Attachment 8

Neighborhood Protection Analysis

IESI PA Bethlehem Landfill Corporation
Southeastern Realignment

LAND DEVELOPMENT PLAN SUPPORTING DOCUMENTATION

NEIGHBORHOOD PROTECTION ANALYSIS

(required per Zoning Ordinance Section 180-96)

PREPARED BY:

Martin and Martin, Incorporated
37 South Main Street, Suite A
Chambersburg, PA 17201
Phone: 717.264.6759
Fax: 717.264.7339
Website: martinandmartininc.com

Prior submittals, namely the 2001 Phase IV Expansion Land Development Plan provided a Neighborhood Protection Analysis accepted by the Township. The analysis following provides an update to only those sections which require revision as a result of the Southeastern Realignment. Those sections revised include; Heat, Noise & Smoke, Dust, etc. All other sections included are consistent with the previously filed Neighborhood Protection Analysis on file with the Township.

A. Radioactivity – The only use of equipment which emits radioactivity is the occasional use of a nuclear soil density gauge during construction inspection activities. The equipment is operated only by a technician certified to use the equipment. It is transported and operated in accordance with the applicable regulations. Waste containing radioactive materials above the DEP approved NORM levels in the Form X is not permitted at the site. If any waste delivered is suspected of containing such material, the waste will be rejected pursuant to the landfill's Waste Acceptance and Classification Plan and Form X. If necessary, emergency procedures will be implemented such as contacting the environmental cleanup contractor as described in the PPC Plan which is included as in Section 6 of the supporting documents supplied with this submission.

B. Heat – The only heat source used at the site other than normal building and vehicle heaters is the Landfill Gas Flare used to safely burn landfill gas as part of the landfill's gas control system. The flare is located at the south central portion of the site. It is located approximately 200 feet from the southern property line and Applebutter Road. The flare causes no measurable increase in temperature at the property line.

C. Glare – No walkway or parking area illumination is proposed at this time. If such lighting is installed in the future, it will be done in accordance with the requirements of the zoning ordinance.

D. Noise – The landfill receiving hours for waste are from 7 AM to 4 PM on Mondays through Saturdays. There would be no receiving hours on Sundays. Some equipment is generally working at the site from about 30 minutes before the start of receiving hours to about 2 hours after the end of receiving hours. These times allow for start up and warming of equipment and preparation of the working face to receive wastes before receiving hours and compaction and covering of wastes after the end of receiving hours. The Township Zoning Ordinance lists limits for continuous noise levels at the property line of adjacent properties based on receiving land use. The nearest noise receptors to the site are residential areas to the southeast. For residential properties the limits are 60 dBA from 7 AM to 10 PM Monday through Saturday and 50 dBA at other hours. The limit is reduced by 5 dBA for 'pure tones'.

The currently approved Operations Plan for the site lists the equipment used for operation of the facility. The loudest of the equipment would be the dozers, landfill compactors and articulated trucks. These operate at the working face and access roads. The only significant continuous noise source is operation of equipment at the working face. Following are data from the Caterpillar Equipment Company on the noise levels at a distance of 15 meters (about 50 feet) from the equipment:

NOISE LEVELS BASED ON OPERATING CONDITIONS AT A DISTANCE OF 15 METERS FROM CATERPILLAR EQUIPMENT – dBA

	(1)	(2)	(3)	(4)	(5)
826 Compactor	80.0	79.3	74.5	79.8	83.0
836 Compactor	79.5	79.3	76.8	81.5	81.0
D4 Dozer	75.9	75.1	76.5	77.1	83.1
D8 Dozer	81.0	80.0	81.0	81.0	86.0
D350 Haul Truck	78.5	77.5	79.0	81.0	81.0

(1) = Engine at High Idle (max.)

(2) = Engine at Rated Speed

(3) = Engine Cycle (Idle-Max-Idle)

(4) = Hydraulic Cycle – Engine at Max.

(5) = Intermediate Gear Moving

There are no nearby residential properties to the southwest or the north. Since the working face is the only significant continuous noise source, distances from residential property lines to the nearest working face area of the Southeastern Realignment are the applicable separation distance. The nearest residential property line to the southeast is about 380' from the nearest Southeastern Realignment working face area and the dwelling itself is 500' away from the working face. Noise levels at theses greater distances were not available from the manufacturer. IESI conducted noise level measurements as listed on Table 1 on January 8th, 2001 in order to obtain actual noise levels at distances from the working face equipment, at an access road and along Applebutter Road at the entrance.

