ROAD EVALUATION AND IMPROVEMENT PLAN
LEATHERWOOD MOUNTAINS SUBDIVISION

For

LEATHERWOOD PROPERTY OWNERS ASSOCIATION

September 4, 2008

JWA File No.: 071103

Joel E. Wood & Associates, L.L.C.

Planning • Engineering • Management

P.O. Box 296
Clover, South Carolina 29710
2160 Filbert Highway
York, South Carolina 29745
Tel. (803) 684-3390 • Fax. (803) 628-2891
EMAIL: cewood@comporium.net

NORTH CAROLINA PROFESSIONAL SEAL P-0169 ENGINEER JOEL E WOOD & ASSOCIATES, P.L.L.C.

NORTH CAROLINA PROFESSIONAL SEAL 028617 ENGINEER CHRISTOPHER E. WOOD

9/4/08

SECTION 1.0 INTRODUCTION

GENERAL

The Leatherwood Mountains Subdivision (Subdivision) is currently a 270 plus lot residential subdivision located in Wilkes County, North Carolina. A new phase of development is underway that will increase the number of lots within the Subdivision. The Subdivision is a horse friendly community with private homes as well as vacation rentals. There is a home owners association established under the laws of the State of North Carolina that is responsible for certain common properties within the Subdivision. The Leatherwood Property Owners Association (Association) holds these common properties that include roads, open space, and recreation areas for the use and enjoyment of the residents and guest that hold entitlements that permit the use of these common properties.

The Association has the responsibility for approximately sixteen and one-half (16.5) miles of roads within the community. The roads provide those who live and vacation within the community access to the public highways. The road system also provides service vehicles, emergency vehicles and visitors with access to the residents. For purposes of this report, we will refer to the west side of the project which consists of Meadow Road and the roads off of it as the Meadow Side and the east side of the project which consists of Elk Horn Road and the roads off of it as the Elk Horn Side. Based upon the plats provided by Wilkes County, the Meadow Side was generally constructed in the 1980's and 1990's, which makes that portion of the roadway system as much as 20 years old. The Elk Horn Side was constructed in the late 1990's and is still under construction with a phase currently under construction which makes portions of the roadway system as much as ten years old. The officers of the Association realize that the expected life for flexible pavement roads are approximately twenty to twenty-five years, that distress throughout the roadway system has become apparent, and that it is time to evaluate the overall condition of the road system. The road system potentially carries the highest maintenance cost of any of the facilities that the Association currently operates and maintains for the common good of its members. With this in mind, the Association commissioned Joel E. Wood & Associates, L.L.C. to prepare an evaluation of the roadway network.

PURPOSE AND SCOPE

The Association voted to evaluate the roadway network and the related storm drainage system within the Leatherwood Mountains Subdivision. The Association commissioned Joel E Wood & Associates, L.L.C. (JEW&A) to perform the evaluation of the roadway network November of 2007. This report will summarize the evaluation and data collected during the investigative portion of the study and present evaluations and conclusions used to prepare an improvement plan to the Association. The study provides a projection of the annual Capital improvement cost required to maintain the roadway network at a standard that will be acceptable to the Association members.

JEW&A utilized the following investigative procedure to evaluate the condition of the individual roads and the associated storm drainage system. The road network was divided into individual roadways. A rating system developed by the Asphalt Institute was applied to each segment of the roadway network. The storm drain system was not individually rated. The road network was the only component that required a rating system that would rank the seriousness of the needed improvements. The condition of the storm drainage system, associated with each road, was considered in the evaluation and rating of the individual road. A photographic journal was made to use for reference during and after the completion of the evaluation process.

The rating of the road network involved the inspection of each segment in a slow moving vehicle, followed by a closer visual inspection of the same segment. Photographs, dimensions, test frequency, and magnitude measurements were carefully recorded. When the inspection was completed, the evaluation form developed to assist with the ranking of the roadway was compiled and finalized. The rating of each road was accomplished through the assignment of a numerical value to the different types of identifiable distress. Under the rating system, the less serious problems are assigned values between zero (0) and five (5). Defects of a more serious nature, those directly related to the strength of the pavement, are rated on a scale from zero (0) to ten (10). A rating of Zero (0) indicates the pavement is free from the particular type of distress.

After each defect was rated, the individual ratings are added. The sums of the individual ratings were then subtracted form one hundred (100) and the result is simply called the "Condition Rating." The "Condition Rating" provides a general indication of the type and degree of repair work necessary. As a general rule, if the Condition Rating is between eighty (80) and one hundred (100), normal maintenance operations such as filling cracks, pothole repair or perhaps a seal coat are all that is required. If the condition rating falls below eighty (80) and is above forty (40), it is likely that patching and an overlay will be necessary.

Identification and causes of pavement distress were identified prior to the development of the remedial plan. The causes of pavement distress and remedial action are discussed in detail in sections of this report entitled "Pavement Conditions", "Recommendations" and "Cost Alternatives". The roadway network was checked for the five most common types of distress. The type of distress checked were rutting, transverse settlement, corrugations, sink holes, and shoulder raveling. Distresses were identified, the possible causes for the distress were determined and the remedial action required to correct the problems were established with the exception of potential areas of slope failure.

REPORT ORGANIZATION

This report was prepared for the Association to utilize in planning for improvements to the roadway network. The Association will be presented with fifteen copies of the report. The report describes in detail the purpose and scope of the work to be provided, a description of the road network, investigative procedures, surface conditions, types of pavement distress, ranking

of the road network, cost alternatives and a capital improvement plan. Included in the Appendix of the report is pavement data, a photograph log, rating sheets and location maps.

SECTION 2.0 INVESTIGATIVE PROCEDURES

FIELD INVESTIGATION

Twenty-four (24) pavement cores were collected throughout the Leatherwood Mountains roadway system. The cores were advanced in order to evaluate the condition and thickness of the various pavement components. The cores were located in areas with no apparent distress, areas with varying degrees of distress, and areas that are typically difficult to pave (i.e. cul-de-sacs and horizontal and vertical curves) so those areas could be evaluated and comparisons between the different areas could be made. The data was evaluated to determine if there were correlations between pavement distress and pavement thickness and/or subgrade condition. Detailed descriptions of the pavement cores are provided in Table I. The locations of the cores are provided on the maps provided in Appendix A. The base mapping was obtained from a composite map prepared by Lewis Cox. The failure areas, storm drain locations, and core locations were mapped utilizing a handheld GPS mapping unit and imported into the base map for reference. The information provided in the maps should not be construed as a survey and is for informational use and reference only.

The ratings were conducted based upon "A Pavement Rating System for Low-Volume Asphalt Roads" developed by the Asphalt Institute. Under this system, the less serious problems are assigned values between zero (0) and five (5). Defects of a more serious nature, those directly related to the strength of the pavement, are rated on a scale of zero (0) to (10). A rating of zero (0) means that the pavement is free of that particular type of distress. After each defect is rated, the individual ratings are added. This sum is then subtracted from one hundred (100), and the result is simply called the "condition rating." The rating system provides a general indicator of the type and degree of repair work necessary. As a very general rule, if the condition rating is between eighty (80) and one hundred (100), normal maintenance operations such as crack-filling, pot hole repair or perhaps a seal coat are usually all that is required. If the condition rating falls below eighty (80), it is likely that an overlay will be necessary. If the condition rating is below thirty (30), chances are that major reconstruction is necessary. The individual rating sheets are provided in Appendix B and are summarized in Table II.

As part of the rating system a photographic journal of the most serious areas of distress were documented for further reference and analysis. The photographs are provided in Appendix C. The locations of the photographs are provided in the mapping provided in Appendix A.

STORM DRAIN INSPECTION

An inspection team, consisting of a licensed professional engineer, an engineering technician and a photographer systematically mapped components of the existing storm drainage system that could be accessed without the use of excavating equipment. The approximate location of identifiable storm drainage system components was noted and sketched on available maps. The type of material, and condition of accessible storm drainage lines was recorded and later transferred to the location map. Photographs of representative system distresses were taken and are included in the photo log included in Appendix C. The conditions of storm drainage structures were noted and the information recorded for use in rating and evaluation of the roadway that was impacted by the particular structure. From the data collected during the inspection of the storm drainage system, a general assessment was made as to the condition of the storm drainage system and the impact the system has on the condition of the associated roadway. The data collected during this process contributed to the assessment of the overall condition of the roadway and the evaluation of the need for long-term remedial actions. In general the drainage system consists of open ditches and road culverts that covey the stormwater to the embankment side of the roadway system. The road culverts are generally corrugated metal and corrugated HDPE (plastic) pipe. On the uphill side of the culverts, the culverts extend into the open ditch without rip-rap protection or flared end sections. On the downhill side, the culverts generally emerge into midair without outlet protection. Several roads such as Elk ridge and Crocket Cove have curb with catch basins and corrugated stormdrain pipes. In areas where the roadways cross natural stream courses, the stormdrain system generally consists of headwalls with corrugated metal pipe.

