

Response by Ramble Community Development Community (Ramble CDC) to Draft Environmental Impact Assessment (D-EIA) prepared by firm emc² for the proposed private commercial cemetery at Burnt Ground, Hanover.



Manager,
Applications Secretariat Branch
Burnt Ground Cemetery
National Environmental and Planning Agency
10, Caledonia Avenue, Kingston 5.

- Facilitates informed decision making by providing clear, well structured dispassionate analysis of the effect and consequences of proposed projects.
- Pre-emption or early withdrawal of unsound projects.
- Assists in the selection of alternatives, including the selection of the best practice and most environmentally friendly option
- Influences both project selection and design by screening out environmentally unsound projects, as well as modifying feasible projects – Mitigation of negative environmental and social impacts.
- Guides formal approval, including the establishment of terms and conditions project implementation and follow up.
- Results in best practice prediction and mitigation of adverse effects of projects.
- Serves as an adaptive, organizational learning process, in which the lessons experience are feedback into policy, institutional and project design - Enhancement of positive aspects.
- Incorporates stakeholders' analysis.
- Mitigation of environmental and social impacts.

Environmental Impact Assessment - Introduction.

The environmental impact assessment (EIA) is one of the most widely used tools for identifying and mitigating adverse ecological effects of development proposals. In 1987, UNEP adopted a set of goals and principles for EIAs.

The environmental impact assessment (EIA) compares alternatives which could be used to realize a project and identifies the one with the best combination of economical and environmental costs and benefits. The process covers in a systematic way:

- Collection of information about an area and its characteristics.
- Prediction of the effects of a development on the area including effects on people living in or using the area.
- Vital Information that be used to make an informed decision regarding whether the development should be permitted.
- Introduction of changes in the design process to ameliorate any adverse effects of the project where necessary.
- Consultation between the developer, stakeholders, and decision makers assisting in resolving any
 conflicts between the project proponent and the public.

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2004-00917-EP00157

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT The Natural Resources Conservation (permits and Licenses) Regulations, 1996

Permit to Undertake Enterprise, Construction Or Development in a Prescribed Area [Pursuant to Section 9 (2)]

Permit No.

		Application Date:	October 5, 2004.
The Company:	Delapenha's Funeral Hort	ne Limited	
Of	45 Union Street, Montego		
-	rized to undertake		
	Establishment of a Cemete	ery and Burial Facilities	· · · · · · · · · · · · · · · · · · ·
	with the terms and condition	s specified in the Schedul	

See Appendix 1 for copy of Terms and Conditions (3 pages):

We do not have access to the Project Information Form (PIF) dated September 22, 2004 which is a part of the Permit issued.

INTRODUCTORY COMMENTS.

The Ramble Community Development Committee (R-CDC) as one of the major stakeholders in this affair, grasps this opportunity to respond to the Natural Environmental and Planning Agency (NEPA) which is a legal part of the Natural Resources Conservation Authority (NRCA) to comment on the Draft Environment Impact Assessment (D-EIA) recently prepared by Environmental Management Consultants Caribbean Ltd. (emc²).

'Draft Environmental Impact Assessment for the proposed cemetery development, Burnt Ground, Hanover - 86 pages plus appendices, dated March 30, 2007'

The Ramble Community Development Committee (RCDC) is a non-governmental organization, representing several communities, served by the Shettlewood spring.

We are disturbed by some of the findings contained in this report, compounded by inaccuracies, some major, some minor.

Our comments are divided into five (5) sections in order of importance, for easy reading and understanding, as follows:

- (A). Major findings and justification of our EIA call.
- (B) Flaws in the socio-economic impact survey
- (C) Minor findings and recommendations contained in the D-ElA
- (D) Risk Assessment and Nature of the pollutants
- (E) Monitoring of the pollutant that would be produced.

This document was prepared with the assistance of our consultant and other members of the community who have followed this affair since 2005.

Any inaccuracies are ours, and if any are found, they would have been made in good faith, without malice or desire to injury anyone. Our intent is to inform and educate rather than alarm

We were forced to test the veracity of the statement contained on page 1 of the D-E1A, captioned 'Description of the project' where the impression is being given that an arrangement could not be made with Madden's Funeral Home for use of the vast acreages within the Dovecot St. James facility. In the Kingston Metropolitan area funeral directors can use the Dovecot memorial Gardens, a Madden's facility.

In a conversation with Mr. Ruel Madden of Madden;s Funeral Home on Monday April 30, 2007, we asked the question:

Were you at anytime in the past asked by Delapenha's Funeral Home for burial accommodation in your Dovecot St. James facility?

His response was:

"Yes, we were approached some two years ago. At the time we had just started our operations. We had only 200 vaults built. These were needed for our own operation and we explained this to Mr. Delapenha and informed him that as soon as more vaults were constructed we would review our policy with a view to accommodating his request.

Subsequent to that Mr. Delapenha took us to the Fair Trading Commission saying that we were in violation of a section of the Fair Trading Act.

We attended the Fair Trading Commission through our lawyer and since then we have heard nothing from the Fair Trading Commission."

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- (A). Major findings and justification of our ElA call.
- (B) Flaws in the socio-economic impact survey
- (C) Minor findings and recommendations contained in the D-EIA
- (D) Nature of the pollutants associated with the proposed development.
- (E) Monitoring of the pollutant that would be produced.

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1. Over Fifty percent of total property unsuitable for burial:

The two (2) white rectangular areas to the right hand side of the Google photograph represent the two (2) farm houses provided by the Government when this scheme was developed in the early 1980's. The property line, an artificial boundary runs east to west between them, and to the north of the already constructed parking lot. Lot # 47, is to the south (bottom) and Lot 48 to the north.



Figure 15 Site Development Plan

• The cemetery expert Dr. Dent says that No Interment (Burials) should be allowed in the area west and south of the lines (QRSTU); Q - R = 65m, R - S = 50m, S - T = 100m and T - -U = 130m. This area is shown in RED.

