivation were most important factors in purchase decision
- the view was that the transmission line had no impact on the value of the land

Sale #267
- expanding land base
- most important factors: location, adjacent to other holdings, and did not want anyone else to buy it
- recreation potential was also important factor
- in the purchaser's opinion the transmission line had no impact on the value of the land

Sale #261
- expanding farm, needed pasture
- has building improvements
- most important factors were quality of land and availability of water for cattle
- powerline had no impact on land value
- compensation for power poles adequate to compensate for impact, but surface lease rates for wellsites exceed compensation to a point where the lease revenue is capitalized into a premium to the value of the land

Sale #236
- needed pasture, wanted to expand into different climate zone
- included buildings
- presence of water very important
- in purchaser's opinion the transmission line had no negative effect on the value of the land

Sale #235
- new purchase
- recreational potential most important, had building improvements
- parties indicated no impact of the transmission line on the value of the property

Sale #395
- expanding farm operation
- amount of cultivation and access were most important factors
- the transmission line did not affect value

4.3.2.1 Line "190 L/903 L" Summary

Parties involved in all seven transactions that we were able to contact, were interviewed in the analysis. In all cases there was no indication of any negative impact of the transmission line on the value of the land.

4.3.3 Line "80 L"

- ten "on line" bareland sales (one transaction, vendor/purchaser would not complete questionnaire)
- four "on line" improved sales (two transactions, either we could not contact vendor/purchaser or they would not complete questionnaire)

Sale #25
- expanding farming operation
- looking for a place to build residence
- aesthetics and distance to Calgary most important factors affecting values
- in the opinion of the purchaser there is some impact from a transmission line if it impacts view; annual payment not adequate to outweigh negative impact

Sale #30
- expanding farm, son involved
- location close to other holdings as first priority
- physical features also important
- property had recreation/country residential hobby farm potential due to view and poor quality of land
- purchaser feels that transmission line is a negative feature, but did not affect price; competitive market; annual compensation not adequate compared to wellsites

Sale #66
- expanding farm operation, had rented for ten years
- soil and cultivation important factors
- in buyer's opinion the transmission line did not impact on value even though annual payments do not compensate for inconvenience

Sale #65
- expanding farm operation, had rented the property
- looked at it as an investment
- location to other land and soil very important factors
- land is so valuable and in demand so the transmission line has no impact on value

Sale #108
- new purchase, purchased as an investment
- quality of land and distance to urban centre important factors in purchase decision
- significant building improvements
- no impact of transmission line on value of the property

Sale #101
- expanding farm operation
- location of land and quality most important factors
- no impact of the transmission line on the value of the land

Sale #89
- expanding farm operation
- no previous first parcel out; potential to subdivide important in buying decision
- location with respect to other holdings, distance to urban centre, and quality of the land the most important factors
- in their opinion there was no negative impact from transmission line on the value of the land

Sale #207
- new purchase; acquired land for the purchaser and daughter for location to build houses
- distance to urban centre most important factor, land purchased as hobby farm and will be commuting
- did not think that the transmission line had any impact on the value of the land

Sale #209
- expanding farm operation; property included buildings
- physical features and location close to other holdings most important factors
- the transmission line had no impact on the value of the land

Sale #164
- expanding farm operation
- location to other holdings and quality of the land most important factors
- some building improvements
- no impact of transmission line on value of the land

Sale #217
- expanding farm operation, needed pasture
- quality of land important and location were most important features in buying decision
- there was no impact from the transmission line on the value of the land

4.3.3.1 Line "80 L" Summary

There were eleven questionnaires completed; nine bareland and two with building improvements. There was only one that indicated any impact of the transmission line on the value of land. This particular sale was close to a major urban centre and the intent was to build a residence. In his view he felt if the view from the location where you intended to build was affected, it could negatively impact the value of the land. There were two other interviewees that felt there should be some impact but that it was not reflected in the market. All other interviewees expressed that there was no impact of the transmission line on their purchase decisions or the value of the land.

4.3.4 Line "1202 L"

- There are three bareland "on line" sales and the questionnaire was completed on all three.

Sale #1
- purchased due to expansion of farm operation and near other land base
- also important factor was potential investment, no first out subdivision, good quality land
- no negative impact from transmission line. Property was a foreclosure that sold over list price in a bidding war
- annual tower payment covers for any negative factors

Sale #2
- purchased due to expansion of farm operation and near other holdings
- however, land also had recreational potential due to creek and purchaser was looking at the purchase as an investment based on future demand due to location close to Edmonton
- no negative impact of transmission line

Sale #3
- expanding farm operation but was close to other holdings which was key factor
- looked at purchase as an investment due to location with respect to Edmonton
- no negative impact of transmission line

4.3.4.1 Line "1202 L" Summary

There were three "on line" sales. In the opinion of market participants in all three sales, there was no impact of the power transmission line on the value of their property.

4.3.5 Line "923/924 L"

- 18 "on line" bareland sales (one transaction, vendor/purchaser would not complete questionnaire)
- 5 "on line" improved sales (three transactions, vendor/purchaser would not complete questionnaire)

Sale #232
- was purchased from a relative; price based on an appraisal but non-arm's-length sale
- expanding farm operation and purchased as an investment
- located close to other holdings was most important factor, followed by quality of the land
- felt that the powerline compensation was not adequate as compared to wellsite compensation. Therefore in his opinion the transmission line impacted the value of the property

Sale #249
- expanding farm operation and close to other land holdings
- purchased as an investment
- soil and cultivation important factors
- felt that the transmission line impacted the time to sell but compensation is fair for inconvenience and due to competition for land in this area, the transmission line ultimately did not affect price paid

Sale #250
- expanding farm operation
- near other holdings
- sold immediately, no impact of transmission line on value of land

Sale #207
- expanding farm operation and purchased because of close proximity to other holdings
- also purchased as an investment, there was no first parcel out subdivision. Location close to Calgary also important from an investment perspective
- quality of land very important
- transmission line was a negative factor to purchaser, but felt he had to pay market value established due to strong competition for land in this area and established by buyers that perceived there was no impact from the transmission line
- a further comment was that compensation for transmission line right-of-way was inadequate when compared to wellsite compensation

Sale #204
- expanding farm operation
- quality of land and location to other land very important
- did not feel that the transmission line had any impact on the value of the land