SECTION 3.0 PAVEMENT CONDITIONS

PAVEMENT THICKNESS

As indicated, twenty-four (24) cores were obtained throughout the Development in order to evaluate the thickness of the various pavement components. Pavement thickness ranged from 1.25 to 2.75 inches with the average being approximately 1.8 inches. The cores only indicated one lift of asphalt has been placed. The initial section of Meadow Road has had a surface treatment at some point in the past. Surface treatments do not add structural support, but they do seal the surface (i.e. cracks) and make the pavement less permeable and generally increase the life of the pavement. Water that permeates the asphalt eventually results in deterioration of the asphalt/aggregate bonding and “pumping” in the base course and subgrade. Pumping can cause failure in the asphalt pavement from the excessive deflections that are produced. A stone base course was not encountered in some of the core locations. Where the base course was identified, it ranged in thickness from approximately 1 to 4 inches. Base courses of less than 4 inches would typically not be counted as a structural component in design considerations. The asphalt and base course thickness are provided below in Table I.

PAVEMENT CORE RESULTS – TABLE I			
Core Number	**Roadway**	**Ashpalt Thickness (in.)**	**Stone Base Thickness (in.)**
1	Meadow Rd	1.25	2
2	Meadow Rd	1.25	3
3	Meadow Rd	1.75	3
4	West Ridge Rd	2.25	4
5	West Ridge Rd	2.25	4
6	Meadow Rd	2.25	3
7	Meadow Rd	1.75	3
8	Holleridge Rd	2.25	3
9	Hunter Rd	1.50	3
10	Elk Ridge Rd	2.00	2
11	Elk Ridge Rd	2.00	1
12	Elk Ridge Rd	1.75	4
13	Hawk Bill	1.75	4
14	Cabin Ridge Rd	1.50	0
15	Big Sky Rd	1.50	1
16	Elk Horn Rd	1.90	2
17	Crocket Cove Rd	1.75	1
18	Rodeo Dr	2.00	1
19	Outback Rd	2.25	0
20	Tomahawk Ln	1.75	0
21	Elk Horn	1.75	0
22	Wild Turkey Rd	1.25	0
23	Fox Cove	2.75	4
24	Mica Mine Ln	1.75	0

The pavement sections at the core locations are not generally considered adequate as a result of the lack of stone base. In pavement design, it is feasible to utilize a soil base course section in lieu of a stone base course. However, the soil is required to meet a specific soil classification, gradation, and compaction requirements. We understand that there are no records available that would support considering the on-site soils as a base course. Therefore, it is our professional opinion that the current pavement sections would not provide an acceptable structural number for the design traffic number anticipated for the daily traffic for this size subdivision. The lack of an adequate base course results in the asphalt surface being more susceptible to fatigue relative to lack of support, more susceptible to slippage from a lack of bonding with the subgrade, and more susceptible to shrinkage cracks reflecting through the pavement from the subgrade. Even with these considerations, the pavement system has performed relatively well and continues to provide a reasonable level of service.

PAVEMENT DISTRESS

Most of the typical types of pavement distress can be evidenced somewhere within the roadway system. However, the two most prominent types of distress are longitudinal and alligator cracking. In some areas, the longitudinal cracks are combined with slippage. Longitudinal cracks were observed somewhat universally throughout the roadway system. The only way to correct these types of failure is deep patching (i.e. removal of the asphalt and correcting the underlying deficiencies). Isolated longitudinal cracks can be filled with a sealant as part of a maintenance program. Filling the cracks will help extend the life expectancy of the pavement system and prolong the need for patching and overlays. The most severe distress in the pavement system is not directly related to the pavement section. It is cracking and vertical displacement from what appears to be slope failure. We understand that the Developer has recently repaired an area on Elk Ridge Road that was one of the more severe areas of slope failure. This repair was accomplished by re-grading the fill embankment. Evaluating the cause and repair for the areas of slope failure was beyond the scope of this evaluation but should be considered in the capital improvement costs associated with maintaining the Subdivision's infrastructure. Each potential slope failure will need to be evaluated on a case by case basis by a licensed geotechnical engineer or a design-build contractor that specializes in these type repairs and has geotechnical engineers on staff. We have designated in the attached mapping in Appendix A, the thirty locations that can be attributed to or are expected to be relative to slope failure/displacement. In the following table, we have provided a generally ranking of the slope failures from most critical to least critical based upon visual severity and traffic impacts (i.e. loss of service) should failure occur.

Picture Number	Road	Picture Number	Road
195	Elk Ridge	309	Cabin Ridge
165	West Ridge	135	West Ridge
304	Cabin Ridge	229	Fox Branch
299	Cabin Ridge		Last Chance
132	West Ridge		Hunter Road
259	Elk Horn	175	Elk Ridge
177	Elk Ridge	178	Elk Ridge
192	Elk Ridge	179	Elk Ridge
193	Elk Ridge	186	Elk Ridge
206	Elk Ridge	194	Elk Ridge
207	Elk Ridge	196	Elk Ridge
211	Elk Ridge	289	Cabin Ridge
117	Meadow	295	Cabin Ridge
249	Elk Horn	312	Cabin Ridge
258	Elk Horn		Groose Feathers

SECTION 4.0 PAVEMENT RATING SCHEDULE

A pavement rating system that was developed by the Asphalt Institute was utilized to evaluate the general condition of the roadways within the Leatherwood Mountains Development. It should be indicated that this rating system provides a relative indication and should not be interpreted as an absolute indicator as a result of the judgment that must be utilized in the ratings. A summary of the condition ratings is provided in Table II. The individual rating sheets with a rating for each type of distress are provided in Appendix B.

The ratings range from sixty-eight (76) to ninety-eight (98). Ratings of eighty (80) and above generally require general maintenance such as patching of potholes and the sealing of cracks. Ratings from thirty (30) to eighty (80) generally require patching and overlay. Only one road, Elk Ridge Road, falls within the range of "patching and overlay."

PAVEMENT RATING CHART – TABLE II

Road	Approx. Length (Miles)	Approx. Width (FT)	Rating
Golden Eagle Lake	0.2	12	98
Crocket Cove	0.6	15	97
Rodeo Dr	0.4	9	96
Bobs Branch	0.1	9	96
Tomahawk Ln	0.1	14	95
Big Sky Rd	0.4	12	94
Wild Turkey Rd	0.7	14 to 9	93
Buckaroo	0.1	8	93
Fox Cove	0.8	14 to 9	92
Last Chance	0.2	9	92
Mica Mine	0.3	18	92
Hawkbill	0.3	9	91
Wagon Ridge Rd	0.1	10	90
Hunter Rd	0.5	9	90
Hollow Ridge Rd	1.0	10	88
Outback Rd	0.4	14	88
Cabin Ridge	0.8	16	86
Grouse Feathers	0.3	10	86
West Ridge	1.6	9	85
Meadow Road	2.5	18	85
Elk Horn Rd	2.2	18	83
Elk Ridge Rd	2.9	20	76

SECTION 5.0 ROADWAY GEOMETRY

General design standards, such as the *NCDOT Minimum Construction Standards*, require that two-lane subdivision roadways be a minimum of 18 feet wide, have a minimum 4 foot shoulder, and have an approved turnaround at the end of the road. One-lane roads are generally a minimum of 12 feet wide with 4 foot shoulders. In general, only the main roads meet these standard design criteria, and even they do not meet the requirements for 4 foot shoulders. As such, the roadway system poses potential liability concerns. We believe the biggest issue is two-lane roads that do not even meet one-lane road standards and the lack of adequate turnarounds. This poses serious concerns relative to access of emergency vehicles to these areas and potential liability to the Association. Roads that do not generally meet design standards should be private drives, or an emergency plan should be developed for access to these areas. Although very costly, the roads could be upgraded to current design standards.

SECTION 6.0 RECOMMENDATIONS

The pavements on a whole are in fair to good condition, but serious types of distress are becoming more prominent. In addition, the pavements in the Meadow Side of the Development are reaching the end of a standard design life for flexible pavements, which is fifteen (15) to twenty (20) years. The predominant types of distress, which are longitudinal cracks, slippage, and alligator cracking and settlement, require sealing and deep patching. As indicated previously, slope failure is the most severe and problematic distress in the pavement system. Even though slope failure is not directly related to the pavement section, evaluating the cause, determining the repair requirements, and establishing a budget for the slope repairs should be undertaken prior to adopting any capital improvement plan for the roadway system. Slope failure should also be the first type of repair addressed since it poses the biggest risk for loss of service from the roadway system. It could render roads impassible as failure progresses. Repair of the slope failures could be a significant portion of the capital improvement costs, and funding could dictate the extent of the other repairs and remedial activities. For budgeting purposes, we have developed costs to build a subsurface wall under the edge of the pavement that would allow the roadway to act independently of the slope. This may not ultimately be the recommended repair, but it will give a benchmark for beginning to develop a capital improvement plan.

