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Engineering, Surveying and Land Planning
1635 Asheville Highway
Post Office Box 546
Hendersonville, North Carolina 28793
704-697-7334 • FAX 704-697-7333

SOLID WASTE SECTION
AUG 05 1993

Hendersonville
William G. Lapsley, P.E.
Gary Tweed, P.E.
Stacy K. Rhodes, R.L.S.
Steven L. Waggoner, R.L.S.
G. Marcus Brittain, R.L.S.
Sylva
Donald L. Hunley, P.E.

April 26, 1993

Ms. Sheri Hoytt
N.C. Division of Solid Waste Management
P.O. Box 27687
Raleigh, N.C. 27611-7687

Fac/Perm/Co ID #	Date	Doc ID#
45-01	7/19/2011	DIN 11435

Ref: Henderson County Solid Waste Programs

Dear Ms. Hoytt:

In follow up to our meeting of April 23, 1993, I would like to summarize those areas that we discussed with respect to the Henderson County Solid Waste Programs. Our meeting was very informative and the information gathered will be helpful to our firm assisting Henderson County with their solid waste programs. The two areas which we discussed were the selection of a new solid waste landfill and the utilization of the existing landfill site on Stoney Mountain Road.

NEW SITE SELECTION PROCESS

William G. Lapsley and Associates, P.A., has completed a site selection study for a new landfill site. The entire County was reviewed and siting criteria applied resulting in five of the top sites being presented to the Henderson County Commissioners in a final report. The County has taken this information and will soon be contacting property owners on at least two of the top sites for permission to conduct further on-site evaluations. It is anticipated that we will be ready for the State Task Force to look at these sites in early July, 1993. It is requested that time be scheduled for a visit by the Task Force to Henderson County in early July. By that time we feel that information will be available on the proposed sites such that the Task Force can make recommendations concerning the suitability of these sites for the new solid waste disposal facility.

SITE UTILIZATION STUDY

I left with you a copy of a recent site utilization study of the existing Stoney Mountain Road Landfill. Under the current permit and mode of operation, we have estimated that the landfill will be near its permitted capacity by early 1994. The site

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utilization study was conducted to identify alternatives to extend the useful life of the existing site to gain the time necessary for the siting, permitting, construction and start up of a new landfill. There are several areas which we feel will improve the existing operation. Two (2) specific items, however, will require approval by your office. First, we have recommended that the County immediately begin using an alternative daily cover. The County was given permission some years ago to use a tarp type cover. This was attempted and used until the tarp became unusable. A new tarp was not purchased, and the practice discontinued. Several alternative covers have been evaluated, and it was recommended that the Fabrisol alternative cover be purchased and used instead of the daily soil cover. It is requested that the Division grant Henderson County approval to use an alternate daily cover as Fabrisol or its equivalent. The second recommendation which will require your Division approval is a proposed modification of the current permit to allow the relocation of the current recycling area which is on top of the existing landfill base and restructuring the landfill contours to the west face allowing for additional fill of approximately 400,000 cy. This will provide for approximately one additional year of operation. Borings conducted at the site verified the existence of waste at the recycling area at approximately 12 feet deep. By utilizing this air space, the top of the site can be extended to elevation 2410 approximately 20 feet above the current permit. As we discussed, the Division may wish to incorporate this change into a closure plan for the existing landfill and not as an application for vertical expansion. Please advise as to how the Division would prefer this request to be handled.

Other recommendations made to Henderson County concerned the scheduling of waste haulers, control of working face area, and other items to increase waste compaction. The County has purchased a tub grinder, and this operation is proceeding very well. All of the recommendations, if enacted, should give the County sufficient useful life of the existing site to allow time for opening of a new landfill. It is requested that these other proposed changes receive the Division's approval.

METHANE GAS INVESTIGATION

With respect to landfill methane gas compliance notice, we have presented two proposals to the County for the installation of gas monitoring wells and preparation of a phase I evaluation and report. The escaping methane gas appears to be very active along the entire northern side of the landfill from the animal shelter to

the area near the top of the site. It is our recommendation that the County establish a gas collection system (most probably active systems) and disposal of the methane gas (flaring). Marketing of the methane gas will also be investigated.

GROUNDWATER MONITOR

With respect to ground water monitoring, we have discussed with Bobby Luftey the need for monitoring wells that are shallower and closer to the active landfill area. It is our intent to submit an updated monitoring plan with the closure plan.