Sales #167, #169, #170, #171, #172, #173, #176, and #177
- purchased from eight separate vendors to one buyer under separate agreements; slight price differences between the separately negotiated sales
- purchased by Hutterite Colony in establishing new colony
- factors important to buyer included: land in a block is very important, quality of land, good water, and distance to markets
- did not feel that the transmission line had any impact on value of the land. Paid a 20% premium for the land, which is typical for a colony getting established in an area to acquire land in one block. In their view annual compensation is adequate to cover increased costs and any inconvenience from the transmission line structures

Sale #190
- close to other holdings, expanding farm operation
- purchased as investment
- did not feel that the transmission line had any negative impact on value

Sale #145
- close to current land holdings
- quality of land very important
- Hutterites had purchased land in area; increased price for all buyers
- transmission line did not impact value of land, strong competition

Sale #132
- expanding operation and land very close to other holdings
- purchaser knew the land quality and it was an important factor in purchase
- did not think transmission line impacted value because had to pay a premium due to adjacent land and other competition
- compensation adequate to pay for inconvenience. If the landowner did not get annual compensation, in his opinion the transmission line would have a negative impact on the value of the land

Sale #133
- expanding farm operation and close location
- good quality land
- no impact of transmission line; had to pay a premium to purchase adjacent land
- strong competition for land

Sale #92
- expanding farm operation; son needed house, recently married
- land also adjacent to other holdings
- physical characteristics very important
- transmission line not a factor impacting value

Sale #20
- neighbour expanding operation
- location to other land, key factor
- transmission line was not a factor impacting value

4.3.5.1 Line "923/924 L" Summary

Out of the nineteen questionnaires completed, there were three that indicated that the transmission line had a negative impact. One market participant had felt that it took longer to sell and the other two felt that the transmission line should have a negative impact. However, in all cases they also thought that they had to pay market value. In their opinion, strong competition and the fact that most buyers feel that there is no impact; ultimately established the price at market value. One of these negative comments was also on a non-arm's-length sale (relative sale).

What is important to note on this line is that the line crossed land where irrigation was involved, especially closer to Lethbridge and in some cases where there were substantial building improvements. However, there were so few sales in irrigation that it was difficult to draw any conclusions from the comments. On irrigation farms the ability to operate an irrigation system may be impacted by any above ground structures. Therefore, transmission line structures may impact the method the land is irrigated so that the annual costs of farming the land are increased. These factors may be compensated for under annual payments on a per structure basis or to the value of the land. These scenarios have not been addressed in this study.

5.0 PAIRED SALES ANALYSIS

5.1 METHODOLOGY

As indicated previously, the process of comparing the sale prices of like properties; having the same physical and locational features, one an "on line" sale and the comparable an "off line" unencumbered sale, is the basic premise behind this approach. Due to the small sample of sales, a statistical analysis could not be completed. However, in the appraisers' opinion, if adequate "true comparables" are utilized and the comparison is made based on sound appraisal principles, this approach provides supportable conclusions with respect to any impact of the transmission line on land value.

In the appraisers' opinion, a determination had to be made as to whether it was possible to complete "paired sales" comparisons on sales where there are significant building improvements. Based on potential problems in establishing and comparing the contributory value attributed to buildings, it was determined that the "paired sales analysis" would be completed on bareland sales only. The reason for this limitation was due to the difficult, if not impossible task, to compare sales with building improvements. The premise behind the "paired sales comparative approach", is to analyze like sales and limit the adjustments for different features between the properties. In a rural community, there are never two properties with building improvements that are the same. The building types, function, size, capacity, number and age are so different that to conduct a paired comparison would require significant adjustments for differences, thereby defeating the purpose of the exercise. Therefore, the appraisers have limited the paired comparison to bareland properties that can be truly compared, and which have few to no adjustments.

The following steps provide the process undertaken in completing the "paired sales" analysis:

- Within the sales analysis undertaken for the qualitative analysis, all "on line" sales were already mapped and inspected.
- At the time that land transfers were investigated for "on line" sales, "off line" sales were also investigated. To provide what would be considered "true comparables", an area within 5 km (3 miles) on either side of the line were investigated. This distance (6 miles in width) provides comparable sales that are in the same market area, negating any locational differences that may reflect value differences.
- Land transfers were ordered for the closest four to five sales from a locational and soil classification. Once obtained, the transfers were screened to remove all obvious non-arm's-length sales. In addition, all sales with obvious significant building improvements were also screened.
- The most comparable properties were then inspected.

- After inspection of the "on line" properties and "off line" properties, it was determined what property or properties were the most comparable.
- Under a true "paired sales" analysis, one "on line" sale would be compared to one "off line" sale. To remove any question of bias by the appraisers in choosing one sale over another for any reason, it was decided that if there was two or three "true" comparable sales, we would utilize up to three "off line" sales, to compare to the "on line" sale.
- The vendor and/or purchaser of the "off line" sales were then contacted and the sale was confirmed to make sure it was an open market, exposed arm's-length sale and there were no unusual circumstances involved that would affect its price, positively or negatively.
- The "on line" sales were then compared to the "off line" sales to determine any significant price difference. Two analyses were completed. First a true "paired sales" analysis requires a comparison with no adjustments for any differences (time of sale, physical feature difference, cultivation, motive). However, due to the fact that there were very few areas where you could find comparables without at least some minor differences, a second analysis was completed. Within this analysis adjustments were made for differences between the comparables and the "on line" sale properties. The adjustments were made adjusting the comparable sale to the subject. The findings and conclusions are shown in the following analysis with two tables; the first providing the sales comparisons without adjustments and the second table with adjustments for differences between the "off line" and "on line" properties.

5.2 SALES COMPARISON

5.2.1 Line "913 L"

On this line there were four "on line" bareland sales. Following are the four "on line" or subject sales with confirmed details, followed by the "off line" or comparable/paired comparison sales utilized in the analysis.