The stormdrain system is not typical in the sense that the majority of the outlets are suspended in midair. However, the system does appear to be functional and producing minimal erosion on the outlet side. We do recommend a maintenance plan to clean and repair all stormdrain inlets and outlets and provide rip-rap aprons at each inlet and outlet. A maintenance crew should also periodically inspect and clean all inlets to maintain flow into the culverts, especially in the fall when ditches and outlets become clogged with leaves.

As indicated in Table II, there is only one road (Elk Ridge Road) that falls into the patch and overlay range of the rating system. All of the other roads fall within the general maintenance range of the rating system. As previously indicated, the roadway sections do not meet standard design methodology of having a subgrade, base course, and asphalt surface. Therefore, the pavement sections are generally considered insufficient; even though, they are providing a reasonable level of surface. Given these considerations, there are three potential scenarios for repair and long-term maintenance of the roadway system.

Scenario I

The first scenario is to provide patching and surface treatments and treat the roadways more as "farm to market roads." This would potentially eliminate future overlays and relegate maintenance to patching and surface treatments for the future. A long range overlay program could be added to this scenario and would be consistent with the paving costs in Scenario III. The downside to this scenario is that the roadways will look and ride like "tar and gravel" roads, and surface treatments will not generally add structural value to the pavement section. Slippage and reflective cracking may continue to be an on-going problem. The positive side of this scenario is limiting costs and the consideration that the shoulders will not need to be built-up. Building up shoulders for overlays could be problematic because of the current lack of shoulders.

Scenario II

The second scenario is to mill the roads, utilize the milled asphalt as a base course and then provide a triple treatment. The downside is that will be "farm to market" roads. The positive side is that maintenance and repair is easy and cost effective and the shoulders will not have to be built-up. Another benefit is that this option could be deferred to allow the roadways to reach a lower level of service since the asphalt will ultimately be milled and the pavement distress eliminated.

Scenario III

The third scenario is to establish a patch and overlay program to increase the pavement section. The downside to this scenario is the cost and problems with building up the shoulders. The positive sides are that maintenance and repair will be deferred for an extended period once the overlay is applied and the roadway will have better ridability.

SECTION 7.0 COST ALTERNATIVES & CAPITAL IMPROVEMENT

The budget estimates for the three scenarios addressed in the previous section are presented in the following tables. These are preliminary cost estimates, and as such, we have no control over

the cost of labor, materials, or contractors' method of pricing. In each of the scenarios, we have recommended annual maintenance budgets for pavement repairs. This budget item should be in addition to the storm drainage item currently in the budget. Funds for cleaning stormdrain structures and keeping them in good operating condition will be an on-going expense. The highest pavement budget is associated with the "patching and overlaying" scenario since there will be more expense to maintain the existing surface course leading up to the overlay. The pavement budget decreases for the other scenarios relative to the amount of asphalt surface course left in-place. In Scenario II, less effort will be applied annually until the roads are ready to be milled and maintenance to repair a "farm to market" road is generally less.

Under the current funding level of approximately $140,000 per year for paving, both Scenario I and II could be funded with the accumulated capital over a 15 year period. However, Scenario I assumes that patching and a surface treatment program will be undertaken initially. This would potentially result in an initial assessment to the homeowners. Scenario II may not require an assessment since wholesale repairs and maintenance would be deferred. Scenario III would require a more detailed capital improvement plan and assessment to the homeowners to fund this scenario. Implementing any capital improvement plan will require that inflation rates be applied to the cost scenarios. Inflation could impact whether the $140,000 per year allocation would fund Scenarios I and II. Therefore, the annual funding will need to be evaluated and adjusted annually to account for inflation.

SCENARIO I - PATCH AND SURFACE TREATMENT

Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1.0	L.S.	$ 50,000.00	$ 50,000.00
2	STORMDRAIN				
2.1	CLEAN OUT & REPAIR PIPE ENDS	1.0	L.S.	$ 19,500.00	$ 19,500.00
2.2	RIP-RAP APRONS	1500.0	TONS	$ 25.00	$ 37,500.00
3	SLOPE FAILURE REPAIRS				
3.1	UNDERCUT & RECOMPACT SOIL	4500.0	C.Y.	$ 8.00	$ 36,000.00
3.2	CONCRETE WALL	330.0	C.Y.	$ 350.00	$ 115,500.00
4	ASPHALT				
4.1	ASPHALT PATCH	2200.0	TONS	$ 110.00	$ 242,000.00
4.2	SURFACE TREATMENT	146000.0	S.Y.	$ 1.50	$ 219,000.00
	ESTIMATED CONSTRUCTION COST				$ 719,500.00
	CONTINGENCIES				$ 71,950.00
	ENGINEERING				$ 71,950.00
	ESTIMATED PROJECT COST				**$863,400.00**

ASSUME MAINTENANCE PERFORMED INITIALLY
ANNUAL MAINTENANCE BUDGET = $50,000.00

Total 15 Year Expenditure = $1,613,400.00

SCENARIO II - MILL AND TRIPLE SURFACE TREATMENT

Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1.0	L.S.	$ 70,000.00	$ 70,000.00
2	STORMDRAIN				
2.1	CLEAN OUT & REPAIR PIPE ENDS	1.0	L.S.	$ 19,500.00	$ 19,500.00
2.2	RIP-RAP APRONS	1500.0	TONS	$ 25.00	$ 37,500.00
3	SLOPE FAILURE REPAIRS				
3.1	UNDERCUT & RECOMPACT SOIL	4500.0	C.Y.	$ 8.00	$ 36,000.00
3.2	CONCRETE WALL	330.0	C.Y.	$ 350.00	$ 115,500.00
4	ASPHALT				
4.1	MILLING	146000.0	S.Y.	$ 1.50	$ 219,000.00
4.2	TRIPLE TREATMENT	146000.0	S.Y.	$ 3.00	$ 438,000.00
	ESTIMATED CONSTRUCTION COST				$ 935,500.00
	CONTINGENCIES				$ 93,550.00
	ENGINEERING				$ 93,550.00
	ESTIMATED PROJECT COST				**$1,122,600.00**

ALLOW DISTRESS TO PROGRESS WITH LESS MAINTENANCE & MILL AND PAVE AS NECESSARY

ANNUAL MAINTENANCE BUDGET = $30,000.00

Total 15 Year Expenditure **$1,572,600.00**

SCENARIO III - PATCH AND OVERLAY

Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1.0	L.S.	$75,000.00	$ 75,000.00
2	STORMDRAIN				
2.1	CLEAN OUT & REPAIR PIPE ENDS	1.0	L.S.	$19,500.00	$ 19,500.00
2.2	RIP-RAP APRONS	1500.0	TONS	$ 25.00	$ 37,500.00
3	SLOPE FAILURE REPAIRS				
3.1	UNDERCUT & RECOMPACT SOIL	4500.0	C.Y.	$ 8.00	$ 36,000.00
3.2	CONCRETE WALL	330.0	C.Y.	$ 350.00	$ 115,500.00
4	ASPHALT				
4.1	ASPHALT PATCH	2200.0	TONS	$ 110.00	$ 242,000.00
4.2	SURFACE COURSE	15330.0	TONS	$ 85.00	$ 1,303,050.00
	ESTIMATED CONSTRUCTION COST				$ 1,828,550.00
	CONTINGENCIES				$ 182,855.00
	ENGINEERING				$ 182,855.00
	ESTIMATED PROJECT COST				**$2,194,260.00**