It is requested that the Division approve of the use of the alternative daily cover and advise us how you wish to proceed with the permit modification to utilize the air space above the existing recycling area. Should there be any questions or if you need assistance, please contact our office at 704-697-7334.

Sincerely yours,

Gary T. Tweed, P.E.

cc: David Thompson
Jim Patterson
Bobby Luftey
Gary Ahlberg

Post-it™ brand
Fax Transmittal Memo 7672

To JAN McHARGUE | No. of Pages 03 | Today's Date AUG 4 | Time 13:50

Company SOLID WASTE W.S.R.O. | From AHLBERG

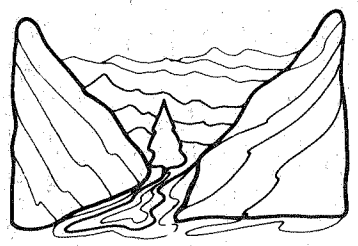
Location | Company

Fax # 10 | Telephone # | Location | Dept. Charge

Comments | Fax # | Telephone #

Original Disposition: ☐ Destroy ☐ Return ☐ Call for pickup

P.2 Requests use of Fabrisoil as Alt. Daily Cover
Please respond to this issue only Thanks! -Gary



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Sincerely yours,

Gary T. Tweed, P.E.

cc: David Thompson
Jim Patterson
Bobby Luftey
Gary Ahlberg

HENDERSON COUNTY
LANDFILL SITING ALALYSIS

CRITERIA DEFINITIONS AND RATING SCALES

PHYSICAL FEATURES

SATISFACTORY TOPOGRAPHY

Based on the percent of total site area that has soil types, identified per United States Department of Agriculture - Soil Conservation Service (USDA-SCS) soil maps, which are deemed to have probable slopes less than 25 degrees. Caterpillar performance handbooks indicate that track-type machines can operate on 45 degree slopes and wheel-type machines can operate on up to 17 degree slopes. For construction workability slopes less than 25 degrees would be desirable. The ratings are based on the following scale:

Poor = 0 -25% soils that deem less than 25 degrees.
Fair = 26-50% soils that deem less than 25 degrees.
Good = 51-75% soils that deem less than 25 degrees.
Excellent = 76-100% soils that deem less than 25 degrees.

ACRES ON SITE SUITABLE FOR LANDFILL

Based on the total acreage available directly for landfill use which includes those areas that are within buffers, wetlands or any other land constraint. Smaller site sizes have less flexibility for locating and designing a solid waste facility. Larger sites allow better protection of sensitive areas and more flexibility in facility design. (Minimum useable area for 25 years of use)

Poor = Site size between 150-175 acres.
Fair = Site size between 175 and 200 acres.
Good = Site size between 200 and 225 acres.
Excellent = Site size greater than 225 acres.

SOIL CHARACTERISTICS

Rating based on the percent of total area that contains soil types, identified per USDA-SCS soil maps, that deem to be either 18-35% or 35-60% clay. It is desirable to have soils in these ranges because soils having the proper proportion of clay content maximize groundwater protection when used in conjunction with liner material. Too much clay reduces workability of the soil for construction purposes.

Poor = 0 -25% of soil types are 18-60% clay.
Fair = 26-50% of soil types are 18-60% clay.
Good = 51-75% of soil types are 18-60% clay.
Excellent = 76-100% of soil types are 18-60% clay.

DEPTH TO BEDROCK

Based on soil types, per identification on USDA-SCS soil maps, that deem probability of depth to bedrock (DTB) greater than 72 inches. Depth to bedrock is considered because of the limitations of excavation caused by shallow rock. Also, less cover material will be available in shallow rock areas.

Poor = 0 -25% of soil types with DTB >72".
Fair = 26-50% of soil types with DTB >72".
Good = 51-75% of soil types with DTB >72".
Excellent = 76-100% of soil types with DTB >72".

MOVING WATER SOURCE ON SITE

Based on North Carolina general guidelines for landfill siting. This issue is used as an indicator of groundwater flow directions. Until sub-surface investigations on each site are conducted, the information on direction and speed of groundwater flow cannot be firmly determined.

Poor = Not adjacent to a moving water source.
Fair = Adjacent to a moving water source with slow movement.
Good = Adjacent to a moving water source with significant flow.
Excellent = Adjacent to a sizable river with significant movement.