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- This area represents greater than 50% of the entire property. Remember however that the Permit speaks to only Lot 48. It is somewhat misleading then for the EIA to just report that 2.9 hectares are available for burials without even mentioning that lot 48 would lose 40 % of its burial space if considered alone.
- Therefore, only 60 % of 3.3 = 1.9 hectares would be available after we consider the space to be aflotted for the construction of the containment 'BUND'.
- Nature does not work well with straight lines, this is man's attempt to be equitable to one another. This entire property is basically one natural piece of nature and we maintain this is the very worst site for a cemetery, for this is limestone country, where the karst process is in an advanced state, evidence of this being the numerous cockpits in exposed outcrops, sinkholes (dolines) more than 1 per 6 acres, our count and on the eastern side of the great river, Blue holes.
- There is a very prominent sinkhole to the North west of the site, lot 51 which still
 receives surface water from the site as well as from lots 51(a) and lot 50. See map of
 drainage pattern on page 32 of the D-EIA report.
- Bund (Buffer Zone) construction and cost. .<u>Minimum Total Cost estimated at</u>
 3\$5,516,000.00
- Dr. Dent suggests that a containment Bund one (I) metre high be constructed along three (3) sides of the property leaving the southern boundary open, for obvious reasons.
 This is recommendation No.2 of D- EIA. Obviously, he is concerned about the negative effects the pollutant would have on the environment, it must not leave the premises.
- Calculations concerning the lateral movement of the pollutant are presented in the report,
 but none for the vertical movement downwards which would take the pollutant in the ground water.

2. Benefit - Cost analysis of alternative uses of the land.

The D-EIA report has an Executive summary, which should have highlighted the analysis of the alternatives open for our Government (NEPA) to choose from in the deliberations that must follow in order to arrive at an informed decision as to the 'permit'. This analysis of alternative use of the site can be found in Section 5 pages 60 to 63.

'The purpose of this section of the EIA is to examine the feasible alternatives to the project and highlight the benefits of the project that need to be considered against any potential environmental costs. It outlines in a balanced way, the wider societal benefits of the development proposal that could arise if the environmental permit is granted. Feasible land use options are compared in terms of lowest costs and most benefits criteria: environmental impacts, social acceptability, economics and design feasibility.'

Draft-ElA: Summary: Benefit cost analysis; Section 5, page 62.

The five land use development options above are compared in terms of most benefits and least costs using a range of factors or normative criteria given in Table one below......

The option scoring the lowest score may be regarded as the most suited overall,

Table 21 Ranking of Most Benefits and Least Costs Criteria.

	Cm	NA	RU	AF	OF
Highest economic yield land use	2	5	ī	3	3
2. Most earning opportunities for communities	2	5	l	4	2
3. Best effects on land values in the area	*	5	1	4	4
4. Most preservation of green space	3	1	5	4	I
5. Best meets wider societal needs and economics	1	5	2	3	3
1. Least use toxic substances, pathogens & nutrients	4	Ę	3	2	5
2. Least change to land surface and drainage	3	ı	5	2	3
3. Least traffic impacts	4	1	5	2	2
4. Least implementation costs	4	Ì	5	2	2
5. Least public outcry	5	1	3	3	2
Total	29	26	31	29	27

Cm = Cemetery NA = No Action
AF=Animal Farm

RU=Sub-urban Residential Use OF= Orange Farm. 7

^(*) Our emphases: We cannot imagine a cemetery helping to increase the value of land, and would be akin to locating the Municipal garbage dump there, maybe a rating of 5. The developer used the lowering of land values in his tactics to purchase lot 48.

The number of persons permanently employed at cemetery sites in Jamaica do not exceed five (5) and our socio-economic survey indicated that only two persons from the area gained employment during the construction of the boundary fence and parking lot construction. Probably this item should be given a 4, making the total for the cemetery 38.

The report continues, Based on these criteria, the 'no action' alternative scored the lowest (26 points). However, no action use is not necessarily the best use for the land, especially from the perspective of the land owner.

To be able to implement this option, the government would have to purchase the lands, and compensate the landowner for his investment in his property thus far.

When this option is being considered probably the audited accounts for this project should be presented by the developer, they should have been prepared by now.

The government has already made this offer, verbally and in writing, see letter dated January 18th 2006 attached with. Compensation as at January 10, 2006.

The Ministers Letter is presented below (page 10) and

The full text of this section of the Report is attached as Appendix IV.



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MINISTER OF LAND & ENVIRONMENT

16A Half Way Tree Road, Kingston 5 Telephone: 920-3273; Fax: 929-6005

18th January 2006

President
Ramble Community Development Committee
Lucea P.O.
Hanover

Re: Establishment of Cemetery at Burnt Ground – Hanover By Delapenha's Funeral Home Limited

Please be informed that I had a discussion with Mr. Dale Delapenha from Delapenha's Funeral Home Limited regarding the establishment of the cemetery at Burnt Ground, Hanover for which Delapenha's Funeral Home Limited has a valid permit from the National Environment and Planning Agency.

During the discussion I offered Mr. Delapenha land in exchange for the land that he plans to use for the cemetery. In addition, I would give him additional land to compensate for the work he has already undertaken on his property.

I have asked Mr. Basil Fernandez from the Underground Water Resources Authority to meet with Mr. Delapenha along with a representative from the National Environment and Planning Agency, the Ministry of Health and the National Land Agency, in order to discuss the matter further.

Yours sincerely,

DEAN PEART, MP. MINISTER

c.c. Mr. Basil FernandezMr. Dale Delapenha

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3. Site Stratigraphy (Soil Profile)

The site stratigraphy (Soil Profile) shown on the Hill-Betty borehole logs seems very different from the sub-surface picture that the Water Resources Authority (WRA) had indicated in their reports, 'Thick Clays called chudleigh clay loam'. Hill-Betty Borehole No.3 is different from boreholes 1 and 2. The three (3) boreholes also seem to be different from the Ramble CDC's borehole No: 3. Further justification for our EIA call.