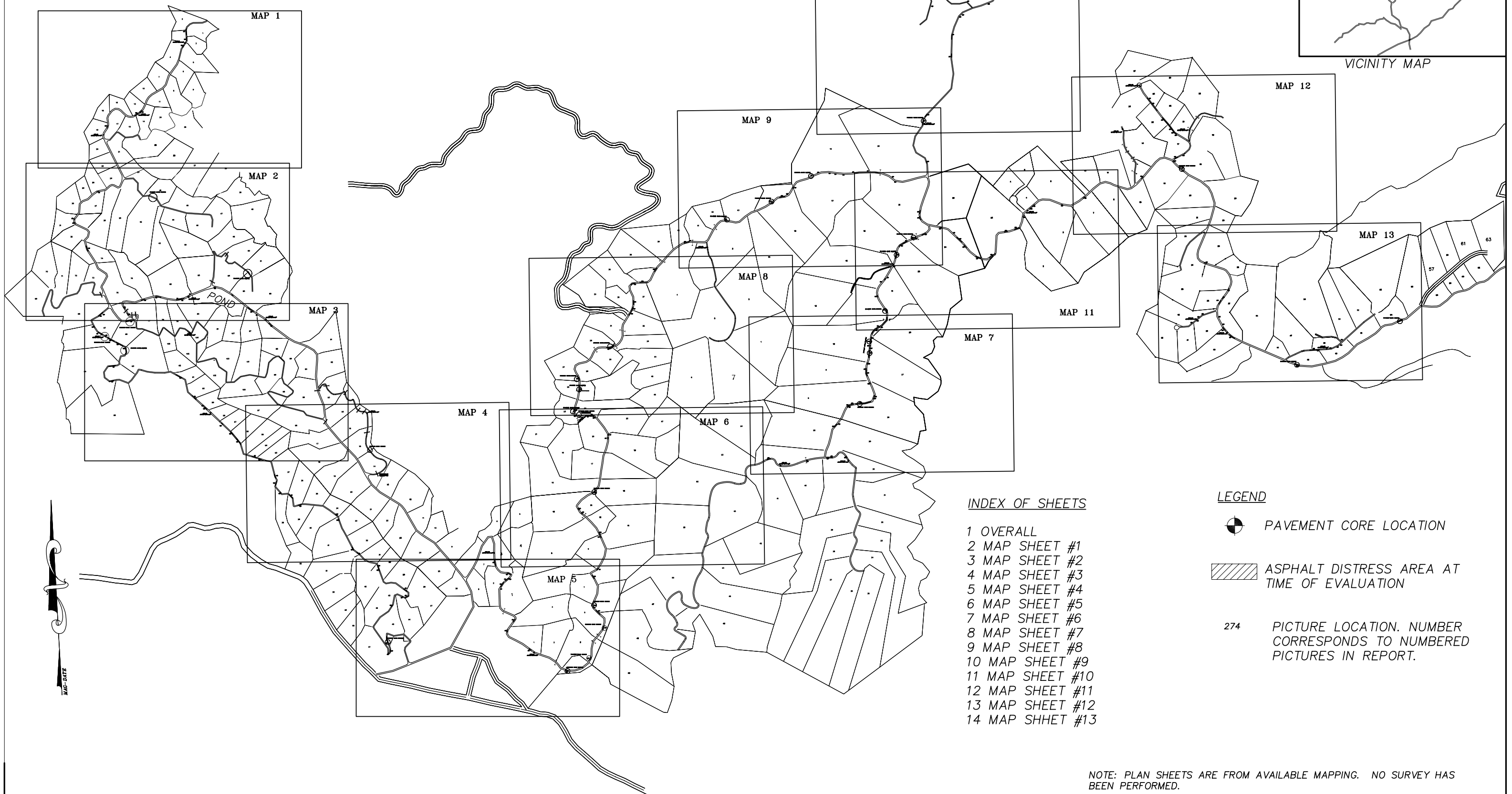
PROVIDE ANNNUAL MAINTENANCE & DEFER PAVING AS LONG AS POSSIBLE

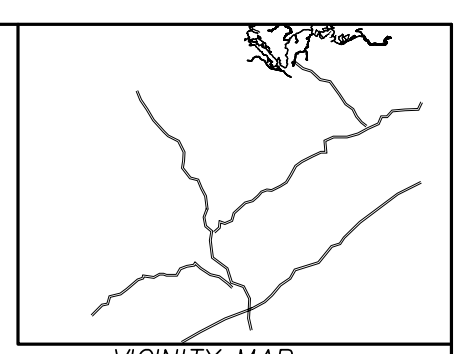
ANNUAL MAINTENANCE
BUDGET = $80,000.00

Total 15 Year Expenditure **$3,394,260.00**

APPENDIX A

LEATHERWOOD MOUNTAINS





VICINITY MAP

INDEX OF SHEETS

LEGEND

PAVEMENT CORE LOCATION

ASPHALT DISTRESS AREA AT TIME OF EVALUATION

274 PICTURE LOCATION. NUMBER CORRESPONDS TO NUMBERED PICTURES IN REPORT.

NOTE: PLAN SHEETS ARE FROM AVAILABLE MAPPING. NO SURVEY HAS BEEN PERFORMED.

APPROVALS

PROJECT ENGR: CEW
DRAWN BY : HAB
CHECKED BY : CEW

PREPARED BY

Joel E. Wood & Associates, PLLC
Planning / Engineering / Management
P.O. Box 296 Clover, S.C. 29710
Phone: 803-684-3390

SEALS

PROJECT

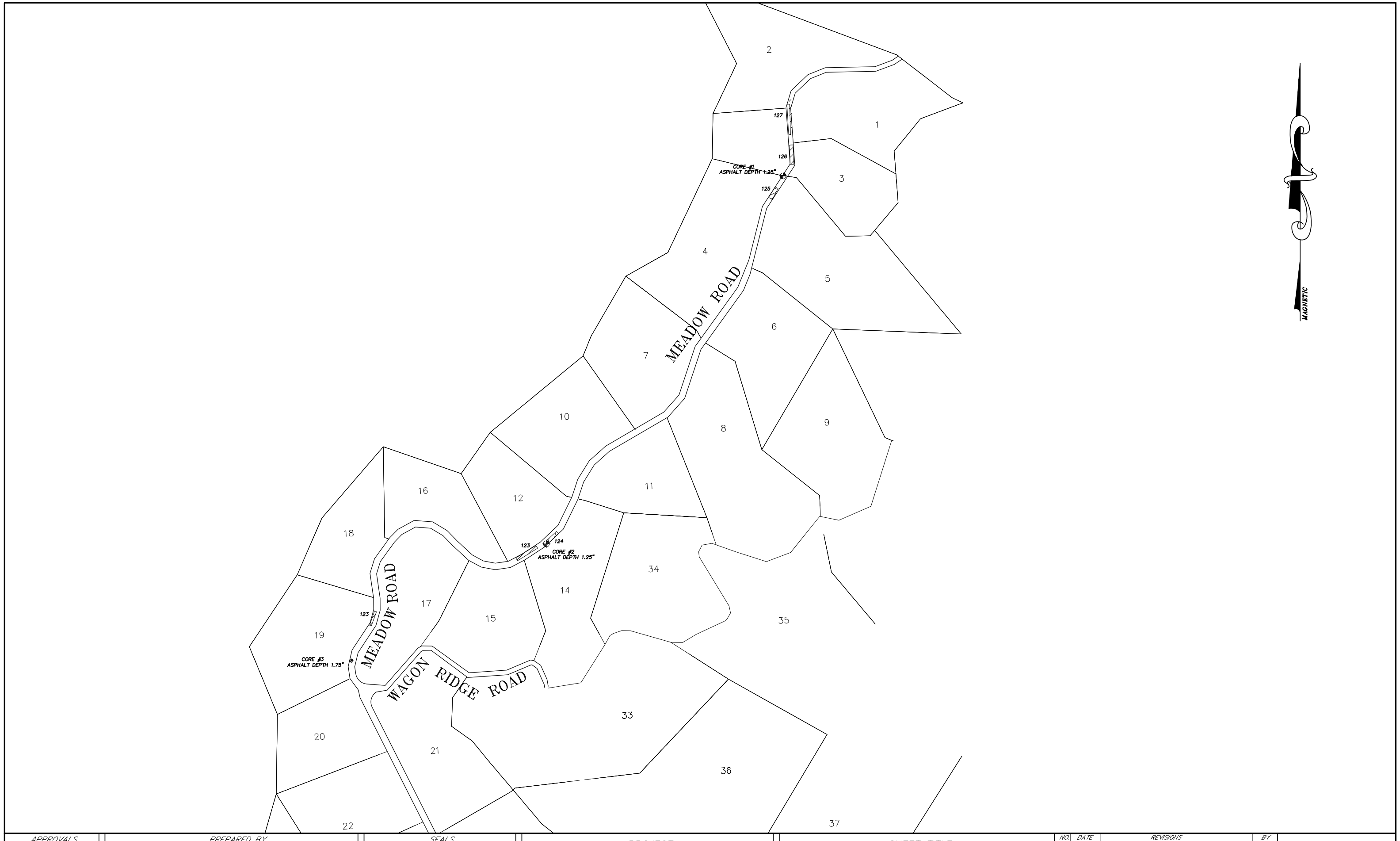
ROADWAY EVAULATION
WILKES COUNTY, NORTH CAROLINA
PREPARED FOR
LEATHERWOOD TOWNSHIP

SHEET TITLE

COVER

NO.	DATE	REVISIONS	BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 1 OF 14



APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	NO.	DATE	REVISIONS	BY
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #1				

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 2 OF 14

MEADOW ROAD

GROUSE FEATHERS ROAD

41
POSSIBLE SLOPE FAILURE

GOLDEN EAGLE LAKE

MEADOW ROAD

MEADOW ROAD

LAST CHANCE ROAD

POSSIBLE SLOPE FAILURE

POND

CORE #6
ASPHALT DEPTH 2.25"

CORE #7
ASPHALT DEPTH 1.75"

MAGNETIC

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	REVISIONS	SCALE: NTS
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #2	NO. DATE BY	DATE: MARCH 13, 2008 JOB NO. 07110.3 SHEET 3 OF 14

WEST RIDGE ROAD

HOLLERIDGE ROAD

MEADOW ROAD

HUNTER ROAD

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

CORE #4
ASPHALT DEPTH 2.25"

CORE #6
ASPHALT DEPTH 2.25"

CORE #7
ASPHALT DEPTH 1.75"

CORE #5
ASPHALT DEPTH 2.25"