STORMWATER DRAINAGE

Characteristics, such as gently sloping terrain, adequate natural on-site drainage, and no stream passing through the sites would be more economical and would reduce the amount of site grading required to develop the site. Adequate natural on-site drainage minimizes the need for on-site surface water management.

Poor = Significant drainage problems requiring elaborate surface water management improvements.
Fair = Stream or canals, major surface water management construction.
Good = Minor surface water management system construction.
Excellent = Gently sloping togopraphy, minimal drainage and surface water management system construction required, no streams or canals.

BUFFER AREA

The buffer is an undisturbed area around the perimeter of the useable acres. It will screen the site from public view. Naturally, the larger the buffer area, the better. It is also beneficial to have this area suitable for other public uses in the future.

Poor = Site open to public view - no future public use.
Fair = Site is partially hidden - limited future public use.
Good = Site is mostly hidden from public - multiple future public use.
Excellent = Site is completely hidden from public - buffer ideally suited for future public uses.

SITE ACCESSIBILITY

CONSTRUCTION FOR ENTRY TO SITE

Rated on the type or necessity of constructing, based upon existing conditions, a direct entry road and/or bridge onto the site.

Poor = Extensive bridge construction or other heavy construction required.
Fair = Construction of lengthy road, small bridge, and/or other types of medium construction.
Good = Construction of short length of road or other light construction.
Excellent = No construction required.

ACCESS ROUTE TO SITE (ROADS AND BRIDGES)

Based on the structural suitability of the roads and bridges along the access routes to the site. The roads leading to a site are important because they can influence travel time, limit facility capacity and adversely impact traffic on local roads. Sites requiring road and bridge improvements or construction are less desirable.

Poor = Complete reconstruction of access road.
Fair = Improvement needed, i.e. bridge and/or road widening.
Good = Accessible but needs improvement such as resurfacing of roadway.
Excellent = Useable as is.

LAND ACQUISITION FOR ENTRY TO SITE

Based on whether the acquiring of land will be necessary and to what extent in order to construct entry onto the site. Sites that require only minimal amount of acquisition are more desirable because of cost and difficulties involved in acquiring property.

Poor = >20 acres
Fair = 9 to 20 acres
Good = 1 to 8 acres
Excellent = 0 acres

LAND USE IMPACTS

ZONING

Based on areas with established zoning requirements. Portions of Henderson County have zoning, as well as the City of Hendersonville and the Town of Laurel Park. Although zoning does not absolutely restrict landfill permitting, the process to permit a landfill in these areas could have the potential to be difficult.

Poor = All of the site within zoned residential area.
Fair = One half (50%) of the site within zoned residential area.
Good = Less than 20 percent within zoned residential area.
Excellent = None of the site in zoned residential area.

WATERSHED PROTECTION ZONE

Based on location in reference to existing water supply watersheds and their intakes. Presently, the watersheds are in the process of being reclassified. Upon this reclassifcation certain watersheds are proposed to require a one-half mile critical zone upstream of their intake therefore disallowing the construction of any new landfills within this area. Within a ten (10) mile radius there is proposed to be a protection zone with landfill discharge restrictions. Therefore, it is important to consider these areas and the effects the new classifications could have on the landfill site.

Poor = In a water supply watershed.
Fair = In a water supply watershed but outside the 10 mile protection.
Good = On the border of a water supply watershed.
Excellent = Outside a water supply watershed.

EXTRATERRITORIAL JURISDICTION

Based on site location in reference to the extraterritorial jurisdiction of a municipality. The municipality has control of land uses for that territory. If a site is located within the minicipality's jurisdiction, it is not automatically excluded as permitable, but it does have the potential to be a difficult procedure.

Poor = All of the site within jurisdiction.
Fair = One half (50%) the site within jurisdiction.
Good = Less than 20% of the site within jurisdiction.
Excellent = None of the site within jurisdiction.

FUTURE USE OF SITE

It is expected that the selected site will have substantial buffer area that could be used for other public purposes. The construction of other public use facilities such as a park or other recreation facility, multiple use building, etc. would make one landfill site more attractive over another site with limited use.

Poor = No land available for other uses.
Fair = Less than 20 acres available for other uses.
Good = Between 20-40 acres available for other uses.
Excellent = More than 40 acres available for other uses.

INDUSTRIAL DEVELOPMENT AREA

Public input to the site selection criteria process included strong support for a site located within an existing industrial use area. The anticipated heavy vehicle traffic associated with the landfill operation is more compatible in an area already experiencing industrial related traffic.