Subject Sale #131:

- Sold May, 2003; 158.79 total acres for $200,000.00, or $1,260.00 per acre
- CLI soil rating is Class 4W, Organic; 99% cultivated

Comparables:

a) Sale #29:
   - Sold September, 2003; 160 total acres for $200,000.00, or $1,250.00 per acre
   - CLI soil rating is Class 4M, Organic; 98% cultivated

b) Sale #25:
   - Sold September, 2003; 156.85 total acres for $197,000.00, or $1,256.00 per acre
   - CLI soil rating is Class 4M, Organic; 88% cultivated

Subject Sale #107:

- Sold June, 2004; 80 total acres for $45,000.00 or $563.00 per acre
- CLI soil rating is Class 3T; 25% cultivated

Comparables:

a) Sale #135:
   - Sold March, 2002; 159.22 total acres for $75,000.00, or $471.00 per acre
   - CLI soil rating is Class 3T, Class 5TD; 31% cultivated

b) Sale #138:
- Sold January, 2002; 160 total acres for $100,000.00, or $625.00 per acre
- CLI soil rating is Class 2C, Class 3D, Organic; 78% cultivated

Subject Sale #137:

- Sold February, 2002; 320 total acres for $175,000.00 or $547.00 per acre
- CLI soil rating is Class 5TD, Organic; 31% cultivated/open pasture

Comparables:

a) Sale #166:
   - Sold June, 2000; 153.33 total acres for $75,000.00, or $489.00 per acre
   - CLI soil rating is Class 3D, Class 2C, Organic; 39% cultivated

Subject Sale #122:

- Sold February, 2003; 159 total acres for $90,000.00 or $566.00 per acre
- CLI soil rating is Class 4DT, Organic; 88% cultivated

Comparables:

a) Sale #119:
   - Sold July, 2003; 298.01 total acres for $150,000.00, or $503.00 per acre
   - CLI soil rating is Class 4DT, Organic; 27% cultivated

5.2.1.1 Sales Comparison (Before Adjustments)

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
31	$1,260.00	a) $1,250.00 b) $1,256.00	$1,253.00	+.0056%
107	$563.00	a) $471.00 b) $625.00	$548.00	+2.7%
137	$547.00	a) $489.00	$489.00	+11.9%
122	$566.00	a) $503.00	$503.00	+12.5%
Average	**$734.00**	**$766.00**	**$698.00**	

5.2.1.2 Sales Comparison (After Adjustments)

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
31	$1,260.00	a) $1,250.00 x 0% Adjustment = $1,250.00 b) $1,256.00 x 0% Adjustment = $1,256.00 Average = $1,253.00 per acre	+.0056%
107	$563.00	a) $471.00 x +15% Time; -5% Size; Total +10% Adjustment = $518.00 per acre b) $625.00 x +15% Time; -25% Soil/Cultivated; -5% Size; Total -15% Adjustment = $531.00 per acre Average = $525.00 per acre	+7.2%
137	$547.00	a) $489.00 x +15% Time; +5% Size; -10% Soil/ Cultivation; Total +10% Adjustment = $538.00 per acre	+1.7%
122	$566.00	a) $503.00 x +10% Cultivated = $553.00 per acre	+2.4%
Average	**$734.00**	**$717.00**	

5.2.1.3 Summary – Paired Comparison Line "913 L"

Before adjustments, the four "on line" sales all had a per acre price higher than the comparable "off line" sales. Two of the sales were less than 3% higher and the other two were approximately 12% higher. The two "on line" sales that were 12% higher had comparables that required significant adjustments.

After adjustment, all four "on line" sales remained higher on a per acre basis than the comparable "off line" sales. Three sales were less the 3% different and the other sale was 7.2% higher.

5.2.2 Line "190 L/903 L"

On this line there were three "on line" bareland sales. Following are the three "on line" sales or subject sales, with confirmed details, followed by the "off line" or comparable/paired comparison sales utilized in the analysis.

Subject Sale #419:

- Sold July, 2002; 313.35 total acres for $257,500.00, or $822.00 per acre
- CLI soil rating is Class 3D, Organic; 80% cultivated

Comparables:

a) Sale #442:
   - Sold June, 2000; 159 total acres for $132,500.00, or $833.00 per acre
   - CLI soil rating is Class 3D, Organic; 75% cultivated

b) Sale #443:
- Sold March, 2000; 154.56 total acres for $97,000.00, or $628.00 per acre
- CLI soil rating is Class 3D, Class 4TD; 50% cultivated

Subject Sale #380:

- Sold November, 2003; 159 total acres for $150,000.00, or $943.00 per acre
- CLI soil rating is Class 3D; 91% cultivated

Comparables:

a) Sale #400:
- Sold April, 2001; 160 total acres for $120,000.00, or $750.00 per acre
- CLI soil rating is Class 3D, Organic; 71% cultivated

b) Sale #404:
- Sold April, 2001; 160 total acres for $130,000.00, or $813.00 per acre
- CLI soil rating is Class 3D; 94% cultivated

Subject Sale – #267:

- Sold February, 2001; 160 total acres for $98,000.00, or $613.00 per acre
- CLI soil rating is Class 5TS; 25% cultivated

Comparables:

a) Sale #243:
- Sold July, 2003; 160 total acres for $126,000.00, or $788.00 per acre
- CLI soil rating is Class 5TS; 50% cultivated

b) Sale #248:
- Sold December, 2002; 79.94 total acres for $92,500.00, or $1,157.00 per acre
- CLI soil rating is Class 4S; 0% cultivated

5.2.2.1 Sales Comparison (Before Adjustments)

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
419	$822.00	a) $833.00 b) $628.00	$731.00	+12.4%
380	$943.00	a) $750.00 b) $813.00	$782.00	+20.6%
267	$613.00	a) $788.00 b) $1,157.00	$973.00	-37.0%
Average	**$793.00**	**$828.00**	**$829.00**	

5.2.2.2 Sales Comparison (After Adjustments)

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
419	$822.00	a) $833.00 x +15% Time; -5% Size; -5% Motive; Total +5% Adjustment = $875.00 per acre b) $628.00 x +15% Time; +10% Soil/Cultivation; -5% Size; Total +20% Adjustment = $754.00 per acre Average = $815.00 per acre	+0.09%
380	$943.00	a) $750.00 x +15% Time; +15% Soil/Cultivation; Total +30% Adjustment = $975.00 per acre b) $813.00 x +15% Time; Total +15% Adjustment = $935.00 per acre Average = $955.00 per acre	-1.3%
267	$613.00	a) $788.00 x -15% Time; -15% Soil/Cultivation; Total -30% Adjustment = $552.00 per acre b) $1,157.00 x -15% Time; -15% Soil/Cultivation; -10% Size; Total -40% Adjustment = $694.00 per acre Average = $623.00 per acre	-1.4%
Average	**$793.00**	**$794.00**	

5.2.2.3 Summary – Paired Comparison Line "190 L/903 L"

Before adjustments two of the three "on line" sales were 12.4% and 20.6% higher and the third sale was 37% less than the "off line" sale prices. These wide variations indicated that the comparables required significant adjustments and were not "true paired" comparisons.