From the Hill-Betty Boreholes there appears to be three (3) subsurface zones to a depth of 45 ft using the criterion of average allowable bearing capacity (q2), as follows:

(Geo-technical description)

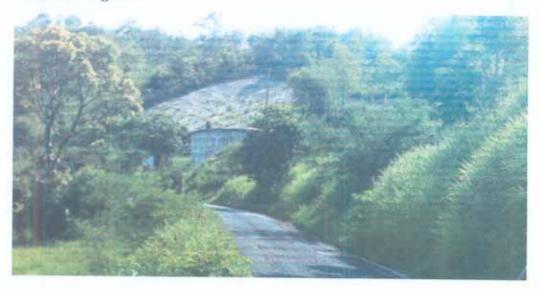
- Zone 1. Compact light brown, gravelly silty SAND and sandy SILT with some gravel
 - Thickness 10 ft. avg. $q_a = 2.5 \text{ kg/cm}^2$
- Zone 2. Very dense, light brown, sand and gravel with some clay.
 - Thickness 18 ft. avg. q_a = 4.46 kg/cm²
- Zone 3. Very dense, cream brown, sandy GRAVEL.
 - Thickness > 6+ ft. avg. $q_a = 5.8 \text{ kg/cm}^2$

Hill - Betty Borehole No.3, is different and seems to be fill material washed down into a developing sinkhole. Sub-surface water was encountered in this borehole at a depth of twenty one (21) feet.

The sub-surface water encountered at a depth 8.6 feet in test Pit #7 had an unusually low pH 4.2, in the acid range, approximately the same as vinegar. We could not find the results of the water quality test for the samples of water collected from Hill- Betty borehole 3.

See Part D of this response for our comments on the Field Percolation Rate and the recommended allowable rate of effluent application.

4. The Missing Link.



Man imitates nature in his attempt to provide himself with potable drinking water. On many hillsides in rural Jamaica these gravitational systems can be seen.

The four (4) elements of this gravitational system are:

- A catchment area (paved) to represent the watershed or intake area.
- · A tank to receive, store and transmit the rainwater (The Aquifer)
- A buried pipeline through which water from the tank can flow (Aquifer)
- A stand pipe, the exit point of this gravitational system (The Spring)

Every farmer knows the system, and we assume that all Geologist ought to know this too.

The 'Shettlewood Spring' where the NWC starts its distribution system is the end point of a vast underground gravitational system which extends as far as Ramble to the west, and the aquifer is only fifty- feet below the surface of the ground at the proposed cemetery gate. The boreholes that we commissioned and had cased with 4 inch diameter pvc pipe is still there and the depth to the water in the limestone aquifer can be measured at any time, day or night.

The proposed cemetery site is immediately above the gravitational system which is the 'Shettlewood Spring' and is therefore linked to it, by virtue of the certainty that the aquifer exist at a depth of fifty (50) feet below the surface and will be polluted by chemicals and other water borne diseases arising from the decomposition of human remains, if this development is allowed to take place.

The links are there and the consultants preparing the D-EIA cannot change this no matter how voluminous their words or how cunningly they put them together.

To say that no link exists between the proposed site and the Shettlewood Spring is another attempt to deceive the public.

6. January 10th 2006.

At a meeting of some members of the Ramble CDC and Minister Peart, he promised that in the future all applications for the development of cemeteries in Jamaica, private or public would have to be accompanied by a well prepared and full EIA.

This would remove the option from NEPA, as we see it, a number of red flags were waved by the WRA when the table study report was presented at the screening process.

PART B.

Socio-Economic Impact Survey.

We had hoped to compare and measure the results of the Socio-economic Impact Survey
that the Ramble CDC had commissioned in June 2006 with that conducted by emc²
conducted a year later in February March 2007.

All our respondents were adults (ranging in age from 18 to over 60) and the 178 persons who responded came from eighteen (18) of the thirty-two (32) districts which are customers of the National Water Commission (NWC).

incidentally, the total population of Mount Ward is one (1) not twenty (20) as is stated in the report.

2. Our attempts to assist emc² in meeting the residents were misrepresented by Dr. Burrowes and we would like to set the record straight, and to warn other communities who in the future might have to deal with high powered consultants who talk to adults as if they were children to be extremely careful.

Is humour out of place here? The story of a 10 year old who was interviewed by one member of the eme² socio-economic impact survey team at Mount Ward School, said to his mother,

"Mama, wan lady ask me an' Julian question 'bout the cemetery"

"What you tell her?"

"Mi tell him back wha she aks"

Jamaican patois

I told her the same thing that she had asked.

English translation maybe.

Lesson: Do not underestimate the innate intelligence of the rural Jamaican youngster, they can handle rhetorical questions and lead you along the wrong path.

1. Socio - Ecconomic Impact Survey

This is an attempt to measure the perception of the public about the proposed development. We assume that when we talk about the public we are talking about the adult population. Numerous children were interviewed at Mt. Ward and Knockalva on their way from school.

Mt. Ward has a population of one and not twenty as stated in the document. Mt Ward as a district does not exist.

NB Districts such as Miles Town, Content. Mt. Peto, Bessie Baker, Axe and Adze, Pearces Village, Lethe and Copse among others were excluded from the survey.

The socio-economic impact survey conducted by the Ramble CDC had interesting findings:

178 residents from 20 districts were interviewed June 1-15, 2006. Majority gave their telephone contacts for verification. The files are with the Ramble CDC.

The age range of the respondents were 18 to over 60 yrs.

Most of the residents know that the Ramble area has a water table that is close to the surface and will be contaminated by the proposed cemetery.

Majority know that the site for the Shettlewood cemetery (which is across from the proposed cemetery) is not being used because of the proximity to the water table.

Most of the respondents know that the project will would have a negative impact on land value.

Employment prospects for people in the area were insignificant (one person from Copse and one from Chester Castle have worked as casual labourers on the site at some time)

Most of the farmers considered themselves to be unemployed.

Less than 50% think that the Ramble CDC will be successful in halting the project, despite having the evidence, because the developer is rich and powerful

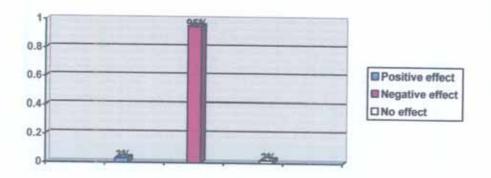


Fig. Showing the perception of the impact of cemetery on land value in the area.