Poor = No existing industrial use in the immediate area.
Fair = Some existing industrial use in area not compatible with landfill operation.
Good = Some existing industrial use in area compatible with landfill operation.
Excellent = Significant existing industrial use in area compatible with landfill operation.

PUBLIC IMPACTS

POPULATED AREAS

Based on the number of residential dwelling units within a 1/2 mile radius of the property boundary. High residential density areas and prime recreational uses within neighborhoods require special attention.

Poor = High density (more than 200 dwelling units in area).
Fair = Medium density (200 to 100 dwelling units in area).
Good = Low density (100 to 40 dwelling units in area).
Excellent = Rural area (40 or less dwelling units).

GROUNDWATER USERS

Based on the number of groundwater users, commercial, residential and industrial within 1/2 mile of the property boundary. Information acquired through the Health Department and County Planning Department. Landfill should be located away from wells to lessen the possibilities of contamination. There shall be no school using groundwater within 1/2 mile of the property boundary.

Poor = 100 users.
Fair = 50 to 100 users.
Good = 1 to 50 users.
Excellent = Served by City of Hendersonville water system (non-well).

SCHOOLS

Based on location of existing schools (public and private) within short distance of proposed site. It is desirable to avoid areas near a school because of high volumes of traffic.

Poor = 0.0 - 0.25 mile.
Fair = 0.25 - 0.50 mile.
Good = 0.50 = 1.00 mile.
Excellent = >1.00 mile.

SCHOOL BUS ROUTES

Based on the number of school bus traffic per discussions with the Henderson County School Board. It is important to consider factors of safety that effect the areas surrounding the proposed site. School bus traffic mixed with heavy truck traffic is not a desirable mix. Sites with routes that have roads that are direct access into schools are less desirable than sites with no school routing overlap.

Poor = Direct bus route on secondary road (Direct access to school).
Fair = Heavy bus route on secondary road or direct bus route on primary road.
Good = Light bus route on secondary road or heavy bus route on primary road.
Excellent = No bus route on secondary road or light bus route on primary road.

CHURCHES AND CEMETERIES

Based on the locations of churches and cemeteries in reference to the site. It is desirable to avoid areas with churches and cemeteries, especially those within a one-half mile radius, because of the high volumes of traffic and the sensitive nature of church activity.

Poor = 0.0 - 0.2 mile.
Fair = 0.3 - 0.4 mile.
Good = 0.4 - 0.6 miles.
Excellent = >0.6 miles.

ECONOMIC IMPACT

DISTANCE AND ROUTE TIME FROM CURRENT LANDFILL SITE

Based on the distance from a site to the current flandfill site. This is the average haul distance for waste collection vehicles. Long haul distances to a solid waste management facility reduce the efficiency of collection operations and increases the cost of solid waste collection. It is important to consider that the shortest distance is not necessary the best route. Routes along major arterial and highways are more desirable than routes along rural roads.

Poor = >15 miles
Fair = 11 to 15 miles
Good = 6 to 10 miles
Excellent = 0 to 5 miles

ACQUISITION COSTS

Rating based on estimated cost per acre in 1991 as listed in the Henderson County Tax Appraisal Office. These prices include not only the land price but the structures located on the land. It is naturally desirable to acquire land at a low cost.

Poor = >$10,000/acre.
Fair = $6-$10,000/acre.
Good = $3-$6,000/acre.
Excellent = $0-$3,000/acre.

LEACHATE TREATMENT

This criteria is based on whether the leachate is treated on-site or collected and conveyed to a wastewater treatment plant (WWTP). The economic sensitivity of on-site treatment with surface water discharge depends on distances to the nearest acceptable National Pollutant Discharge Elimination System (NPDES) discharge point. The economic sensitivity of disposal to the WWTP depends on distances to, and capacities of the WWTP and collection systems.

Rating scale based on each of the following being rated individually and then averaged together:

- Rating of distance to a proposed NPDES discharge point.

Poor = > 2.0 miles
Fair = 1.0 to 2.0 miles
Good = 0.5 to 1.0 miles
Excellent = 0.0 to 0.5 miles

- Rating of distance to sewer collection system.

Poor = > 2.0 miles
Fair = 1.0 to 2.0 miles
Good = 0.5 to 1.0 miles
Excellent = 0.5 miles

- Rating of hauling distance.