MAGNETIC

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	NO.	DATE	REVISIONS	BY	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #3					SCALE: NTS DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 4 OF 14

HOLLERIDGE ROAD

WEST RIDGE ROAD

HUNTER ROAD

MEADOW ROAD

MEADOW ROAD

CORE #9
ASPHALT DEPTH 1.50"

POSSIBLE SLOPE FAILURE

NEEDS TO BE CLEANED OUT

CORE #10
ASPHALT DEPTH 2.00"

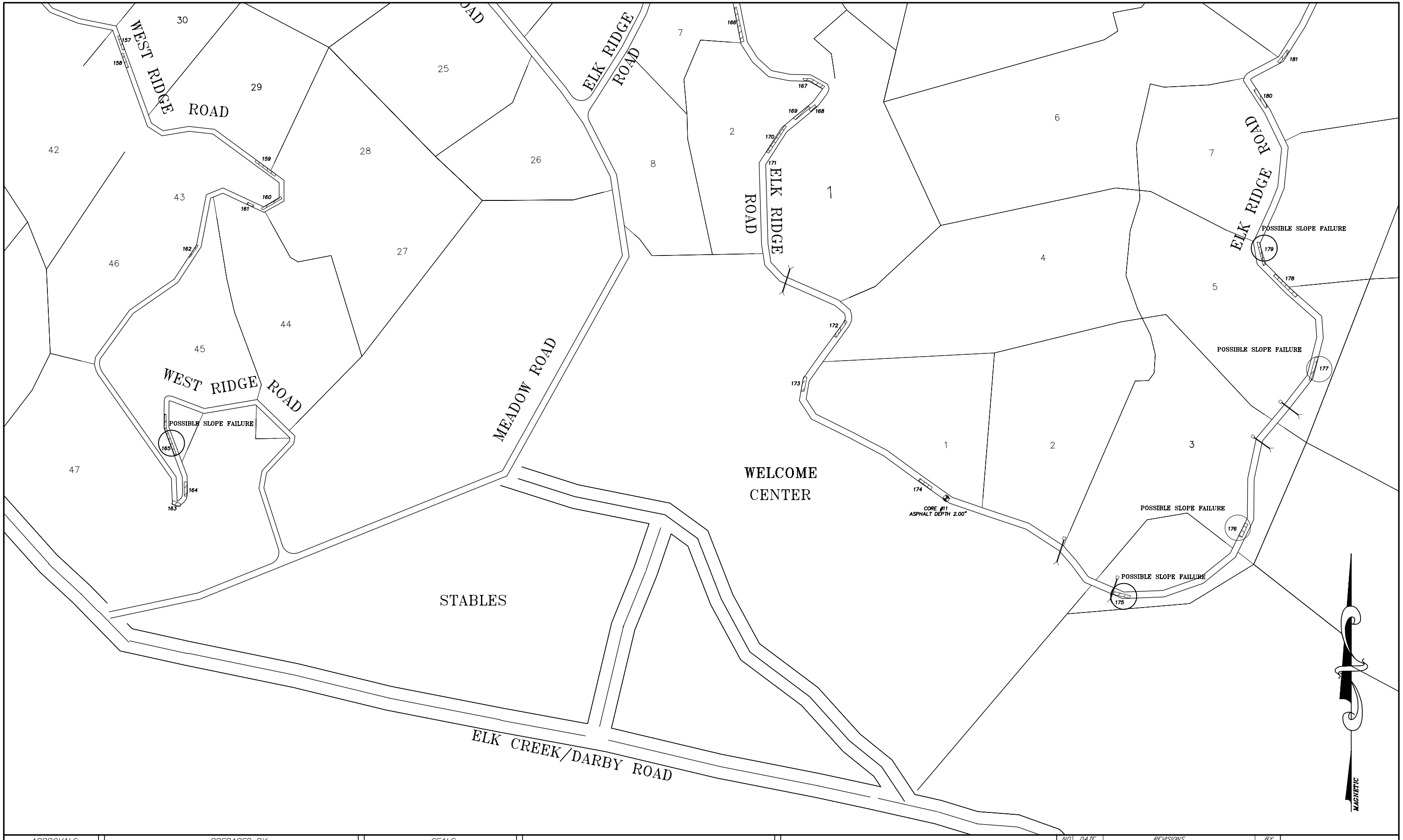
MAGNETIC

97 95 94 16 56 55 54 53 17 15 18 14 37 36 19 13 35 20 12 34 21 11 39 38 40 33 22 10 41 32 23 9 31 24 6 3

146 147 148 149 150 151 152 153 154 155 156

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	REVISIONS
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	Joel E. Wood & Associates, PLLC Planning / Engineering / Management P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #4	NO. DATE BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 5 OF 14



APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	NO.	DATE	REVISIONS	BY	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #5					SCALE: NTS DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 6 OF 14

MAGNETIC

POSSIBLE SLOPE FAILURE

PIPE STUBBED OUT INTO BOX NEEDS TO BE TRIMMED OFF

CORE #12 ASPHALT DEPTH 1.75"

ELK RIDGE

ELK RIDGE ROAD

WILD TURKEY ROAD

POSSIBLE SLOPE FAILURE

193 192 191 190 189 188 187 186 185 184 183 182

3 4 5 8 9 10 11 12 14 15 16 17 18 19 20 21 22 23 42 43 47 51 52 53 54

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	REVISIONS	SCALE: NTS
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #6	NO. DATE BY	DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 7 OF 14

CABIN RIDGE ROAD

WILD TURKEY ROAD

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

CORE #22
ASPHALT DEPTH 1.25"

CORE #15
ASPHALT DEPTH 1.50"

1 10 9 8 55 26 27 28 29 30

301 303 302 300 299 298 297 296 295 294 293 292 291 290 289 288 287 286 285 284 283 282 281 280 279

MAGNETIC

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	NO.	DATE	REVISIONS	BY	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #7					SCALE: NTS DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 8 OF 14

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #8

NO.	DATE	REVISIONS	BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 9 OF 14

MAGNETIC

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

POSSIBLE SLOPE FAILURE

CORE #23
ASPHALT DEPTH 2.75"

CORE #13
ASPHALT DEPTH 1.75"

CORE #14
ASPHALT DEPTH 1.50"

ELK RIDGE ROAD

ELK RIDGE ROAD

FOX BRANCH

CABIN RIDGE ROAD

19

20

17

21

42

43

41

16

18

3

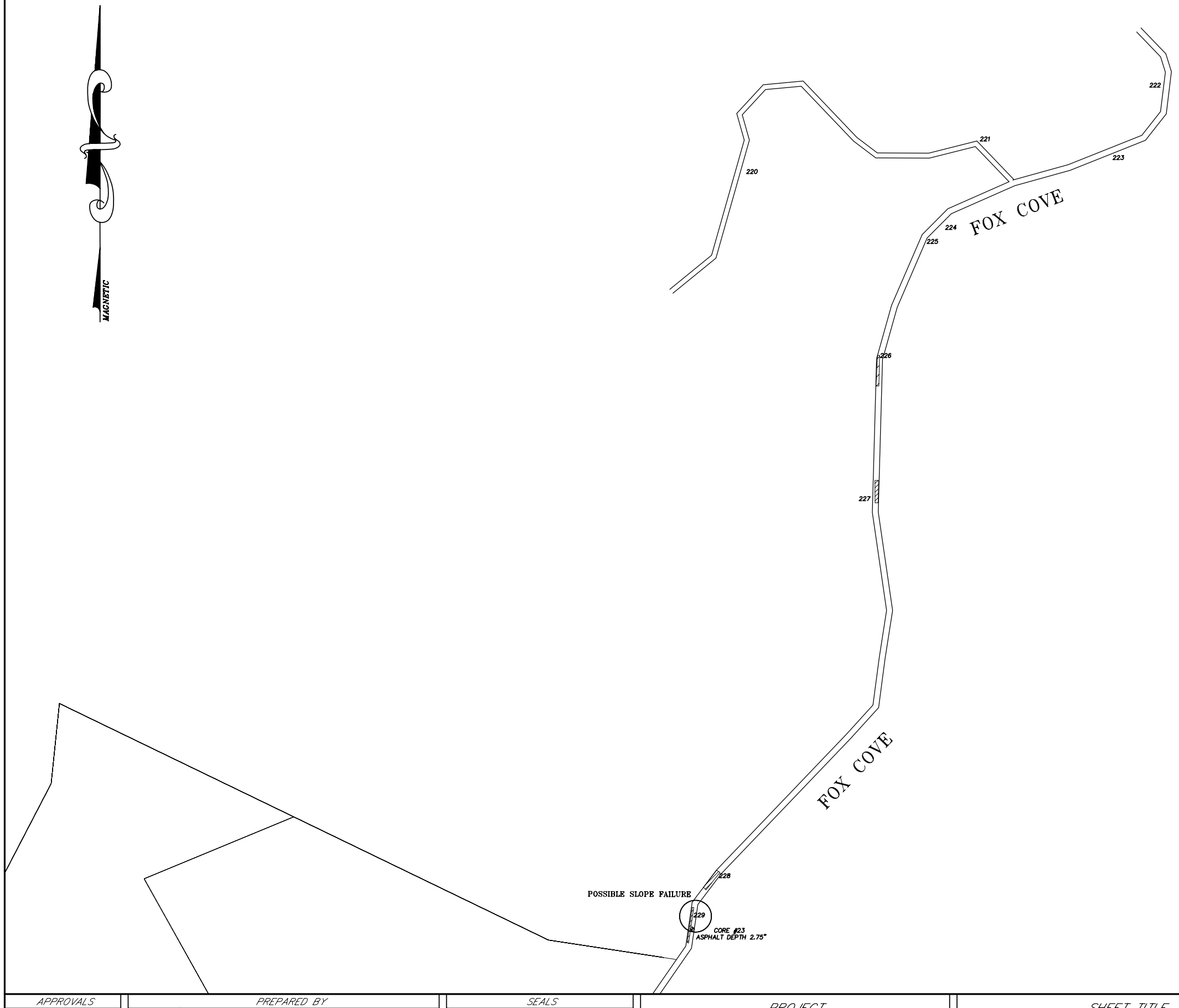
14

15

204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 228 229 230 231 232 233 309 310 311 312 313 314

APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	REVISIONS	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #9	NO. DATE	BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 10 OF 14



APPROVALS

PROJECT ENGR: CEW
DRAWN BY : HAB
CHECKED BY : CEW

PREPARED BY

Joel E. Wood & Associates, PLLC
Planning / Engineering / Management
P.O. Box 296 Clover, S.C. 29710
Phone: 803-684-3390

SEALS

PROJECT

ROADWAY EVAULATION

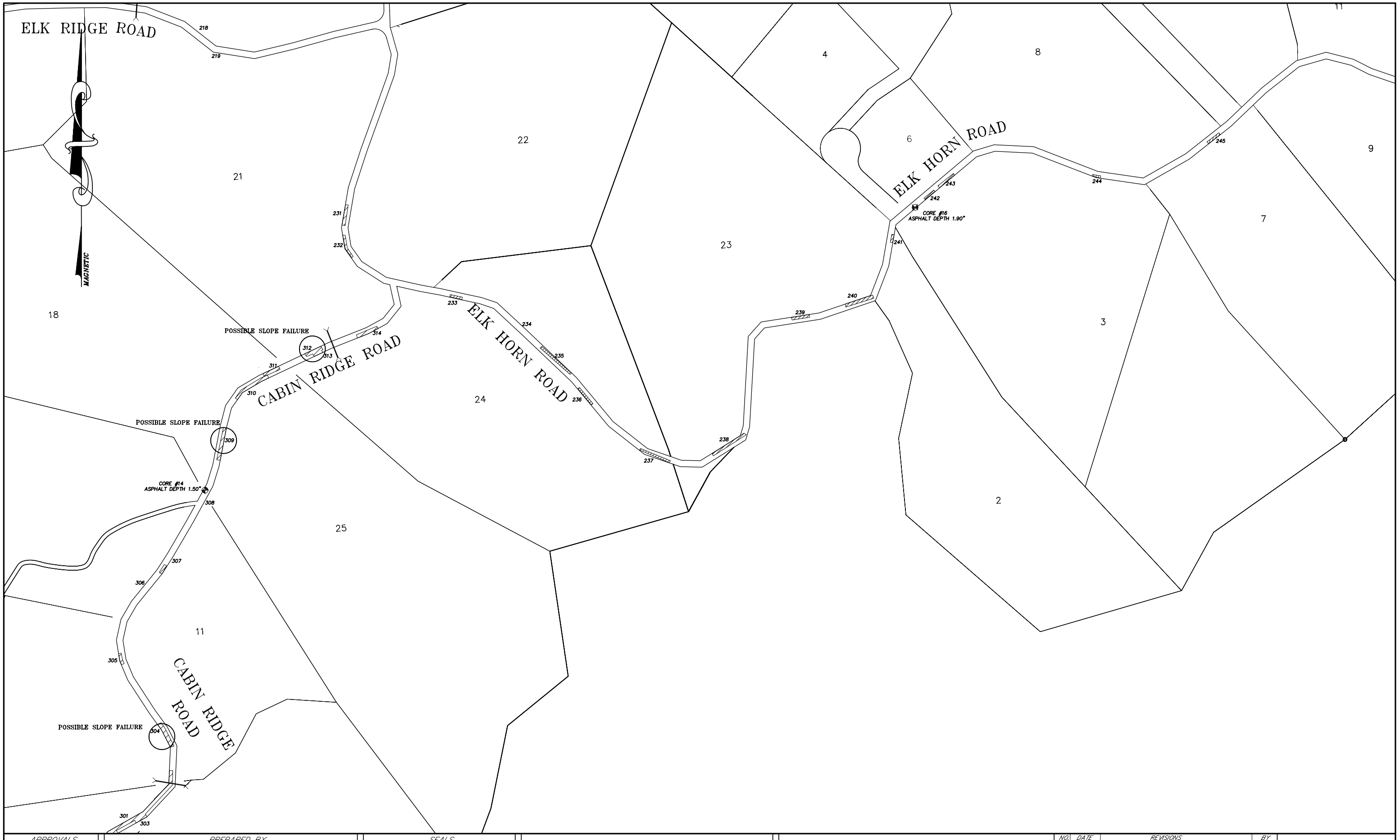
WILKES COUNTY, NORTH CAROLINA
PREPARED FOR
LEATHERWOOD TOWNSHIP

SHEET TITLE

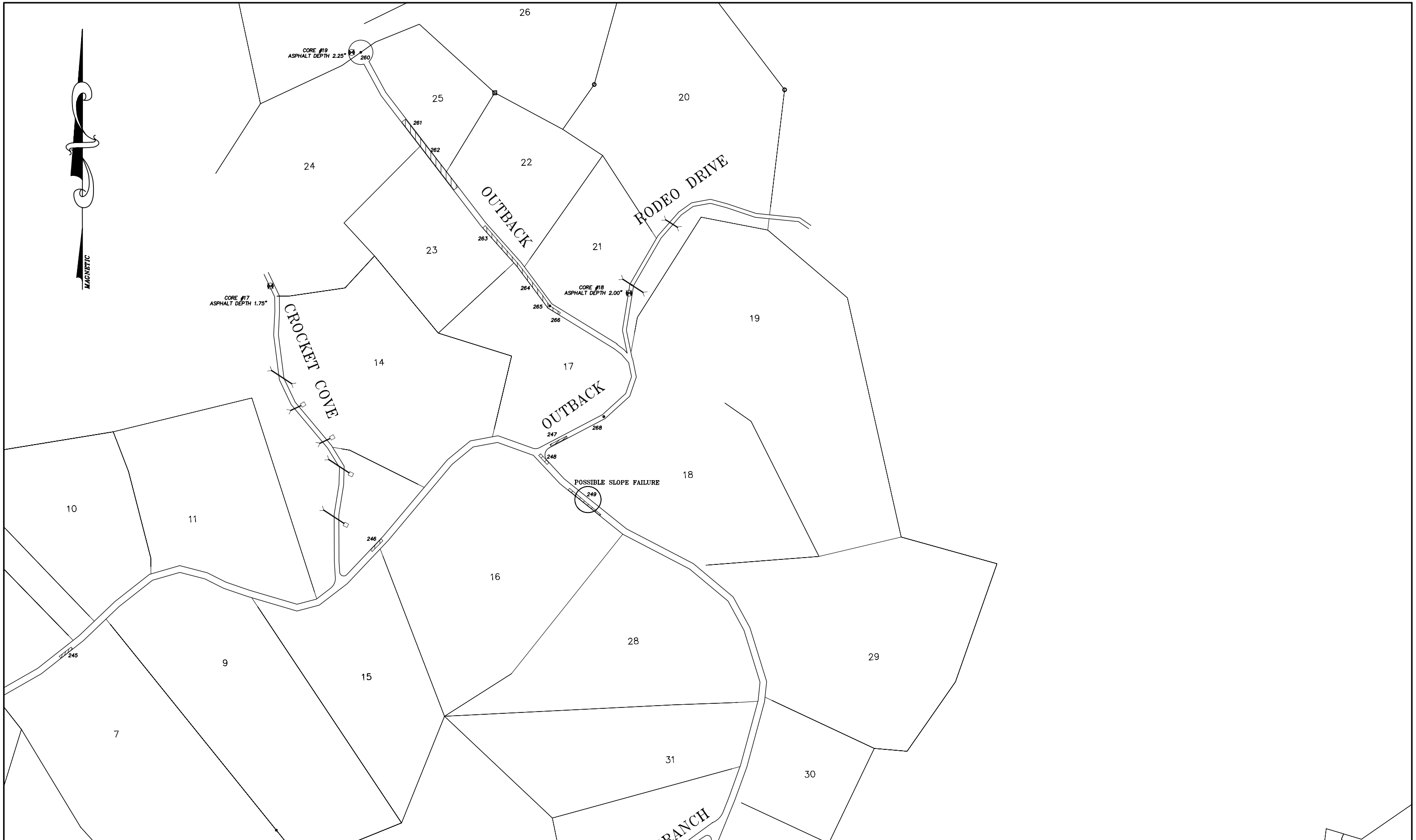
MAP SHEET #10

NO.	DATE	REVISIONS	BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 11 OF 14