Photograph taken the day Joe REID (a Delapenha employee on the site) drowned in the pond on Lot 47.

The impact on the community was devastating, especially the children, the next day they refused to drink the water, and luckily the NWC pumps automatically shut down due to low voltage or something electrical. Of course this had nothing to do with the drowning.

The day of the drowning in the now enlarged pond, with a capacity of nearly 5 million gallons, prompted us to observe again the operations of the three (3) sink holes in the vicinity of the Shettlewood Baptist church. Approximately thirty- five (35) minutes after the rain stopped falling we went to the spring and there again was the evidence of sediments in the water. Water samples were collected from the pipe in Chester Castle. We had hoped that the EIA would have been conducted through the wet season thus allowing the consultants to see for themselves the complicating hydro-geological phenomenon.

Ironically, we have no water in our pipes when there is a period of heavy rains.

2. Meetings and Discussions

A notice was posted in the Gleaner of February 1, 2007 inviting residents of Ramble to the presentation of the Terms of Reference for the EIA for the proposed cemetery at Burnt Ground. On the night of February 1, 2007 men were observed posting fliers in the Haughton Grove area. The meeting was scheduled for the Knockalva Technical High School on February 2, 2007.

The residents walked out of the meeting because:

- The notice (one day) was too short
- The 23 persons who were present was not a true representation of the 32 districts which are served by the Shettlewood Spring.
- 3. Dr. Butrowes was disrespectful to the audience.

Prior to the walk out Mr. Marc Ramatyere of Nepa, emc² and the residents agreed a first meeting must be held to present the TOR. NEPA, emc₂ and the Minister, Hon. Dean Peart were advised of this development.

See Appendix B

Our efforts to assist Dr. Burrowes were misrepresented

In the D-EIA (Meetings and Discussions p. 56-57) Dr. Burrowes stated that the community representatives refused to allow the presentations to be made.

NB. The 23 people from the community walked away leaving Dr. Burrowes and her team behind.

Following that abandoned meeting, Dr. Burrowes advised the Ramble CDC that she would prefer meeting the Ramble CDC as a focus group because it would be easier for her to conduct a meeting with a focus group than with people of opposing views together at the same venue.

The Ramble CDC notified all the churches and schools and residents of the meeting to be held on February 18, 2007. This was communicated to Dr. Burrowes.

See Appendix B

There were approximately **160 persons attended**. Dr. Burrowes presented the TOR for the EIA and the Ramble CDC made its contributions to the issue and members of the community voiced their concerns.

About that meeting she states in the D. EIA "...people holding opposing perspectives to those of the community group were too intimidated to attend a public meeting. Consequently a true public meeting of where all the stakeholders were likely to attend could not be held. Alternatively a focal group meeting with members of the Ramble CDC was held on Sunday February 18, 2007.

PARTC

Minor Comments on Findings and Recommendations

- The ponds on the property showed lower concentrations than the spring or Great River, in respect of calcium, chloride, magnesium, sodium, and strontium.
 - Is this a case of rain water against ground water which has passed though a limestone aquifer.
- 2. There are five (5) similar cometeries in similar proximity to the Spring as the proposed cometery site. Table D II gives a different picture. The private commercial cometery is totally different for a churchyard burial ground or a small rural cometery. Mass concentration of dead human bodies in a small area, with 8 to 10 burials taking place per week, creates a totally different state of affairs.

Cemeteries in the Community

	2005	2006	2007	Distance/ km
Shettlewood	0	0	0	2.1
Copse	t	1	l 1	
Burnt Ground	(2)			
Chester Castle			1	2.6
All Saints	1	1	1 1	3.7
Haughton Grove	(10)			4.5
Montpelier (St. Mary)				3.2
Mt. Ward				4.9
Spring to Site	0	0	0	2.1

^{*}Not that this is significant

We are amazed that Dr. Burrowes' own notes are conflicting. She states that the Shettlewood Spring is closer in proximity to at least five other cemeteries in the area. (See Table above)

Sine the construction of the Shettlewood Housing Scheme in the 1970's no one has been allowed to be buried there by the Hanover Parish Council, and the reason given has been the same over the years, 'Too Close to the water that supply the Spring'.

3. Distribution System

If you deliver 700,000 gallons per day you can estimate the customer base by an allotment of 50 gallons per person per day. We have observed in rural Jamaica that a more realistic rate is 30 gallons per person per day.

(No. 9) ".....the spring has the capacity to produce 0.7 gallons per day and serve 1024 customers".

This could be interpreted as if there are only 1024 customers being served. However, the number of persons being served by Shettlewood springs is more in the region of 20,000 -25,000 including 5,000 children in the educational system.

Upgrading

Upgrading should include the introduction of a sand filter intake pipe of the Shettlewood spring.

Sand filter
 Turbidity meter
 Fluoridation unit

Estimated Cos
JMD 2.2m.

Dr. Burrowes has totally ignored the water sample provided by a member of the RCDC at the February 18th 2007 meeting. In other words, the water is already not suitable for drinking, especially during the rainy season. We are forced to boil the water and we are not happy that additional pollutants will be added to our water.

- Field Percolation Rate of the Alluvial Deposit at the site, can be used to determine rate that the pollutant will get to the water table – 25m below the surface of the ground.
 - Report says Rate = 0.8 m per day (Dr. Dent)
 - Distance to travel= 75 to 100 ft.(M)
 - Arrival Time at Aquifer = 80 days.

Note that the rate of movement was for a 'Clay', but the Hill-Betty Report showed a sub-surface picture of Some Silty Clays, then Silty Sands and a Sandy gravel with some non-plastic fines.

5. Permeability of the Aquifer: Rate of movement of ground water through the limestone aquifer was not determined in this EIA, as the boreholes were not drilled deep enough. The promised rock cores of the limestone aquifer were never done. The results of the crude bailer test attempted in three of the Ramble CDC borings is not worth reporting. A guess as to the permeability (Hydraulic conductivity k) of the upper 12 to 15 feet of this aquifer is 8-10 ft per day.