Poor	= > 8.0 miles
Fair	= 4.1 to 8.0 miles
Good	= 1.1 to 4.0 miles
Excellent	= 0.0 to 1.0 miles

AVAILABLE UTILITIES (POWER, WATER)

This criteria is based on the availability of each utility (water and three-phase power). They are each rated separately and then averaged. The availability of utilities is beneficial so as not to incur additional development costs involved in establishing utilities for a site.

Poor	= Greater than 2.0 miles from utility service area.
Fair	= 1.1 to 2.0 miles from utility service area.
Good	= 0.0 to 1.0 mile from utility service area.
Excellent	= Within utility service area.

OWNERSHIP PATTERN

Based on the number of land owners, per tax maps, within the site boundary. The ownership pattern of a site is important because it indicates the potential difficulty of acquiring the property. A fewer number of landowners results in fewer potential dislocations and negotiations. Sites with fewer owners are, therefore, preferred over sites with many owners.

Poor	= Greater than twenty owners.
Fair	= Thirteen to nineteen owners.
Good	= Seven to twelve owners.
Excellent	= One to six owners.

ENVIRONMENTAL IMPACTS

NATURAL SPRINGS ON SITE

Based on percent of total area that contains soil types, identified per USDA-SCS soil maps, which are deemed probable for spring activity. It is a disadvantage to have a high volume of springs on site due to workability to avoid disturbance of the springs.

Poor = >45%
Fair = 31 to 45%
Good = 16 to 30%
Excellent = 0 to 15%

WETLAND AREAS ON SITE

The rating is based on the weighted averages of the percent of potential wetland soil types, identified per USDA-SCS soil maps, within the site boundary and the total stream length within the site boundary. Emphasis is placed on wetlands because of the high value placed on impacts to wetlands by permitting agencies. Wetlands lost to landfill development will probably require a mitigative effort to replace lost wetland habitat. The following evaluation system will be used to score each site on its potential wetland quantity (PWQ):

PWQ score = (APWS/maximum area observed for all site) +
2(TSL/maximum stream length observed for all sites)

APWS = Approximate potential wetland soils.
TLS = Total stream length.

Poor = PWQ score of >2 to 3.
Fair = PWQ score of >1 to 2.
Good = PWQ score of >0 to 1.
Excellent = PWQ score of 0.

ADJACENT TOURIST ATTRACTIONS

A list of recognized tourist attractions (including summer camps) was prepared from information provided by the Henderson County Travel & Tourism Authority. The economy of the county could be significantly affected if the proposed landfill disposal area is within public view from a tourist attraction.

Poor = open to full public view/0.5 to 1.0 mile.
Fair = partially hidden from public view/1.0 to 2.0 miles.
Good = mostly hidden from public view/ >2.0 miles.
Excellent = completely hidden from public view.

ENDANGERED OR THREATENED SPECIES

Based on known occurrences of rare and endangered plants, animals and natural communtities provided by the North Carolina Natural Heritage Program (NCNHP). It is important to note, that while NCNHP is an excellent source of information on the known occurrences, it does not represent a definitive or complete record. The occurrence of a habitat on-site does not preclude development but requires special measures to be taken or buffering from landfill operations which may

require a longer permitting sequence. Sites with no habitat potential are preferred. However, sites with dispersed and discontinuous habitat areas may be considered for landfill development if the landfill design and operation provides for adequate protection.

Poor = Within site.
Fair = 0.25 - 0.50 miles from site boundary.
Good - 0.50 - 1.00 miles from site boundary.
Excellent = >1.00 mile from site boundary.

ARCHEOLOGICAL SITES

Based on the probability of occurrences or known archaeological sites provided by the North Carolina Department of Cultural Resources (NCDCR). Those rated by NCDCR as five (5) or lower should receive a comprehensive archaeological survey on limited portions of the property. Those rated above 5 should receive a comprehensive archeological survey on more extensive portions of the property. Those rated ten (10) should receive a survey of the complete site.

Poor = 10 NCDCR rating.
Fair = 8 to 9 NCDCR rating.
Good = 4 to 7 NCDCR rating.
Excellent = 0 to 3 NCDCR rating.

PARKS, RECREATION AND SCENIC AREAS, AND NATURE AND HISTORIC PRESERVE

Based on information provided by County Planning. This criteria is included to protect the preservation of areas of special interest and concern. Because of tourist and pedestrian traffic associated and the possible negative effects, it is less desirable to site a landfill within close proximity to these areas.