After adjustments the three "on line" sales were +.09%, -1.3% and -1.4% different. These sale differences in fact indicate no measurable difference.

5.2.3 Line '80 L'

On this line there were nine "on line" bareland sales. There were two examples where there were no comparable sales to pair with the "on line" sales. Therefore, we have provided the following seven "on line" sales with confirmed details, followed by the "off line" or comparable sales or paired comparison utilized in the analysis.

Subject Sale #25:

- Sold February, 2003; 157.69 total acres for $531,000.00, or $3,367.00 per acre
- CLI soil rating is Class 4T, Class 5C, Class 3C; 25% cultivated

Comparables:

a) Sale #17:
   - Sold March, 2001; 139.65 total acres for $365,000.00, or $2,614.00 per acre
   - CLI soil rating is Class 5C, Class 6TW; 33% cultivated

b) Sale #23:
   - Sold April, 2002; 78.53 total acres for $270,000.00, or $3,438.00 per acre
   - CLI soil rating is Class 5C, Class 6W; 100% cultivated

Subject Sale #65:

- Sold August, 2000; 158.97 total acres for $245,000.00, or $1,541.00 per acre
- CLI soil rating is Class 2C, Class 6W; 98% cultivated

Comparables:

a) Sale #63:
   - Sold March, 2001; 160 total acres for $247,000.00, or $1,544.00 per acre
   - CLI soil rating is Class 2C, Class 6W; 100% cultivated

b) Sale #54:
   - Sold February, 2002; 158.97 total acres for $315,000.00, or $1,982.00 per acre
   - CLI soil rating is Class 2C, Class 6W; 100% cultivated

c) Sale #33:
   - Sold July, 2003; 154.66 total acres for $285,000.00, or $1,843.00 per acre
   - CLI soil rating is Class 2C, Class 6W; 100% cultivated

Subject Sale #89:

- Sold June, 2002; 160 total acres for $170,000.00, or $1,063.00 per acre
- CLI soil rating is Class 2C, Class 3T, Class 4T; 81% cultivated

Comparables:

a) Sale #110:
   - Sold July, 2001; 140.97 total acres for $232,500.00, or $1,649.00 per acre
   - CLI soil rating is Class 2T, Class 5TM; 60% cultivated

Subject Sale #101:

- Sold March, 2002; 157 total acres for $278,000.00, or $1,771.00 per acre
- CLI soil rating is Class 3T, Class 1; 100% cultivated

Comparables:

a) Sale #98:
   - Sold May, 2002; 139.29 total acres for $240,000.00, or $1,723.00 per acre
   - CLI soil rating is Class 2C, Class 3T; 98% cultivated

Subject Sale #207:

- Sold January, 2001; 299.35 total acres for $490,000.00, or $1,637.00 per acre
- CLI soil rating is Class 3M, Class 2T, Class 6W; 95% cultivated

Comparables:

a) Sale #185:
   - Sold May, 2002; 134.04 total acres for $240,000.00, or $1,791.00 per acre
   - CLI soil rating is Class 3T, Class 2T; 90% cultivated

Subject Sale #217:

- Sold May, 2004; 147.37 total acres for $225,000.00, or $1,527.00 per acre
- CLI soil rating is Class 1; 98% cultivated

Comparables:

a) Sale #244:
   - Sold January, 2001; 128.93 total acres for $225,000.00, or $1,745.00 per acre
   - CLI soil rating is Class 1, Class 2T; 100% cultivated

b) Sale #245:
   - Sold December, 2000; 127.73 total acres for $130,000.00, or $1,018.00 per acre
   - CLI soil rating is Class 1; 100% cultivated

5.2.3.1 Sales Comparison (Before Adjustments)

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
25	$3,367.00	a) $2,614.00 b) $3,438.00	$3,026.00	+11.3%
65	$1,541.00	a) $1,544.00 b) $1,982.00 c) $1,843.00	$1,790.00	-14.1%
89	$1,063.00	a) $1,649.00	$1,649.00	-36.5%
101	$1,771.00	a) $1,723.00	$1,723.00	+2.8%
207	$1,637.00	a) $1,791.00	$1,791.00	-8.6%
217	$1,527.00	a) $1,745.00 b) $1,018.00	$1,382.00	+10.5%
Average	**$1,818.00**	**$1,935.00**	**$1,894.00**	

5.2.3.2 Sales Comparison (After Adjustments)

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
25	$3,367.00	a) $2,614.00 x +20% Time; +10% Soil/Aesthetics; Total +30% Adjustment = $3,398.00 per acre b) $3,428.00 x +10% Time; -5% Soil/Aesthetics; -10% Size; Total -5% Adjustment = $3,257.00 per acre Average = $3,328.00 per acre	+1.2%
65	$1,541.00	a) $1,544.00 x -5% Time; Total -5% Adjustment = $1,467.00 per acre b) $1,982.00 x -15% Time; Total -15% Adjustment = $1,685.00 per acre c) $1,843.00 x -25% Time; Total -25% Adjustment = $1,382.00 per acre Average = $1,511.00 per acre	+2.0%
89	$1,063.00	a) $1,649.00 x +10% Time; -35% Motive, -10% Location; Total -35% Adjustment = $1,072.00 per acre	-.09%
101	$1,771.00	a) $1,723.00 x -5% Soil; Total –5% Adjustment = $1,637.00 per acre	+8.2%
207	$1,637.00	a) $1,791.00 x -15% Time; +10% Cultivation/Soil; -5% Location; Total -10% Adjustment = $1,612.00 per acre	+1.6%
217	$1,527.00	a) $1,745.00 x +25% Time; -5% Soil; -10% Location; Total +10% Adjustment = $1,920.00 per acre b) $1,018.00 x +25% Time; Total +25% Adjustment = $1,273.00 per acre Average = $1,597.00 per acre	-4.4%
Average	**$1,818.00**	**$1,793.00**	

5.2.3.3 Summary – Paired Comparison "Line 80 L"

Before adjustments three of the "on line" six sales had prices higher than the "off line" sales and three were lower. The higher sales were between 2.8% and 11.3% higher and the lower sales were -8.6% to -36.5% lower. Once again, the wide range indicates significant adjustments were required in most cases in comparing the properties. However, it should be noted that the largest adjustments were for time, not physical differences.