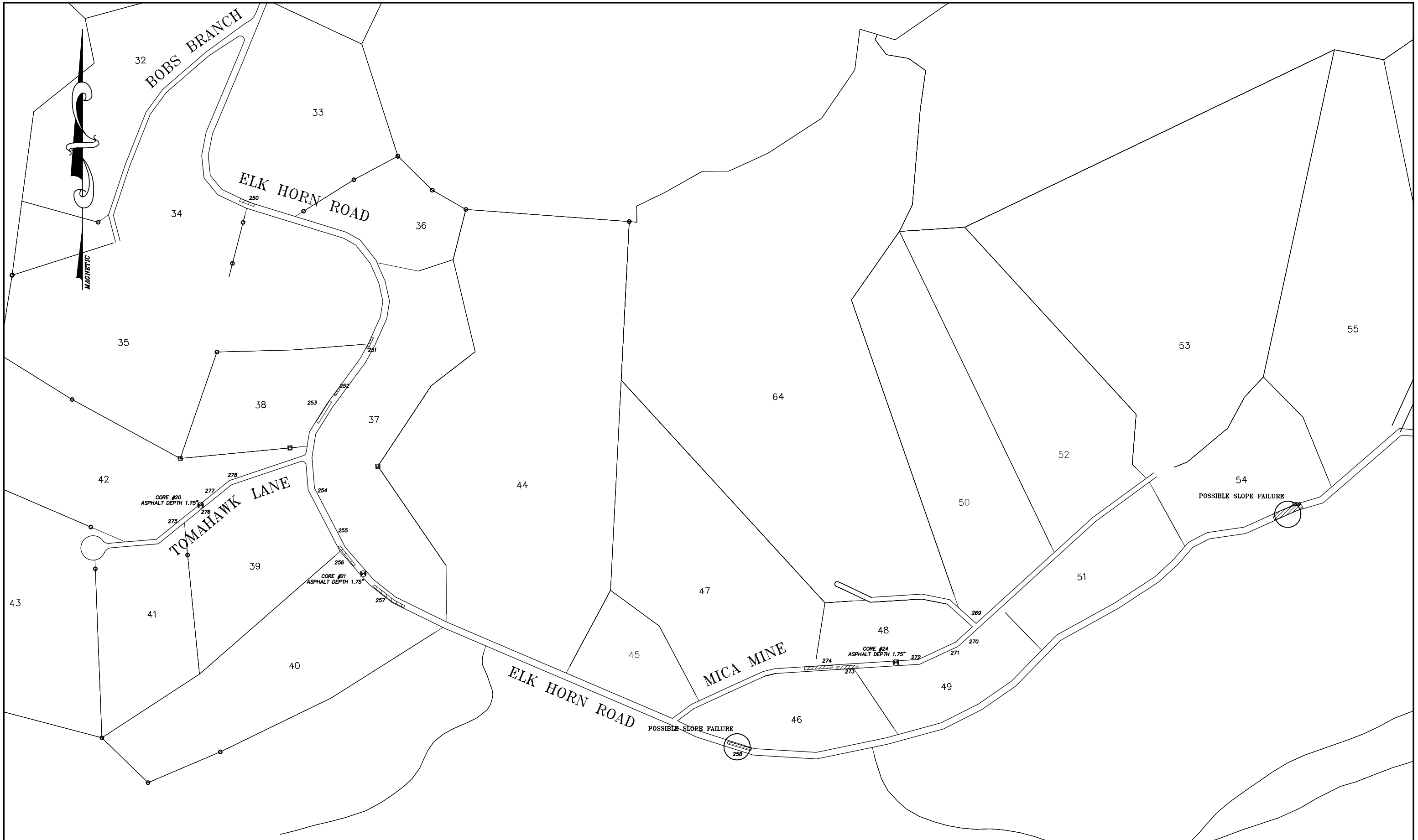
APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	NO.	DATE	REVISIONS	BY	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #11					SCALE: NTS DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 12 OF 14



APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #12

NO.	DATE	REVISIONS	BY

SCALE: NTS
DATE: MARCH 13, 2008
JOB NO. 071103
SHEET 13 OF 14



APPROVALS	PREPARED BY	SEALS	PROJECT	SHEET TITLE	REVISIONS	
PROJECT ENGR: CEW DRAWN BY : HAB CHECKED BY : CEW	**Joel E. Wood & Associates, PLLC** *Planning / Engineering / Management* P.O. Box 296 Clover, S.C. 29710 Phone: 803-684-3390		ROADWAY EVAULATION WILKES COUNTY, NORTH CAROLINA PREPARED FOR LEATHERWOOD TOWNSHIP	MAP SHEET #13	NO. DATE	BY
						SCALE: NTS DATE: MARCH 13, 2008 JOB NO. 071103 SHEET 14 OF 14

APPENDIX B

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE WEST RIDGE CITY OR COUNTY WILKES

LENGTH OF PROJECT 1.6 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 6/27/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	3
Alligator Cracks	0-10	4
Shrinkage Cracks	0-5	2
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	2
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	15

Condition Rating = 100 - Sum of Defects

= 100 - 15

Condition Rating = 85

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE BUCKAROO CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.1 MI WIDTH 8'

PAVEMENT TYPE ASPHALT DATE 6/27/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	1
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	7

Condition Rating = 100 - Sum of Defects

= 100 - 7

PREVIOUS PATCHES

Condition Rating = 93

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE HAWKBILL CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.3 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 6/27/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	2
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	1
Shoving or Pushing	0-10	0
Pot Holes	0-10	1
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	1
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	9

Condition Rating = 100 - Sum of Defects

= 100 - 9

Condition Rating = 91

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE GOLDEN EAGLE LAKE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.2 MI WIDTH 12'

PAVEMENT TYPE ASPHALT DATE 4/15/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	0
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	1
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	1
	Sum of Defects	2

Condition Rating = 100 - Sum of Defects

= 100 - 2

Condition Rating = 98

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE HOLLOW RIDGE RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 1.0 MI WIDTH 10'

PAVEMENT TYPE ASPHALT DATE 4/15/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	3
Alligator Cracks	0-10	2
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	2
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	3
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	12

Condition Rating = 100 - Sum of Defects

= 100 - 12

Condition Rating = 88

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE LAST CHANCE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.2 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 4/30/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	3
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	8

Condition Rating = 100 - Sum of Defects

= 100 - 8

Condition Rating = 92

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE MEADOW ROAD CITY OR COUNTY WILKES

LENGTH OF PROJECT 2.5 MI WIDTH VARIES

PAVEMENT TYPE ASPHALT DATE 4/15/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	3
Shrinkage Cracks	0-5	0
Rutting	0-10	1
Corrugations	0-5	1
Raveling	0-5	1
Shoving or Pushing	0-10	0
Pot Holes	0-10	1
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	3
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	3
	Sum of Defects	15

Condition Rating = 100 - Sum of Defects

= 100 - 15

Condition Rating = 85

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE GROUSE FEATHERS CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.3 MI WIDTH 10'

PAVEMENT TYPE ASPHALT DATE 4/15/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	4
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	5
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	3
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	14

Condition Rating = 100 - Sum of Defects

= 100 - 14

Condition Rating = 86

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE WAGON RIDGE RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.1 WIDTH 10'

PAVEMENT TYPE ASPHALT DATE 4/15/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	5
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	3
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	10

Condition Rating = 100 - Sum of Defects

= 100 - 10

Condition Rating = 90

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE HUNTER ROAD CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.5 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 4/30/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	1
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	2
Shoving or Pushing	0-10	1
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	10

Condition Rating = 100 - Sum of Defects

= 100 - 10

Condition Rating = 90

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE ELK RIDGE RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 2.9 MI WIDTH 20'

PAVEMENT TYPE ASPHALT DATE 4/30/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	3
Shrinkage Cracks	0-5	0
Rutting	0-10	2
Corrugations	0-5	0
Raveling	0-5	2
Shoving or Pushing	0-10	3
Pot Holes	0-10	2
Excess Asphalt	0-10	0
Polished Aggregate	0-5	5
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	3
	Sum of Defects	24

Condition Rating = 100 - Sum of Defects

= 100 - 24

Condition Rating = 76

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE ELK HORN RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 2.2 MI WIDTH 18'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	3
Alligator Cracks	0-10	4
Shrinkage Cracks	0-5	1
Rutting	0-10	2
Corrugations	0-5	0
Raveling	0-5	1
Shoving or Pushing	0-10	3
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	1
	Sum of Defects	17

