Bladen County – Lumber Portion

The preliminary checkpoint spreadsheets were received from NCGS on June 26, 2001. Two spreadsheets were included for each county, which compared the independent QAQC survey checkpoints with the interpolated LIDAR "Z" value as provided by the contractors. The spreadsheet summaries included:
1. All the checkpoints with the RMSE calculation for combined land cover
2. 95% of the checkpoints with the RMSE calculation (5% of points having the largest error removed)

All data was reviewed and further analyzed to assess the quality of the data. The review process examined the statistics for the combined land cover and the trends for each specific land cover type. The following graphs and figures illustrate the LIDAR data quality as per the RMSE criteria.

Table 1 summarizes the RMSE using:
*   100% of the checkpoints
*   95% of the checkpoints
*   Checkpoints categorized by land cover type

Table 1. RMSE by Land Class				
%	RMSE (cm)	# of Points	Land Cover	RMSE Criteria (cm)
100	18.5	27	All	
95	**16.3**	**26**	**All**	**25**
28	18.8	7	Grass	
19	12.9	5	Weeds/Crop	
0	0	0	Scrub	
37	18.6	10	Forest	
15	5.6	4	Built-up	

The LIDAR data for Bladen County – Lumber portion <u>meets specification</u> as per the RMSE criteria.

All figures represent the data with the 95% data set. The data is of good quality and exceeds the RMSE criteria but special attention should be noted for land cover class "Grass". This value is higher than anticipated as it is usually the least problematic vegetation type for LIDAR.

Figure 1 illustrates the RMSE by specific land cover class. Note: No Checkpoints were measured in class "Scrub".
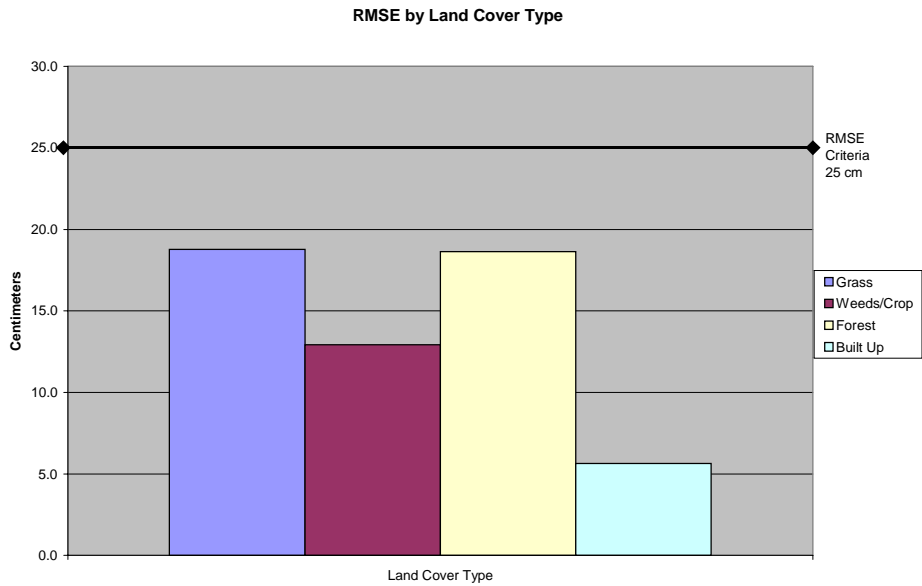
RMSE by Land Cover Type

Figure 1

Figure 2 illustrates the magnitude of the differences between the checkpoints and LIDAR data by specific land class type and sorted from lowest to highest.
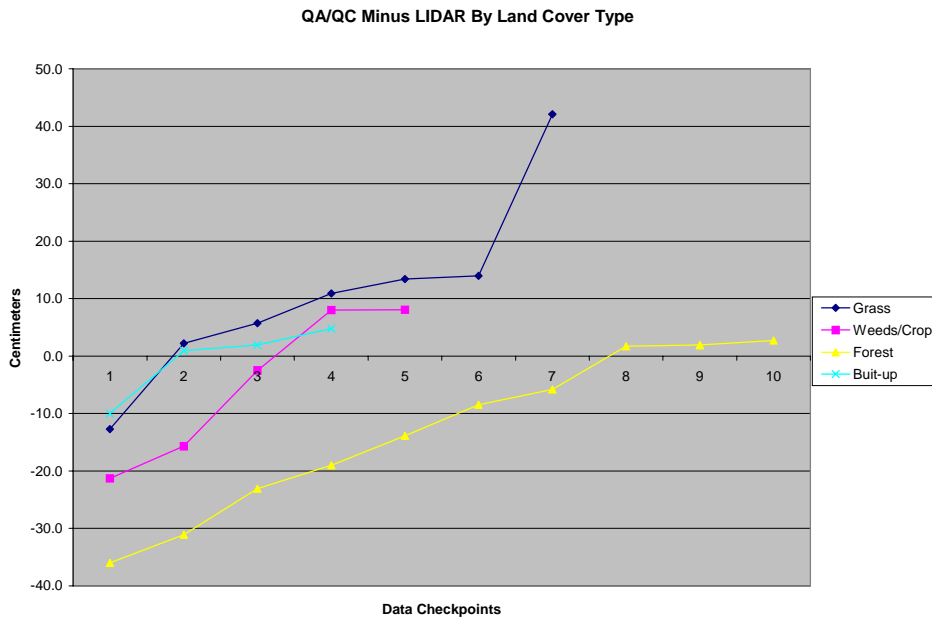
QA/QC Minus LIDAR By Land Cover Type

Figure 2

Table 2 illustrates the Delta between the QAQC survey checkpoints and that of the interpolated LIDAR.

Table 2: Elevation Differences	
Difference (m)	Land Cover
-0.127	Grass
0.022	Grass
0.057	Grass
0.109	Grass
0.134	Grass
0.140	Grass
0.421	Grass
-0.213	Weeds/Crop
-0.157	Weeds/Crop
-0.025	Weeds/Crop
0.080	Weeds/Crop
0.081	Weeds/Crop
-0.360	Forest
-0.311	Forest
-0.231	Forest
-0.190	Forest
-0.139	Forest
-0.085	Forest
-0.058	Forest
0.017	Forest
0.019	Forest
0.027	Forest
-0.100	Built-up
0.009	Built-up
0.019	Built-up
0.048	Built-up

Table 3 illustrates the overall statistics for the checkpoint data.

Table 3: Overall Descriptive Statistics								
	RMSE (cm)	Average (cm)	Median (cm)	Skew	Std Dev	# of Points	Min (cm)	Max (cm)
Total	**16.3**	-3.1	1.3	0.30	16.3	26	-36.0	42.1
Grass	**18.8**	10.8	10.9	0.87	16.6	7	-12.7	42.1
Weeds/Crop	**12.9**	-4.7	-2.5	-0.31	13.5	5	-21.3	8.1
Forest	**18.6**	-13.1	-11.2	-0.41	14.0	10	-36.0	2.7
Built Up	**5.6**	-0.6	1.4	-1.60	6.5	4	-10.0	4.8