At least one borehole should have been drilled to 120 ft (40M) on the site and another two (2) to 100 ft (33M) in the Montpelier Citrus Co. farm between the Site and the Spring. We would then be able to measure four (4) things:

- The direction of flow of the ground water
- The thickness of the aquifer
- The permeability of the aquifer.
- Petrology of the Aquifer.

We are now being told that the area on the west where the pond was is not good for burials. What about the area on the east?

This is positively the worst location to position the oldest known source of pollution to civilized man, on top of a cavernous limestone formation.

Percolation Rate of the Quaternary Deposit (alluvial soil) at the site (13)

Exhibit is reported to have a field percolation between 10 - 12 minutes per inch. (Hill/Betty Engineers)

Bore Holes	Depth	Field Percolation Rate	Allowable Rate of Effluent Application		
		Min per Inch	U.S. Gal./ Sq. ft/ Day		
1,2 & 3		10			
		10	1.6		

This allowable rate of effluent application to the soil is greater than the upper limit of 61 litres per square metre per day. (Hanover Parish Council Health Department. We suggest corrective action in the design of the sewage disposal system which, we were told in the original application, would be taken care of by septic tank leaching field system. (14)

Seismic Activity:

In Section 6 of the Executive Summary, Dr. Burrowes states that "the site is affected by seismic activity, which tends to be of magnitude up to 4.2, which is not expected to yield intensities that would result in structural damage". This, again, is misleading because she has taken a part of the Wiggins/Grandison report, which indicated that in 1957 when seismic recording was at a minimum or nonexistent the estimated intensities could be in that region. However, Dr. Grandison concludes her report of July, 2006 by saying, "recently compiled seismic hazard maps for Jamaica predict horizontal ground accelerations of 50% of gravity and rock or shallow soil for the Burnt Ground area with a 98% probability that this value will not be exceeded (the acceleration due to gravity 980 gallons or cm/s/s)]. Such a level of ground movement will yield very damaging intensity of EMS VIII and higher".

Description of Intensity Levels - Heavily Damaging

- Many people find it difficult to stand, even outdoors.
- b. Furniture may be overturned. Objects like TV sets, typewriters etc. fall to the ground. Tombstones may occasionally be displaced, twisted or overturned. Waves may be seen on very soft ground.
- c. Many buildings of vulnerability class C suffer damage of grade 2. Many Buildings of class B and a few of class C suffer damage of grade 4; a few buildings of class A suffer damage of grade 5.

In 1957, the epicenter of this seismic activity was in one of our neighbouring communities - Axe and Adze, the Mt. Ward School, which was totally destroyed was subsequently rebuilt.

We, therefore, expect that that if this development is allowed to take place, having the vaults sealed as recommended by the WRA to avoid seepage into the aquifer is a major priority. It is

evident that the vaults would be affected by seismic activity and will leak decomposition product into the vulnerable aquifer 50 feet (17m) below.

We disagree with Dr. Dent, who suggests:

- 1. that there will be no need for vaults, and
- that the vaults need not be sealed at the bottom.

The RCDC believes that NEPA's description of the construction of the vaults is too vague and difficult to monitor. It is our opinion that if the permit is granted or renewed that a special design must be issued by NEPA and tested before commission.

We had asked Dr. Burrowes, at the first community meeting, held at the Shettlewood Baptist Church on February 18th 2007, to investigate if there was a unique design. We were told by Miss Zaidie Neufville PRO, NEPA, that such a design is in the files at NEPA.

When asked if we could see it, so that the CDC could construct and test a test vault, Miss Neufville said this was not possible as this could be leaked to his competitor. But if the developer has applied to his competitor for accommodation at Dovecot St. James, there is a problem here.

It is our contention that a test vault should be constructed. This concern of ours has, again, not been addressed in the draft report as we requested.

Part D: Risk Assessment and Nature of the Pollutant:

- What is Risk Assessment?
 - Health Risks
 - Hydro-geological Risks
- Nature of the Pollutant and reaction with enzymes within the small intestines.
 - Experimental Results on Laboratory 'Rats'.
 - Inhalation and Ingestion of formaldehyde.
- The Chemical 'ASPARTAME', which forms formaldehyde inside the human body and the initiation of tumor growth activity in humans.
- Some products containing that are still sold to the Jamaican public and one which now claims 'No artificial flavours – No Aspartame'

1. RISK ASSESSMENT

The community and the Ramble CDC asked our consultant to explain what was involved in risk assessment and in short: What is risk?

He explained with this horrible example, but we all understood immediately:

He said, it is easier to explain if we substitute the word 'risk' with the word 'chance' or the phrase 'chance of'.

So what is the chance of something happening? In this case the question to be answered is – What is the chance of the Shettlewood Spring system being contaminated with formaldehyde lased decomposition products of the dead?

Start with a horrible and deadly example: A gambler is playing Russian roulette with a revolver which has 5 chambers to hold the bullets.

If no bullets are placed in the chambers (empty) and he places the revolver to his
head and pulls the trigger...the risk/ chance of receiving a fatal head injury is ZERO.

- If ONE bullet is placed in the chambers and the exercise of pulling the trigger is repeated, the RISK/CHANCE moves from ZERO to 20% (1 in 5)
- Repeat the exercise until all the chambers are fully loaded with bullets the then
 RISK/CHANCE of a fatal head injury becomes 100% (5 in 5) a certainty.

If no cemetery is allowed and no pollutants are introduced to the site the risk is ZERO.

As the number of bodies increases the RISK/CHANCE of polluting the ground water which is the source of the Spring water increases until it becomes a certainty:

- (a) 2040 bodies, each making 10 gallons of pollutant, Total (20,000 gals)
- (b) Concentration of a viscous liquid akin to oil but chemically reactive with human flesh and internal organs.

The salinity plume gets larger and the risk of contamination of the vulnerable water table increases.

Nature of the Polistant:

We do not know all the compounds that are formed when formaldehyde (Methanal) combines with protein molecules, or with blood and other organic compounds. We know that it reacts with copper.