Condition Rating = 100 - Sum of Defects

= 100 - 17

Condition Rating = 83

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE MICA MINE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.3 MI WIDTH 18'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	2
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	2
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	0
	Sum of Defects	8

Condition Rating = 100 - Sum of Defects

= 100 - 8

Condition Rating = 92

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE TOMAHAWK LANE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.1 MI WIDTH 14'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	0
	Sum of Defects	5

Condition Rating = 100 - Sum of Defects

= 100 - 5

Condition Rating = 95

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE OUTBACK RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.4 MI WIDTH 14'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	6
Shrinkage Cracks	0-5	0
Rutting	0-10	1
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	1
	Sum of Defects	12

Condition Rating = 100 - Sum of Defects

= 100 - 12

Condition Rating = 88

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE RODEO DRIVE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.4 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	0
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor). NARROW	0-10	2
	Sum of Defects	4

Condition Rating = 100 - Sum of Defects

= 100 - 4

Condition Rating = 96

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE CROCKET COVE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.6 MI WIDTH 15'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	0
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor) NARROW	0-10	1
	Sum of Defects	3

Condition Rating = 100 - Sum of Defects

= 100 - 3

Condition Rating = 97

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE CABIN RIDGE CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.8 MI WIDTH 16'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	2
Alligator Cracks	0-10	3
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	1
Shoving or Pushing	0-10	3
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	2
	Sum of Defects	14

Condition Rating = 100 - Sum of Defects

= 100 - 14

Condition Rating = 86

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE BIG SKY RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.4 MI WIDTH 12'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	1
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	1
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor). NARROW	0-10	1
	Sum of Defects	6

Condition Rating = 100 - Sum of Defects

= 100 - 6

Condition Rating = 94

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE WILD TURKEY RD CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.7 MILES WIDTH 14'(0.25 MI) 9'(0.4 MI)

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	1
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	1
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor). NARROW	0-10	1
	Sum of Defects	7

Condition Rating = 100 - Sum of Defects

= 100 - 7

Condition Rating = 93

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE BOBS BRANCH CITY OR COUNTY WILKES

LENGTH OF PROJECT 0.1 MI WIDTH 9'

PAVEMENT TYPE ASPHALT DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	1
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	0
Shrinkage Cracks	0-5	0
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	0
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	0
	Sum of Defects	4

Condition Rating = 100 - Sum of Defects

= 100 - 4

Condition Rating = 96

Figure 1. Asphalt pavement rating form.

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE Fox Cove CITY OR COUNTY Wilkes

LENGTH OF PROJECT 0.8 miles WIDTH 14'(0.4 mi) 9'(0.4 mi)

PAVEMENT TYPE Asphalt DATE 5/20/08

(Note: A rating of "0" indicates defect does not occur)

DEFECTS		RATING
Transverse Cracks	0-5	0
Longitudinal Cracks	0-5	1
Alligator Cracks	0-10	2
Shrinkage Cracks	0-5	1
Rutting	0-10	0
Corrugations	0-5	0
Raveling	0-5	1
Shoving or Pushing	0-10	0
Pot Holes	0-10	0
Excess Asphalt	0-10	0
Polished Aggregate	0-5	0
Deficient Drainage	0-10	2
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	1
	Sum of Defects	8

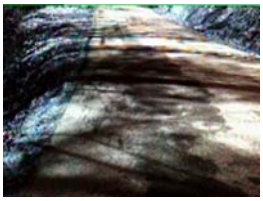
Condition Rating = 100 - Sum of Defects

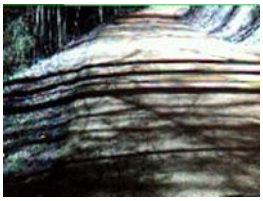
= 100 - 8

Condition Rating = 92

Figure 1. Asphalt pavement rating form.

APPENDIX C


PT 110


PT 111


PT 113


PT 114


PT 115


PT 116


PT 117


PT 118


PT 119


PT 120


PT 121


PT 122


PT 123


PT 124


PT 125


PT 126


PT 127


PT 127A


PT 127B


PT 128


PT 129


PT 130


PT 131


PT 132


PT 133


PT 134


PT 135


PT 136


PT 137


PT 138

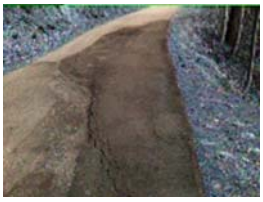

PT 139


PT 140

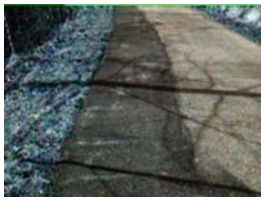

PT 141


PT 142


PT 143


PT 144

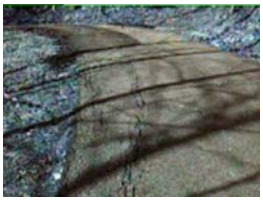

PT 145


PT 146


PT 147


PT 148


PT 149


PT 150


PT 151


PT 152


PT 153


PT 154


PT 155


PT 156


PT 157

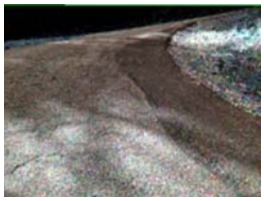

PT 158


PT 159


PT 160


PT 161


PT 162


PT 163


PT 164


PT 165


PT 166


PT 167


PT 168


PT 169


PT 170


PT 171


PT 172


PT 173


PT 174


PT 175


PT 176


PT 177


PT 178


PT 179


PT 180


PT 181


PT 182


PT 183


PT 184


PT 185


PT 186


PT 187


PT 188


PT 189


PT 190


PT 191


PT 193


PT 194


PT 195


PT 196


PT 197


PT 198


PT 199


PT 200


PT 201


PT 202


PT 204


PT 207


PT 208


PT 209

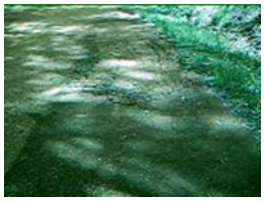

PT 210


PT 211


PT 214


PT 216


PT 217


PT 218


PT 219


PT 220


PT 221


PT 222


PT 223


PT 224


PT 226


PT 227A


PT 227B


PT 228


PT 229


PT 230


PT 231


PT 232


PT 233


PT 235


PT 236


PT 237


PT 238


PT 239


PT 240


PT 241


PT 242


PT 243


PT 244


PT 245


PT 246


PT 248

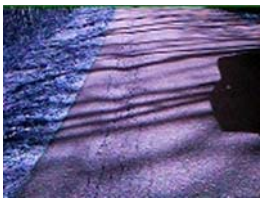

PT 249


PT 250


PT 251


PT 252


Pt 253


PT 254


PT 255


PT 256


PT 257


PT 258


PT 259


PT 260


PT 261_262


PT 263


PT 263_264


PT 265


PT 269


PT 270


PT 271


PT 272


PT 273


PT 274


PT 275


PT 275_278


PT 276


PT 279


PT 280


PT 281


PT 283A


PT 283B


PT 284


PT 285


PT 286


PT 287

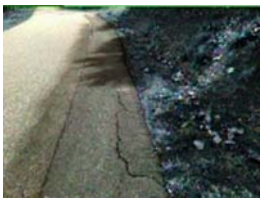

PT 288

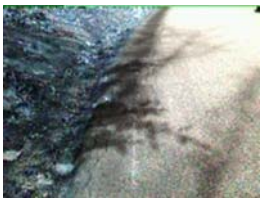

PT 289


PT 290


PT 291


PT 292


PT 293


PT 294


PT 295


PT 296


PT 297


PT 298


PT 299


PT 300


PT 301


PT 302


PT 303


PT 304


PT 305


PT 306


PT 307


PT 308


PT 309

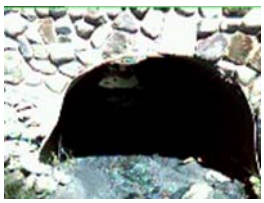

PT 310


PT 311


PT 312


PT 313


PT 314


PT 315


PT 316


PT 317

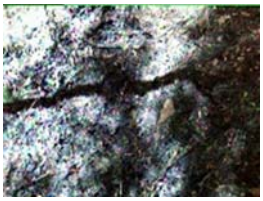

PT 318


PT 319


PT 320


PT 321


PT 322

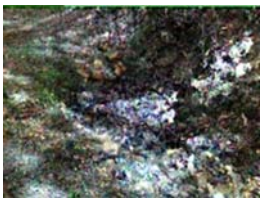

PT 323


PT 324


PT 325


PT 326


PT 327

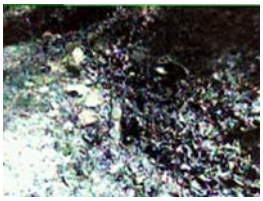

PT 328


PT 329


PT 330


PT 330B


PT 331



PT 332

PT 333

PT 333B

PT 334

PT 338

PT 339

PT 341

PT 342

PT 343

PT 344

PT 345

PT 346

PTs 212_215