After adjustments, all six sales had differences between -.09% and +8.2%. The two with any negative impact were -.09% and -4.4%, which in the appraisers' opinion are very insignificant.

5.2.4 Line "1202 L"

On this line there were three "on line" bareland sales. Following are the three "on line" or subject sales with confirmed details, followed by the "off line" or comparable sales or paired comparisons utilized in the analysis. This particular market area has very well defined and narrow boundaries. There is a small pocket of superior soil in a market area driven by potato producers, looking for a particular soil type. In addition, the market influence from the Edmonton metropolitan area has a significant bearing on demand. Due to this very limited market area it was exceptionally difficult to find "true comparables" and there are wide variations in price due to the urban influence on this rural land market.

Subject Sale #1:

- Sold October, 2003; 160 total acres for $366,000.00, or $2,288.00 per acre
- CLI soil rating is Class 1; 88% cultivated

Comparables:

a) Sale #4:

- Sold May, 2003; 79.5 total acres for $212,000.00, or $2,667.00 per acre
- CLI soil rating is Class 1, Class 2T; 100% cultivated

b) Sale #5:

- Sold March, 2002; 157.95 total acres for $295,000.00, or $1,868.00 per acre
- CLI soil rating is Class 1; 95% cultivated

Subject Sale #2:

- Sold June, 2001; 73.62 total acres for $187,000.00, or $2,540.00 per acre
- CLI soil rating is Class 2T, Class 1, Organic; 68% cultivated

Comparables:

a) Sale #4:

- Sold May, 2003; 79.5 total acres for $212,000.00, or $2,667.00 per acre
- CLI soil rating is Class 1, Class 2T; 100% cultivated

Subject Sale #3:

- Sold April, 2000; 151.19 total acres for $260,000.00, or $1,720.00 per acre
- CLI soil rating is Class 2T, Class 1, Organic; 89% cultivated

Comparables:

a) Sale #6:

- Sold November, 2001; 160 total acres for $272,000.00, or $1,700.00 per acre
- CLI soil rating is Class 2T, Class 3T, Class 7W; 97% cultivated

5.2.4.1 Sales Comparison (Before Adjustments)

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
1	$2,288.00	a) $2,667.00 b) $1,868.00	$2,268.00	+.009%
2	$2,540.00	a) $2,667.00	$2667.00	-4.8%
3	$1,720.00	a) $1,700.00	$1,700.00	+1.2%
Average	**$2,183.00**	**$2,226.00**	**$2,212.00**	

5.2.4.2 Sales Comparison (After Adjustments)

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
1	$2,288.00	a) $2,667.00 x -15% Size; -5% Cultivated/Soil; Total -15% Adjustment = $2,267.00 b) $1,868.00 x +15% Time; -5% Cultivated/Soil; +5% Location; Total +15% Adjustment = $2,148.00 Average = $2,208.00 per acre	+3.6%
2	$2,540.00	a) $2,667.00 x -20% Time; -10% Cultivated/Soil; +15% Location; Total -15% Adjustment = $2,267.00	+12%
3	$1,720.00	a) $1,700.00 x –10% Time; +10% Cultivated/Soil; Total 0% Adjustment = $1,700.00/acre	+1.2%
Average	**$2,183.00**	**$2,058.00**	

5.2.4.3 Summary – Paired Comparison "Line 1202 L"

Before adjustment, the three sales were all less than 4.8% difference in price between "on line" and "off line".

After adjustment, the range of difference increased. All sales indicated higher prices per acre "on line" to "off line" ranging from 1.2% to 12% higher.

5.2.5 Line "923/924 L"

On this line there were 17 "on line" bareland sales where we were able to complete questionnaires; however, one is not being used as it was a non-arm's-length (relative) sale and one where there were no comparable sales to complete a paired comparison. Following are the "on line" sales, with confirmed details, followed by the "off line" or comparable sales as paired comparisons utilized in the analysis.

Subject Sale #250:

- Sold May, 2001; 158.87 total acres for $206,000.00, or $1,297.00 per acre
- CLI soil rating is Class 3T, Class 3S, Class 6W; 100% cultivated

Comparables:

a) Sale #243:
   - Sold May, 2004; 160 total acres for $260,000.00, or $1,625.00 per acre
   - CLI soil rating is Class 3T, Class 2T; 97% cultivated

b) Sale #252:
   - Sold April, 2001, 160 total acres for $172,000.00, or $1,075.00 per acre
   - CLI soil rating is Class 3T, Class 4ST; 100% cultivated

Subject Sale #249:

- Sold October, 2002; 158.87 total acres for $210,000.00, or $1,322.00 per acre
- CLI soil rating is Class 3T, Class 3S, Class 6W; 100% cultivated

Comparables:

a) Sale #243:
   - Sold May, 2004; 160 total acres for $260,000.00, or $1,625.00 per acre
   - CLI soil rating is Class 3T, Class 2T; 97% cultivated

b) Sale #252:
   - Sold April, 2001; 160 total acres for $172,000.00, or $1,075.00 per acre
   - CLI soil rating is Class 3T, Class 4ST; 100% cultivated

Subject Sale #207:

- Sold March, 2002; 160 total acres for $196,000.00, or $1,225.00 per acre
- CLI soil rating is Class 3T; 100% cultivated

Comparables:

a) Sale #210:
   - Sold June, 2001; 117.95 total acres for $117,950.00, or $1,000.00 per acre
   - CLI soil rating is Class 3T, Class 6T; 100% cultivated

Subject Sale #167:

- Sold December, 2002; 148.97 total acres for $180,000.00, or $1,208.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

Subject Sale #169:

- Sold November, 2002; 158.97 total acres for $179,000.00, or $1,126.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 90% cultivated

Subject Sale #170:

- Sold December, 2002; 480 total acres for $600,000.00, or $1,250.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T, Class 2T; 95% cultivated

Subject Sale #171:

- Sold December, 2002; 160 total acres for $192,000.00, or $1,200.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 75% cultivated

Subject Sale #172:

- Sold December, 2002; 160 total acres for $192,000.00, or $1,200.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

Subject Sale #173:

- Sold December, 2002; 158.97 total acres for $192,000.00, or $1,208.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

Subject Sale #176 (½ interest):

- Sold November, 2002; 160 total acres for $73,500.00 (½ interest), or $919.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 2C, Class 6T; 80% cultivated

Subject Sale #177 (½ interest):