Poor = open to public view/0.0 to 1.0 mile.
Fair = partially hidden from public view/1.0 to 2.0 miles.
Good = mostly hidden from public view/ >2.0 miles.
Excellent = completely hidden from public view.

NATURAL AREAS

The primary source of information used to analyze Priority Natural Areas will be the North Carolina Natural Heritage Program (NCNHP). The NCNHP maintains a Natural Areas Database which identified priority natural areas. The priority list of natural areas is comprised of sites identified by the NCNHP as "containing significant ecological features," the preservation of which are "important to the overall goal of preserving the state's natural heritage."

Poor = Within site.
Fair = 0.25 - 0.50 mile of site.
Good = 0.50 - 1.00 mile of site.
Excellent = Greater than one (1.0) miles from site.

GROUNDWATER PROTECTION

Protection of natural groundwaters from potential contamination resulting from failure of the leachate containment system. There are four factors used to evaluate the level of protection provided by a specific site. Rating scale is based on each of the following being rated individually and then averaged together:

DEPTH TO GROUNDWATER (25 points) 13

Based on soil types, identified per USDA-SCS soil maps, that deem probability to have certain groundwater depths. The desirable depth is greater than four (4) feet because the State requires a minimum of four (4) feet between the waste and groundwater. The shallower the depth to groundwater, the higher the pollution potential.

Poor = 0 to 25% of the site area meets four foot requirement.
Fair = 26 to 50% of the site area meets four foot requirements.
Good = 51 to 75% of the site area meets four foot requirements.
Excellent = Greater than 76% of the area meets requirements.

DISTANCE TO A RECEIVING STREAM (20 points)

The location of a surface stream close to the disposal area suggests that detection of any contamination will be easier and risk to widespread groundwater contamination will be minimum. Receiving stream must have significant flow ±50 gpm average annual). 11

Poor = Greater than 0.5 miles from property boundary.
Fair = 0.25 to 0.50 miles from property boundary.
Good = Less than 0.25 miles from property boundary.
Excellent = Receiving stream within property boundary.

RESIDENCES IN DOWNGRADIENT ZONE (15 points) 8

The presence of existing residents in the downgradient groundwater zone before the receiving stream is a potential risk. The fewer number of residences, the lower the risk:

Poor = Over 4 residences.
Fair = 3 or 4 residences.
Good = 1 or 2 residences.
Excellent = 0 residences.

NUMBER OF GROUNDWATER USERS IN DOWNGRADIENT ZONE (40 points) 21

The presence of existing groundwater users in an area downgrade of the disposal area before the receiving stream presents a risk to the public.

Poor
Fair = Any number of users between disposal area and receiving stream.
Good
Excellent = No users between disposal area and receiving stream.

STATUS REPORT
HENDERSON COUNTY LANDFILL SITE SELECTION

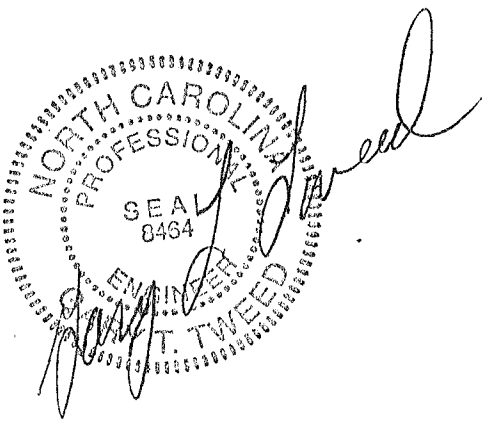
September 18, 1992

Prepared for

Site Selection Review Committee

by

Gary T. Tweed, P.E.
William G. Lapsley & Associates, P.A.
1635 Asheville Highway
Hendersonville, NC 28739



INTRODUCTION

William G. Lapsley & Associates, P.A., has been retained by Henderson County to assist in locating a new solid waste disposal landfill site. The criteria by which a new landfill is to be chosen has been previously adopted by the Henderson County Board of Commissioners. An interim project status report dated August 7, 1992, was prepared and presented to the Site Selection Review Committee, the Henderson County Board of Commissioners, and the Solid Waste Advisory Committee. The first status report summarized the site selection process by which areas of the County had been eliminated from consideration for a landfill. The Site Selection process has been continued with additional areas being eliminated by applying the additional siting criteria.