Formaldehyde (Methanal) is the first of a series of chemical compounds with a carbon oxygen double bond in a terminal position, and is written as HCHO.

To help stabilize formaldehyde, methanol is added to the dilute formaldehyde solution (Formalin). Formaldehyde (HCHO) is highly soluble in water and as such does not separate or degenerate in water based solutions.

This is one of the main reasons why water is most commonly used to dilute Formaldehyde (HCH0) into the common formalin compound.

Formaldehyde kills cell tissues by dehydrating the tissue and bacteria cells and replacing the normal fluid in the cell with a gel-like rigid compound.

This latter effect exhibits the coagulation properties of HCHO.

Tissue and bacteria cells are made of protoplasm, and as such contain large amounts of moisture. The introduction of HCHO – into the tissue dries out the protoplasm and destroys the cells.

In terms of the embalming practices this is a perfect situation as the HCHO not only disinfects the tissue but replaces the tissue cell moisture with a rigid gel. Thus allowing the embalming tissue to maintain it's contour.

Additionally, the new cell structure will resist further bacterial attacks and it's composition now contains a formaldehyde based compound.

So, while the usual list of anti bacterial agents eg. Tetracycline, anikacim, baytril etc, poison their respective bacterial enemies and are then flushed from the system by the kidney and liver. FORMALIN is retained in the now altered tissue structures of living organisms.



Part E: Monitoring Programme:

3. The consultant claims that there is no way that a monitoring programme can be developed before bodies are buried on the site. This is really an unbelievable statement coming from a scientist, who was entrusted with tax-payers money to prepare a document upon which the Minister of Environment and Lands must rely to make an informed decision about this very grave matter.

We will explain in this section how it is done, but first some questions:

- 4. Who would be responsible for the cost associated with the monitoring programme?
- 5. Who would ensure that monthly samples are collected and tested?
- The cost of a Gas Chromatography/ Mass Spectrometry (GC/MS) test at the UWI pesticide laboratory is J\$4000. per test (2006 dollars)
- We already have graphs (2) of a sample of Shettlewood Spring Water and another of 5 cc formaldehyde (HCHO) dissolved in one (1) titre of Shettlewood Spring Water.

Our investigations and information obtained from 5 funeral directors across Jamaica indicate that embalming fluid is available in different strengths/ concentrations.

The common practice is that 2 qts. of embalming fluid are diluted to one gallon and this is used to replace arterial blood.

The standard in the USA (DEPARTMENT OF HEALTH AND FAMILY SERVICES) is

- (a) Arterial Injection: For each 50 pounds of body weight, at least one gallon of arterial embalming fluid is injected into the arteries of the body.
- (b) Body Cavities: For each 50 pounds of body weight at least 80z of concentrated cavity chemical must be injected into body cavities.

APPENDIX (A - I.)

- NEPA'S DOCUMENTS- Terms and Conditions
 - WRA'S TABLE STUDY REPORT
- EXECUTIVE SUMMARY -D-EIA (Burnt ground- emc²

RAMBLE COMMUNITY DEVELOPMENT COMMITTEE RAMBLE P.O. HANOVER TEL. 847-5261

11 April 2007

Mr. Leary Myres CEO National Environment and Planning Agency Caledonia Road, Kingston

Dear Mr. Myres,

Re: Proposed Cemetery Burnt Ground - Hanover

A copy of the draft Environmental Impact Assessment Report was sent to the Ramble Community Development Committee by Dr. Ravidiya Burrowes of Environmental Management Consultants (Caribbean) Ltd.

There is a notice by NEPA in the Gleaner of April 11, asking for comments on this draft EIA. These written comments should be submitted within 3 weeks of the date of publication.

The Ramble CDC is requesting permission from NEPA to copy sections of this report. This is necessary since the CDC has one copy of the draft and will be requesting analysis from different sources.

Thank you for your kind co-operation.

Yours truly

Ambleton Wray CHAIRMAN

Submission to the Natural Resources Conservation Authority

Financial Sub-Committee Meeting to be convened on December 5, 2006

PROJECT TITLE:

Environmental Impact Assessment of Burnt Ground Cemetery,

Hanover

Duration:

3 Months (January 2007 - March 2007)

Budget:

J\$3,809,520.00

1.0 BACKGROUND

Delapenha Funeral Home ("Applicant") obtained an Environmental Permit from the NRCA to build a cemetery at Burnt Ground in, Hanover on February 15, 2005. Based on the guidelines governing the categories where an EIA is needed before a permit is granted, it was outlined that during the application process the Applicant would not be required to do an EIA. The permit granted by the NRCA was based on reports from various Agencies, including the Water Resources Authority ("WRA").

Subsequent to the granting of the permit, the citizens of Ramble Hanover retained Mr. Basil Young to conduct borehole tests in the area of the cemetery. Mr. Young's findings were contradictory to the conclusions of the WRA report and were forwarded to the Minister of Local Government and Environment for review.

A review of this information indicated that the water resources of the area may be threatened by chemicals used in the embalming process which may enter the water supply. In light of this, the NRCA recommended that an EIA be commissioned and a Ministerial Order was granted for the temporary halt of the developmental works of the cemetery. Findings of the EIA will determine whether or not developmental works will proceed.

Consequent to the Ministerial Order the Applicant applied to the Court for leave and for a judicial review of this order. The Attorney General's Chambers has further indicated by letter dated November 14, 2006, that the hearing of the application for leave is adjourned until April 24, 2007 to allow for the EIA to be conducted.

NEPA is in the process of procuring a Consultant to carry out the EIA.



MINISTER OF LAND & ENVIRONMENT

16A Half Way Tree Road, Kingston 5 Telephone: 920-3273; Fax: 929-6005

18th January 2006

President
Ramble Community Development Committee
Lucea P.O.
Hanover

Re: Establishment of Cemetery at Burnt Ground – Hanover By Delapenha's Funeral Home Limited

Please be informed that I had a discussion with Mr. Dale Delapenha from Delapenha's Funeral Home Limited regarding the establishment of the cemetery at Burnt Ground, Hanover for which Delapenha's Funeral Home Limited has a valid permit from the National Environment and Planning Agency.