- Sold November, 2002; 160 total acres for $73,500.00 (½ interest), or $919.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 2C, Class 6T; 80% cultivated

Comparables:

a) Sale #165:

- Sold March, 2003; 313.84 total acres for $370,000.00, or $1,179.00 per acre
- CLI soil rating is Class 2C, Class 5W; 90% cultivated

b) Sale #181:

- Sold August, 2002; 159.48 total acres for $147,519.00, or $925.00 per acre
- CLI soil rating is Class 2C, Class 3T, Class 4T, Class 6T; 94% cultivated

Subject Sale #190:

- Sold March, 2001; 160 total acres for $144,000.00, or $900.00 per acre
- CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

Comparables:

a) Sale #153:
   - Sold October, 2003; 160 total acres for $152,000.00, or $950.00 per acre
   - CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

b) Sale #157:
   - Sold October, 2003; 317.95 total acres for $269,390.00, or $847.00 per acre
   - CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

c) Sale #158:
   - Sold October, 2003, 322.8 total acres for $225,960.00, or $700.00 per acre
   - CLI soil rating is Class 3T, Class 4T, Class 6T; 100% cultivated

Subject Sale #145:

- Sold January, 2000; 318.97 total acres for $250,000.00, or $784.00 per acre
- CLI soil rating is Class 4T, Class 3T; 90% cultivated

Comparables:

a) Sale #143:
   - Sold January, 2000; 158.97 total acres for $96,000.00, or $604.00 per acre
   - CLI soil rating is Class 4T, Class 3T; 99% cultivated

b) Sale #124:
   - Sold April, 2002; 161 total acres for $124,000.00, or $770.00 per acre
   - CLI soil rating is Class 4S; 100% cultivated

c) Sale #144:
   - Sold January, 2000; 120.95 total acres for $90,712.00, or $750.00 per acre
   - CLI soil rating is Class 3T; 100% cultivated

Subject Sale #133:

- Sold November, 2000; 160 total acres for $112,000.00, or $700.00 per acre
- CLI soil rating is Class 4ET; 100% cultivated

Subject Sale #132:

- Sold November, 2000; 158.97 total acres for $112,000.00, or $705.00 per acre
- CLI soil rating is Class 3E; 100% cultivated

Comparables:

a) Sale #127:
   - Sold April, 2001; 320 total acres for $220,000.00, or $688.00 per acre
   - CLI soil rating is Class 4S; 95% cultivated

b) Sale #107:
   - Sold May, 2004; 158.71 total acres for $130,000.00, or $819.00 per acre
   - CLI soil rating is Class 4S; 97% cultivated

c) Sale #128:
   - Sold April, 2001; 480 total acres for $315,700.00, or $658.00 per acre
   - CLI soil rating is Class 4S; 88% cultivated

5.2.5.1 Sales Comparison (Before Adjustments)

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
250	$1,297.00	a) $1,625.00 b) $1,075.00	$1,350.00	-3.9%
249	$1,322.00	a) $1,625.00 b) $1,075.00	$1,350.00	-2.1%
207	$1,225.00	a) $1,000.00	$1,000.00	+22.5%
167	$1,208.00	a) $1,179.00 b) $ 925.00	$1,052.00	+14.8%
169	$1,126.00	a) $1,179.00 b) $ 925.00	$1,052.00	+7.0%
170	$1,250.00	a) $1,179.00 b) $ 925.00	$1,052.00	+18.8%
171	$1,200.00	a) $1,179.00 b) $ 925.00	$1,052.00	+14.1%
172	$1,200.00	a) $1,179.00 b) $ 925.00	$1,052.00	+14.1%
173	$1,208.00	a) $1,179.00 b) $ 925.00	$1,052.00	+14.8%
176	$919.00	a) $1,179.00 b) $ 925.00	$1,052.00	-12.6%

"On Line" Subject	Subject Price/Acre	Comparable Price/Acre	Average Price/Acre	% Difference Subject to Comparables
177	$919.00	a) $1,179.00 b) $ 925.00	$1,052.00	-12.6%
190	$900.00	a) $ 950.00 b) $ 847.00 c) $ 700.00	$832.00	+8.2%
145	$784.00	a) $ 604.00 b) $ 770.00 c) $ 750.00	$708.00	+10.7%
133	$700.00	a) $ 688.00 b) $ 819.00 c) $ 658.00	$722.00	-3.0%
132	$705.00	a) $ 688.00 b) $ 819.00 c) $ 658.00	$722.00	-2.4%
Average	**$1,063.00**	**$978.00**	**$1,007.00**	

5.2.5.2 Sales Comparison (After Adjustments)

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
250	$1,297.00	a) $1,625.00 x -30% Time; +5% Soil/Cultivation; Total -25% Adjustment = $1,219.00 per acre b) $1,075.00 x +5% Soil, +5% Location; Total +10% Adjustment = $1,183.00 per acre Average = $1,201.00 per acre	+8.0%
249	$1,322.00	a) $1,625.00 x -20% Time; +5% Soil/Cultivation; Total -15% Adjustment = $1,381.00 per acre b) $1,075.00 x +10% Time; +5% Soil, +5% Location; Total +20% Adjustment = $1,290.00 per acre Average = $1,336.00 per acre	-1.0%
207	$1,225.00	a) $1,000.00 x +10% Time; +5% Soil; +5% Location; Total +20% Adjustment = $1,200.00 per acre	+2.1%
167	$1,208.00	a) $1,179.00 x –5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+8.3%

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
169	$1,126.00	a) $1,179.00 x -5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+0.9%
170	$1,250.00	a) $1,179.00 x -5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+12.1%
171	$1,200.00	a) $1,179.00 x -5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+7.6%
172	$1,200.00	a) $1,179.00 x -5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+7.6%
173	$1,208.00	a) $1,179.00 x -5% Soil; Total -5% Adjustment = $1,120.00 per acre b) $925.00 x +20% Time/Motive; Total +20% Adjustment = $1,110.00 per acre Average = $1,115.00 per acre	+8.3%
176	$919.00	a) $1,179.00 x -5% Soil; -10% Motive; Total -15% Adjustment = $1,002.00 per acre b) $925.00 x +10% Time/Motive; Total +10% Adjustment = $1,018.00 per acre Average = $1,010.00 per acre	-9.0%
177	$919.00	a) $1,179.00 x -5% Soil; -10% Motive; Total -15% Adjustment = $1,012.00 per acre b) $925.00 x +10% Time/Motive; Total +10% Adjustment = $1,018.00 per acre Average = $1,010.00 per acre	-9.0%