SITE SELECTION PROCESS CONTINUED

The Site Selection process proceeded under the following steps:

1. Soils Data Review

   The Soils Survey Report for Henderson County prepared by the U.S. Soils Conservation Service was reviewed and soils identified which have seasonal high ground water levels within 4 feet of the surface, clay content less than 18%, slopes greater than 25 degrees, and bedrock less than 6 feet. A listing of these soils was provided to the Soils Conservation Service (SCS), and they prepared computer generated maps to the same scale as quad sheets. These quad sheet overlays were then used with the soil information to apply additional site criteria. Areas with high ground water levels within 4 feet of ground surface (Site Criteria #3) were eliminated from further consideration. The other soils information will be used in the site ranking process. It should be noted that only a small portion of the eligible areas were eliminated due to high ground water soils.

2. Land Record Map Review

   In view of the fact that the U.S.G.S. Quad Sheets are outdated with respect to recent subdivision development, the remaining areas were compared to current County land record maps. Subdivisions not shown on the quad sheets were identified and several of the eligible areas were either eliminated or reduced in size.

   As a result of the review of soils with high ground waters and land records map review, the remaining eligible land areas for this site selection study as listed in the first status report has been modified as follows:

Quad Sheet	# Areas	Total Acreage	# Potential Sites
Horseshoe	3	3,499	10
Pisgah Forest	none		
Standing Stone Mtn.	8	11,863	33
Cliffield Mtn.	2	3,600	11
Saluda	none		
Zirconia	8	3,386	14
Hendersonville	3	1,060	5
Skyland	none		
Fruitland	8	6,481	20
Bat Cave	12	6,196	19
Dunsmore Mtn.	none		
Total	44	36,145 acres	112

3. Area Rating

The 44 remaining areas have been rated by our office using the point rating system previously adopted by the Solid Waste Advisory Committee and Board of Commissioners. The same value judgements were used to evaluate each area in order not to prejudice any results. The evaluations do not include points for natural springs, wetland areas, endangered species, and archeological sites. It is felt that these items are very site specific and cannot be accurately judged at this time. Visits to each of the sites will be necessary to accurately assess these items.

It was also assumed that the large areas where multiple sites could be located will rate very similar to specific sites within the area and that developing ratings for all potential sites would not be necessary. It is requested that, once this information has been reviewed, the committee recommend that only the top rated areas be considered for further evaluation.

4. Recommendation

It is our recommendation that the Committee, Solid Waste Advisory Committee, and the Board of County Commissioners accept the area rating prepared by our firm and authorize further detailed investigation of the top 20 areas. Once additional information has been gathered it can be presented to the site selection review committee for final evaluation and site ranking.

STATUS REPORT

HENDERSON COUNTY LANDFILL SITE SELECTION

AUGUST 7, 1992

Prepared for

Site Selection Review Committee

by

Gary T. Tweed, P.E.
William G. Lapsley & Associates

Introduction

William G. Lapsley & Associates has been retained by Henderson County to assist in establishing a new landfill site. The criteria by which a new landfill is to be chosen has been previously adopted by the Henderson County Board of Commissioners. This status report is to bring the landfill site selection review committee up to date on the site selection process thus far.

Site Selection Process

The process chosen to select a new landfill site has been developed on the basis of first eliminating areas of the County which does not meet the required site conditions as previously established. The following steps were used for this process:

1. U.S. Geological Survey Quadrangle Maps covering all of Henderson County were identified and obtained for use in the mapping process.

2. Site Criteria # 1 (Airport Buffer) was applied to each map. The required buffer areas are shown on the maps.

3. Site Criteria # 4 (Flood Plain) was evaluated by using Federal Flood Insurance Maps to delineate the 100 year flood zone area on each map.

4. Site Criteria # 2 (Buffer Zone) was then applied using the dwellings shown on each quadrangle map. The 500 foot buffer from dwellings effectively eliminated many areas of the County.

5. Site Criteria # 10 (Tourist Attraction) was reviewed based upon information furnished by the Greater Hendersonville Chamber of Commerce. In most cases the areas near a tourist attraction had been eliminated from consideration under Site Criteria # 2.

6. Site Criteria # 9 (Groundwater Users as it relates to schools) was applied to each map. Once again, these areas had been previously eliminated by other criteria.

7. Site Criteria # 7 (Property Size) was then reviewed for each area still eligible for consideration. Several small areas were eliminated because they were less than the 150 acre minimum.