During the discussion I offered Mr. Delapenha land in exchange for the land that he plans to use for the cemetery. In addition, I would give him additional land to compensate for the work he has already undertaken on his property.

I have asked Mr. Basil Fernandez from the Underground Water Resources Authority to meet with Mr. Delapenha along with a representative from the National Environment and Planning Agency, the Ministry of Health and the National Land Agency, in order to discuss the matter further.

Yours sincerely,

DEAN PEART, MP. MINISTER

c.c. Mr. Basil Fernandez Mr. Dale Delapenha

SCHEDULE

The Natural Resources Conservation Authority under its mandate to ensure the proper management, conservation and protection of the physical resources of this island has pursuant to Section 9 of the Natural Resources Conservation Authority Act and the Natural Resources Conservation (Permits and Licences) Regulations 1996 established a system of permits for certain prescribed activities as mandated by The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order, 1996. It is an implied condition of every permit that based on the information presented in the Project Information Form, the Application. Form and where applicable, the Environmental Impact Assessment, and any adjustments made thereto, that the Authority is of the view that the activity subject to a it the conditions stipulated in this permit is not likely to be migrious to public health of the environment. Where new regulations are made or existing regulations are amended by the Minister under the Natural Resources Conservation Authority Act 1991 or other source this Permit shall be deemed, upon promulgation of such regulations or statute to automatically be amended to conform with such regulations or statute.

Clas Permit comprises. All four (4) pages of this document, the Project Information Form and Permit Application Form dated September 22, 2004 and supplementary information to atting to vault construction and burial facilities.

Description of Permitted Activity

Delapenha's Funeral Home Limited will develop a Cometery and Burial Facilities at 1.01#48. Burnt Ground, Hanover. The Cometery will be cited of fithe main road hetween. Ramble and Shottlewood communities.

The entire property is 3-28 hectares but only 2.43 hectares will be developed into burial facilities inclusive of a non-denominational chapel, banquet hall, office, commissary and a parking for

There will be approximately 100 vaults/0.2 hectares giving a total of 1,215 vaults. All vaults will be constructed with strip footing foundation below the wall system. Five eighths (5/8) rebais will be used for reinforcement. The finished vaults will be covered with 6 prefabricated tiles (16% 35" by 2/12" thick). Constructed vaults will then be covered with atleast 24" of top soil and landscaped until ready to be used. Once vaults are re-opened they are cauted with whitewost:

The following types of vaults will be built.

Single vanits $-33\% \times 92\%$ wide approximately 31.4% deep (5 concrete building blocks high)

Double vaults -33" x 92" wide approximately 6" 8" deep (10 concrete building blocks high).

Child's vaults $-33\% \, x/52\%$ wide approximately 3% 4% deep (5 concrete huilding blocks high)

Sewage disposal will be by means of septic tank and tile field system.

Definitions

"Permittee" means the holder of this Permit

"Authority" means the Natural Resources Conservation Authority established pursuant to \$3 of the Natural Resources Conservation Authority Act

"Representation" means any information implied or express on which the Authority has relied to grant this Permit and includes all the information contained in the Application Form, the PIF, the EIA where applicable, addenda and all supplementary documentation and information including but not limited to correspondences.

The Permittee hereby undertakes to comply with all the following terms and conditions:-

General Conditions

- All works carried out pursuant to this Permit shall be performed under the professional supervision of trained personnel who are qualified and competent to earry out the functions and daties of the Permitted Activity and who are conversant with the accompanying safety requirements and the hizards to workers, the public and the environment.
- 2. The Permittee shall not assign, or transfer or dispense with this Permit or part with any henceful under it except with the prior written consent of the Authority.
- 3. Any reference to time in this Pormit shall be computed as of the date of this Permit.
- 4 The Authority reserves the right to after, amond or introduce new conditions to this Percent at any time.
- 5 The Authority may in its sole discretion revoke or suspend this permit if it is satisfied that a breach of any term of condition, implied or express, subject to which this permit has been granted has been committed.
- 6. The Permit is granted subject to any existing legal rights of third porties
- This permit does not dispense with the Permittee's obligations under any other law, nor does
 it authorize a contravention of any statute, regulations, the common law or breach of any
 agreement.
- 8. The Authority reserves the right to review this pointit periodically and may into administrative and/or audicial action for any violation of any condition by the Permittee, its customers or guests, its agents, employees, servants, contractors or assignees.
- 9 A copy of this Permit shall at all times be placed in a prominent place at the location of operation (or business as the case may be) and shall be in such characters and in such position as to be conveniently read by the persons having functions and duties which are or may be affected by the matters set forth in this authorization.
- 13 The company shall maintain and keep in good repair all equipment used in carrying on the process (or operation) as the case may be. Maintenance shall be carried out in accordance with the manufacturers' recommendations or in such better manner or at such greater frequency as operational experience may show to be appropriate.
- 11. There shall be safe and adequate access to all sampling and monitoring points.
- 12 The Permittee shall keep all records of the operation including any environmental mointering results for a period of not less than five (5) years computed from the date on which the records were made and such seconds shall be available for inspection at any reasonable time by any member or officer of the Authority authorized to do so.
- 13 Any amendments to the records shall be made in such a way as to leave the original result legible. Only authorized persons may make amendments to records and every such amendment shall hear the signature of the said authorized person.
- 14 The furlexe of the Authority to enforce at any time of for any period any one or more of the forms or the conditions of this Pennit shall not be a warver of its right at any time subsequently to enforce all the terms and conditions of this Pennit.
- 65 Any member of the Authority or any authorized officer of the said Authority may at any reasonable time, make such periodical implections and investigations in respect of the activities that are herein permitted for the purpose of ascertaining whether the terms and conditions of this permit are being observed or not and the Permittee shall allow such authorized officer to do such inspections.
- 16 If there is any proposed change in the ownership of the company notification of such change shall be given to the Authority at least one (1) month prior to such change.
- 17 If the permetted activity does not commence within five years after the date of this Pointing.

31

then this Permit is void and the Permittee shall re-apply for a new Permit.