"On Line" Subject	Subject Price/Acre	Adjusted Comparable Price/Acre	% Difference Subject to Comparables
190	$900.00	a) $950.00 x -20% Time; +15% Motive; Total -5% Adjustment = $903.00 per acre b) $847.00 x -20% Time, +15% Motive; Total -5% Adjustment = $805.00 per acre c) $700.00 x -20% Time; +15% Motive; Total -5% Adjustment = $665.00 per acre Average = $791.00 per acre	+13.8%
145	$784.00	a) $604.00 x 0% Adjustment = $604.00 per acre b) $770.00 x -15% Time, +5% Soil; Total -10% Adjustment = $693.00 per acre c) $750.00 x 0% Adjustment = $750.00 per acre Average = $682.00 per acre	+15.0%
133	$700.00	a) $688.00 x -5% Time; +5% Soil/Cultivation; Total 0% Adjustment = $688.00 per acre b) $819.00 x -25% Time, +10% Soil/Cultivation; Total -15% Adjustment = $696.00 per acre c) $658.00 x -5% Time; +15% Soil/Cultivation; Total +10% Adjustment = $724.00 per acre Average = $703.00 per acre	-0.4%
132	$705.00	a) $688.00 x -5% Time; +5% Soil/Cultivation; Total 0% Adjustment = $688.00 per acre b) $819.00 x -25% Time, +10% Soil/Cultivation; Total -15% Adjustment = $696.00 per acre c) $658.00 x -5% Time; +15% Soil/Cultivation; Total +10% Adjustment = $724.00 per acre Average = $703.00 per acre	+0.3%
Average	**$1,063.00**	**$1,022.00**	

5.2.5.3 Summary – Paired Comparison "Line 923/924 L"

Before adjustment, the fifteen "on line" sales when compared to "off line" sales indicated a wide range of sale prices per acre, with nine sales ranging from 7.0% to 22.5% higher and six sales ranging from -2.1% to -12.6% lower.

After adjustment, the range of difference narrowed considerably for the majority of the paired sales comparisons. Twelve of the fifteen sales were less than 9% difference with the other three sales between 12.0% to 15.0% difference, all higher "on line" than "off line". Overall, there were eleven sales higher "on line" than "off line" (+0.3% to 15.0%) higher and four sales lower "on line" than "off line" (-0.4% to 9.0%).

6.0 DATA VALIDATION

As indicated previously when looking at an acceptable methodology to attempt to determine any impact of transmission lines on agricultural lands, a true quantitative, statistical analysis is an accepted method. Due to the overall small number of sales being analyzed in this study, the results would not be considered statistically significant. However, we provide the following analysis to provide support for the overall significance of the conclusions achieved from the two methods utilized in analyzing the "on line" sales.

Data was researched on all five lines based on the criteria previously outlined. The five lines with a total length of 800 km (500 miles) would encumber approximately 1,000 quarter sections (160 acre ±) which would therefore be 1,000 potential land sales per year. Previous research on the number of total land transactions (arm's-length and non-arm's-length) per year in Alberta is between 3 to 5% of the saleable land base within the province. This percentage of transactions involves legitimate arm's-length and non-arm's-length sales as well as name changes, easements or takings where the title is changed. Based on previous research completed on land title changes, rural lands in the province of Alberta are transferred on average every 20 to 30 years. Therefore, about 30 to 50 properties along the five lines (3% to 5% of 1,000 parcels) should transfer per year, or 145 to 240 properties, should have changed hands within the January, 2000 through October, 2004 study timeline. One hundred and eighty-seven parcels were transferred in total (see the following breakdown). After elimination of non-arm's-length transactions, 54 remained.

Following is the breakdown by line.

"Line 913 L": This line is approximately 100 km (60 miles) long, thereby crossing approximately 120 quarter sections. Based on the 3% to 5% transfers per year, there should be four to six sales per year along this line or 19 to 29 sales over the 4.8 year study period. There were in fact 20 transfers with the following results:

➡ Bareland arm's-length	4
➡ Improved arm's-length	2
➡ Non-arm's-length, others	14
Total	20

Line "190 L/903 L": This line is approximately 130 km (80 metres) long, thereby crossing approximately 160 quarter sections. Based on the 3% to 5% transfers per year, there should be five to eight sales per year, or 24 to 38 sales over the 4.8 year study period. There were in fact 25 transfers with the following results:

- Bareland arm's-length 3
- Improved arm's-length 5
- Non-arm's-length 17

Total 25

Line "80 L": This line is approximately 315 km (195 miles) in length, thereby crossing approximately 390 quarter sections. Based on the 3% to 5% transfers per year there should be 12 to 20 sales per year, or 58 to 96 total sales over the 4.8 year study period. There were in fact 70 transfers with the following results:

- Bareland arm's-length 10
- Improved arm's-length 4
- Non-arm's-length/others 56

Total 70

Line "1202 L": This line is approximately 50 km (30 miles) in length, thereby crossing approximately 60 quarter sections. Based on the 3% to 5% transfers per year, there should be two to three transfers per year or 10 to 14 total transfers over the 4.8 year study period. There were in fact approximately 12 transfers with the following results:

- Bareland arm's-length 3
- Non-arm's-length/other 9

Total 12

Line "923/924 L": This line is approximately 210 km (130 miles) in length, thereby crossing approximately 260 quarter sections. Based on the 3% to 5% transfers per year, there should be eight to thirteen transfers per year, or 38 to 62 transfers over the 4.8 year study period. There were in fact approximately 60 transfers with the following results:

- Bareland arm's-length 18
- Improved arm's-length 5
- Non-arm's-length/others 37

Total 60

6.1 SUMMARY

In the opinion of the appraisers, the above results provide a fair representation of sales within the study area. Lines "913", "1202/1209" and "80" all crossed First Nation lands that do not transfer. Lines "80" and "1202/1209" intersect with major urban centres, also reducing the eligible sales. Line "190" crossed the Keephills and Genesse areas which have less saleable lands due to the large land bases

within the mine permit boundaries. These factors all reduced the potential number of sales. The sale numbers represent what would be considered normal for the potential and actual sales in any given area.

Therefore, the results from the sales analyzed should provide a reasonable basis for conclusions to the study objectives.