The mapping process for the Site Criteria stated above has been completed. A summary of the remaining areas for evaluation are as follows:

Quad Sheet	#Areas	Total Acreage	#Potential Sites
Horseshoe	7	5,129	18
Pisgah Forest	none		
Standing Stone Mtn.	8	11,863	33
Cliffield Mtn.	2	4,184	13
Saluda	1	380	1
Zirconia	10	3,508	17
Hendersonville	9	1,989	9
Skyland	none		
Fruitland	9	8,355	25
Bat Cave	20	7,835	32
Dunsmore Mtn.	none		
Total	66	43,243 acres	148

The attached map (Exhibit #1) shows these areas which meet the required site criteria (# 1,2,4,7,9,&10).

William G. Lapsley & Associates is prepared to proceed with the next phase of the site selection process. It is recommended that the areas identified above be further evaluated as follows:

1. Site Criteria #3 (Groundwater) will be considered by using the Soil Survey Maps of Henderson County as published by the U.S. Soil conservation Service. These maps identify soils known to have seasonally high groundwater levels. Areas with predominant soils in this category will be eliminated.

2. Area Visits - All remaining areas will be field inspected to update information of residential development that has occurred subsequent to the map publishing date.

3. Area Ranking - After eliminating areas under items 1 & 2 above the site evaluation critera will be applied to each area and a priority established for further detailed study.

Once these steps have been completed a meeting with the Committee will be held to present results and determine the next phase of the study.

Tourist Attractions

Carl Sandburg Home

Flat Rock Playhouse

National Forest Lands - Pisgah National Forest

U.S. Forest Service Recreation Areas - Mills River

State Forest Lands - Holmes State Forest

Jump Off Rock

Summer Camps

- Camp Blue Star
- Camp Highlander
- Camp Judea
- Camp Kanuga
- Camp Pinewood
- Camp Tekoa
- Camp Arrowhead
- Elks Camp
- Falling Creek
- Camp Mondamain
- Camp Pinnacle
- Camp Glen Arden
- Camp Green Cove
- Camp Geystone
- Camp Ton-A-Wandah
- Foursquare Camp Courtney
- Bonclarken Assembly
- Highland Lake Inn
- Camp Bearwalla
- Camp Mishemokwa
- Camp Windy Wood
- Mountain Lake Camp
- Sky Valley Pioneer Camp

HENDERSON COUNTY
SOLID WASTE DISPOSAL FACILITY
REQUIRED SITE CONDITIONS

SITE CRITERIA - Any candidate site must meet all of the following specific state and local criteria.

1. AIRPORT BUFFER - 5,000 feet from propeller aircraft
   10,000 feet from jet aircraft

2. BUFFER ZONE - 50 feet from streams
   500 feet from dwellings/wells
   300 feet from property lines

3. GROUNDWATER - Minimum 4 feet to seasonal high groundwater level

4. FLOODPLAIN - No restriction to 100-year flood

5. PUBLIC ACCESS - Completely restricted area

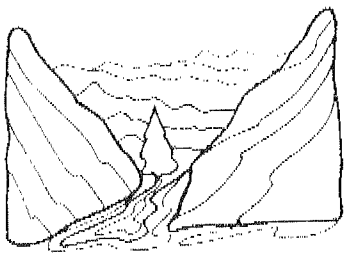
6. WETLANDS - No disturbance to designated wetlands

7. PROPERTY SIZE - Minimum 150 acres

8. RESIDENTIAL DEVELOPMENT - Maximum 200 dwelling units within 0.5 mile of property boundary

9. GROUNDWATER USERS - Maximum 100 dwelling units or a school using groundwater within 0.5 miles of property boundary.

10. TOURIST ATTRACTION - Minimum 0.5 mile from perimeter of useable area on site



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Donald L. Hunley, P.E.

DATE: 8-2-93

TO: GARY AHLBERG

FROM: GARY TWEED

FAX No. 919-733-4810

PROJECT: HEND. CO. LANDFILL

REMARKS:

ENCLOSED IS COPY OF LETTER ON ALTERNATIVE COVER & CONTOUR ADJUSTMENT. I WILL BE MEETING WITH COUNTY MANAGER TO GO OVER OUR MEETING OF JULY 28 - YOUR QUICK RESPONSE ON ALTERNATIVE COVER IS REQUESTED.

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