Specific Conditions

- The Permittee shall implement all mitigation measures outlined in the Projectl Information Form (PIF) dated September 22, 2004 relating to vault construction:
- Vaults shall be constructed from concrete blocks, steal bars and shall be completely sealed at the base with a minimum of 4 inches thick concrete for effective contaminant.
- 3. Sewage treatment and disposal shall be by means of septic tank and tile field system.
- 4. The design of the sewage treatment system as stated above shall be approved by the Environmental Health Unit (EHU) of the Ministry of Health (MOH)
- The Permittee shall ensure that the soil is kept moist by weiting to minimize the generation of nursance dust during construction.
- 6 The Permittee shall dispose of all solid waste generated by the operation at a municipal disposal site approved by National Solid Waste Management Authority.
- The Perinttee shall ensure that topsoil from the site is stored in a marmer in order to prevent dispersal from the storage location.
- The noise levels during construction shall not exceed 70dB at the property boundary at any given time
- The Permittee under no circumstances shall use fire for clearing of the land.
- 10 The Permittee shall submit to the Authority on a quarterly basis a status report during the construction phase of the facility. This report shall cover, but not be limited to, laurul facilities construction and dust control.
- 11 The Permittee shall submit to the Authority on a half yearly basis a status report on the operational phase of the facility. This report shall cover, but not be limited to the status of burnal and site facilities as well as dust control.
- The Permittee shall notify NEPA in writing of:
 - a) the date of commencement of construction of the facility, and
 - b) the date when the facility will be commissioned

at least two (2) weeks prior to construction and commissioning.

Dated this

on and lake

PATRICIA A. SINCLAIR McCALLA

FOR NATURAL RESOURCES CONSERVATION AUTHORITY

LALETA DAVIS/MATTIS

SECRETARY

NATURAL RESOURCES CONSERVATION ACTHORITY

WATER RESOURCES AUTHORITY ESTABLISHED BY THE WATER RESOURCES ACT, 1995

927-0077/ 927-0193/ 927-0169/ 827-0307 977-0179/ 702-3937

8726 REF Attention, Mr. Joseph McCarthy

HOPE GARDENS, P.O. BOX 91 W/RGS/OH 7, JAMAICA

November 17, 2004

	Other Remarks	Gwon the high valuesability of The WRA recommends that the base of	application of adequate the values into the aquifer should be served disposal methods. Allowed,	Capacity calculation should be rewalted 100 valuts/0.2 hectares		Is this area Zoned for agriculture luse?			
į	Sewage Disposal/Treatment Sweeter			preserve ground	ټ ∢	- Califeri		-	
TEWED BY WRA	Flooding	There are no reports	Area.	5000 maps and IKONOS mage	of depressions and	An appropriate	drainage plan to mégale against the effects of ponding/	flooding of the area/ should be implemented.	
RE: COMMENTS ON CEMETRY REVIEWED BY WRA	Нубгадеоюду			Karstification and faulting. Generally there is an absence of surface dramage due to the rapid rate of percolation into the subsurface.	The nearest mapped faults is 780 meters east of the site. Ground water flow direction is to the northways and	groundwater depth approximately 96 in below ground or the nearest well (Knockaha well & 644653, N 695259, 3.9 km.	Southwest of site. The Shettlewood Spring now operated by the NWC is approximately 19 km newbests of the site. The closest surface stream in the transfer of the site.	substant is no full montheast of the site and drants into the Great River Chuddeigh blay loam soil underfies the site and is blastacted by a were received resistant interest designed in and is	
	Type Of Development	Cometery of 243 hectares to	vaults/ 0.2 hectares.	Vaults are constructed from		40	ever the second second		
	SUCDIVISION	NEPA Ref No:	Location: Lol #48 Burnt Ground	Applicant: Delapenha's Funeral Home Limited	Parish: Hanover	Review Requested by, NEPA	Dain Request Received Nov 10, 2004		

Senor Environmental Officer For Managing Director

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APPENDIX B

- LETTER TO MARC RAMALYERE -NEPA
 - LETTER TO DR. R. BURROWES

RAMBLE COMMUNITY DEVELOPMENT COMMITTEE RAMBLE P.O. HANOVER

Tel. 847 5261

05 February 2007

Mr. Marc Rammeleare NEPA Kingston

Dear Mr. Rammeleare

Re: Environmental Impact Assessment for Proposed Cemetery at Burnt Ground Hanover

A public meeting for the presentation of the Terms of Reference for the EIA for the above mentioned project was scheduled for February 2, 2007 at the Knockalva Technical High School.

The residents walked out because:

- The notice in the Gleaner of February 1st was inadequate for a meeting February 2nd.
- The number of people who were present did not truly represent the 32 communities which are supplied with domestic water from the Shettlewood Spring.
- One of the consultants of EMC² was disrespectful to the audience.

Prior to the walk out by residents, the NEPA representative, EMC2 and the residents agreed with a suggestion that the first public meeting be held on Friday February 9th at the same venue. An advertisement to this effect should be posted in the Western Mirror Newspaper.

The residents of Ramble are suggesting that a more experienced facilitator be engaged for this public meeting.

The residents will not accept the outcome of an EIA in which there is no meaningful participation of the residents.

Yours truly

Ambleton Wray CHAIRMAN

cc The Public Defender
Lord Anthony Gifford
Ms Zaidie Neufville
Min. Dean Peart
EMC²

RAMBLE COMMUNITY DEVELOPMENT COMMITTEE RAMBLE P.O. HANOVER

Tel. 847 5261

15 February 2007

Dr. Ravidya Burrowes EMC² Ocho Rios St. Ann

Dear Dr. Burrowes

Re: Meeting on Sunday February 18, 2007

Further to telephone conversations, this serves to confirm your meeting with the Ramble Community Development Committe and residents of Ramble for the presentation of the Terms of Reference for the proposed cemetery at Burnt Ground in Hanover. The Ramble CDC will be doing a presentation as well.

The meeting is sheduled for Sunday February 18th at the Shettlewood Baptist Church at 5pm and as discussed we anticipate your 3pm arrival for a tour of the area.

Yours truly

Debbie Rowe-Lewis

Secretary