7.0 SUMMARY AND STUDY CONCLUSIONS

7.1 SUMMARY

The proposed objective of the study is summarized as follows:

> *The main objective is to determine if there is an impact of existing power transmission lines on the market value of lands encumbered with a transmission line with an agricultural Highest and Best Use in rural Alberta.*

Rural lands with an agricultural Highest and Best Use are purchased for the following reasons:

- expanding farming operation; improving economies of scale, viability, increased land base to assist family growth;
- land in close proximity; adjacent or near other holdings improves viability by increasing revenues and spreading out fixed costs over larger land base; and,
- investment; look at long-term cash returns and capital appreciation.

The features of the land (physical, location, access, etc.) all influence the buying decisions and the price paid in the open market between willing sellers and willing buyers. There are negative features as well, some relating to the physical limitations of the land such as soil, topography, and arability, and others based on condition of the land or lack of access or proximity to highways or adjacent land uses that affects the agricultural activity or use of the land.

The appraisers task was to sort out the features that buyers and sellers consider important from both a negative and positive basis in their buying decision.

As outlined in the study, there were numerous potential methods that could be utilized to address the study objectives. The methods considered to provide the most reliable results were a qualitative analysis, interviewing market participants that have bought/sold agricultural land with a transmission line on the property, and second a "paired sale comparison" method comparing "on line" sales to like "off line" sales.

In addition, the appraisers attempted to obtain a good cross-section of agricultural lands and transmission line structure types across Alberta to see if there were any differences for these factors. Following are the results of this analysis:

7.1.1 Qualitative Analysis - Questionnaire

Summary of Findings				
Line	**Total Arm's-Length Transactions**	**Total Surveyed**	**Perceived Impact**	**Perceived No Impact**
913	6	6	1	5
190/903	8	7	0	7
80	14	11	1	10
1202	3	3	0	3
923/924	23	19	3	16
Total	**54**	**46**	**5**	**41**

The overwhelming majority of market participants (89.1%), involved in "on line" sales indicated that there was no impact on the value of their land as a result of the transmission line. There were five out of 46 interviewed, or 10.9%, that perceived some impact. However, on further questioning, all of these parties indicated that ultimately in their purchases, market value was paid, due to strong competition and the fact that most buyers perceive no negative impact.

7.1.2 Paired Sales Analysis

Summary of Findings						
Line	**# of Sales Comparisons**	**# of Sales Price Higher Than "off Line" (Before Adjustments)**	**# of Sales Price Lower Before Adjustments**	**# of Sales Price Lower After Adjustments**	**# of Sales Lower 0-5%**	**# of Sales Lower >5%**
913	4	4	0	0	0	0
190	3	2	1	2	2	0
80	6	3	3	2	2	0
1202/1209	3	2	1	0	0	0
923/924	15	9	6	4	2	2
Total	**31**	**20**	**11**	**8**	**6**	**2**

The purpose of the paired comparison was to attempt to determine, based on arm's-length market transactions, whether the transmission line impacted the value of the land. By comparing "on line" to "off line" sales, this should provide an objective approach to draw conclusions as to any impact on value. The difficulty in completing this approach was to find a "true" comparable; same physical features, location, access, time of sale and method marketed. This was very difficult as shown by the comparisons of before and after adjustments. There were clearly some areas where true "paired" comparables could not be found.

Out of the 31 sales analyzed after adjustments for any dissimilarities, 23 or 74.2% of the "on line" sale prices were higher than the "off line" prices, indicating no negative impact of the transmission line.

There were eight out of 31 sales analyzed (25.8%) after being adjusted for any dissimilarities, that indicated a value of the "on line" sale somewhat less than the "off line" sale. Six of the eight were less than 4.4% difference and five of these six less than 1.4% difference in price. In appraising rural lands, the anomalies of the marketplace where one property near or adjacent to another sells for a different price are always evident. Therefore, in appraisal theory, a 5% difference is insignificant. Therefore, in the appraisers' opinion, these results indicate an insignificant difference.

The two sales with a difference greater than 5% (9.0%), involved the sale of two separate 50% interests to one buyer, in a very convoluted agreement. This was not a clean sale and our perception was that there were other reasons or factors as to why it sold for such a low price.

7.1.3 Data Validation

Summary			
Line	**Total # Transfers**	**Total # Actual Arm's-Length Sale**	**Total Potential Transactions**
913	20	6	19 to 29
190/903	25	8	24 to 38
80	70	14	58 to 96
1202	12	3	10 to 14
923/924	60	23	38 to 62

This exercise was intended to provide a feeling of confidence and credibility that the data being utilized in the analysis provided an adequate percentage of the total possible transactions and actual transactions.

In the appraisers' opinion, the total actual arm's-length sale numbers are significant, providing some support that the conclusions arrived at in the two study methods were valid.

7.2 CONCLUSIONS

The general perception identified in interviewing "on line" market participants was that the line did not impact the value of agricultural land. In the appraisers' opinion, that perception is based and supported by the following reasons:

- Strong Market: The agricultural land market has been increasing throughout Alberta over the past ten years at between 5% and 10% per year. The overall strong Alberta economy has generated buyers beyond the traditional farmland buyer due to the high off-farm disposable income, lower returns on alternative investment tools, and generally strong agricultural returns (not withstanding some poor returns in certain sectors) over that time frame.

- Annual Compensation: The fact that landowners are paid annual payments per structure to compensate for loss in revenue and increased costs of farming was expressed by market participants as a key reason why there is no negative impact.
- Competition: In the significant majority of interviewees, the buyers were in areas where there was tremendous competition for land. The major reason buyers were purchasing land was due to its location with respect to other land holdings. Those two factors provided strong incentive to buy and far outweigh any negative impact from other factors, which may include the perception that the transmission line decreases land values.

The paired sales comparison supported the results of the survey questionnaire. To arrive at conclusions from the paired sales analysis alone would be very difficult. The intent of this exercise was to compare "on line" to "off line" sales where properties were so alike that you would not have to make any adjustments. As is shown from the data it was impossible to look at the data without making adjustments, as there are seldom "true" comparables in rural areas. The appraisers also took the analysis one step further to include more than one sale if there were more than one sale in close proximity that was truly comparable.

In the appraisers' opinion the approaches taken in analyzing the objective of the study provide strong evidence that there is no impact of transmission lines on agricultural lands in Alberta. The data is very conclusive especially on bareland, dryland farming in true agricultural regions of the province.