Data set (A) on Table 1 gives the typical sound pressure levels at various distances from the working face. At 300' the interpolated noise level was 59 dBA. Operations from the Southeastern Realignment are greater than 300' to a residential property line and the noise level of about 59 dBA is below the ordinance's limit of 60 dBA. The closest working face operations will be about 500' from the nearest house. The noise level at this distance from the working face was less than 54 dBA which is also less than the ordinance's limit of 60 dBA. It should be noted that working face operations will only be this close to the nearest residential property line for a short period of a few days to a few weeks when filing is occurring near the edge of the liner system near the southeast corner. At other times, the working face will be hundreds of feet or more further away from the property line.

Data set (B) gives the noise level at a location 50' from the main access road to the working face where trucks are going up or down a significant grade. These data were obtained at a time where deliveries were not at a peak rate. However, the average level obtained 50' from the access road (about 64 dBA) is far less than at 50' from the working face (about 87 dBA). This shows that the working face is the most significant source of noise rather than the access roads.

Data set (C) and (D) give noise levels along Applebutter Road, both including and excluding landfill related traffic. The average noise levels (57-58 dBA) were comparable to noise levels 300' from the working face and easily exceeded noise levels 400' from the working face. This shows that mid-morning background noise levels along Applebutter Road are higher than the off-site noise level caused by working face operations.

E. Smoke, dust, etc. – The procedures used to control odors, methane gas, dust and litter are described in the currently approved Operation Plan for the site. Prevailing wind directions are from the southwest, west and northwest as indicated in Figure 1 which is a wind rose for the Lehigh Valley area. This would tend to carry dust and litter to the northeast, east and southeast of the site. In these directions the nearest property line is at least 300' from any Southeastern Realignment disposal area.

F. Vibrations – The landfill utilizes a vibratory compactor when needed. This unit does not produce vibrations which can be felt more than 100-200' away. Operation of this equipment in the past has not caused any concerns. Blasting is needed on occasions to facilitate rock removal

for construction of landfill cells. When utilized, an outside contractor is used to do pre- and post- blast surveys, record seismic impacts from the blast around the blast zone and measure ground vibrations off the site. This is a normal landfill construction activity. It is not anticipated to be used in the Southeastern Realignment.

G. Storage of Hazardous and Toxic Substances – The landfill does not store any of the substances listed in Section 180-96 G of the Zoning Ordinance or similar hazardous and toxic substances except for heating oil and diesel fuel. Heating oil tanks are located in and around the office and maintenance building. Procedures for prevention of and response to potential spills are described in the PPC Plan which is included in Section 6 of the supporting documents.

H. Storage of Chemicals – There is no underground storage of chemicals. Waste oil and anti-freeze is stored in 55-gallon drums in the maintenance building until they are taken off-site for recycling. These items, shop chemicals, cleaning chemicals and 5-gallon containers of gasoline for small power equipment are stored in the existing office and maintenance buildings and will be stored in the proposed buildings. All of these buildings are located more than 300' from any residential dwelling or residential district boundary. Spill prevention and response procedures are described in the PPC Plan which is included in Section 6 of the supporting documents.

I. Storage of Wastes – Wastes delivered to the site for disposal are compacted and covered daily. Rolloff containers shall be provided at the proposed "drop-off" area for recyclables and solid waste from small vehicles. The recyclables are hauled off-site for recycling as needed. The waste containers are hauled to the working face as needed which is usually every 1-2 days.

J. Other – Other environmental impacts and control measures are described in Form D of the DEP permit application as well as other sections of the permit application.

TABLE 1

NOISE LEVELS MEASURED AT IESI BETHLEHEM LANDFILL - JANUARY 8, 2001

(A) DISTANCE FROM WORKING FACE (1)	(A) TYPICAL SOUND PRESSURE LEVEL (dBA)	(B) Noise Levels at 15 sec. Intervals at Location 50' from Main Access Road to Working Face - Start 9:35 AM: SOUND PRESSURE LEVEL (dBA)	(B) SOUND PRESSURE (4)	(C) Noise Levels at 15 sec. Intervals at Side of Applebutter Rd at Landfill Entrance - Start 9:50 AM: SOUND PRESSURE LEVEL (dBA)	(C) SOUND PRESSURE (4)	(D) Same as Previous Column Except Excluding 3 data Points Affected by Vehicles Entering Landfill: SOUND PRESSURE LEVEL (dBA)	(D) SOUND PRESSURE (4)
50'	87.0	54.0	501.19	50.9	350.75	50.9	350.75
100'	70.5	56.0	630.96	51.5	375.84	51.5	375.84
200'	64.0	54.3	518.80	49.6	302.00	49.6	302.00
400' (2)	54.0	58.5	841.40	64.0	1584.89	64.0	1584.89
550' (3)	51.5	56.4	660.69	48.8	275.42	48.8	275.42
		53.6	478.63	48.8	275.42	48.8	275.42
		56.0	630.96	49.3	291.74	49.3	291.74
		58.3	822.24	71.3	3672.82	71.3	3672.82
		64.4	1659.59	49.8	309.03	49.8	309.03
		57.6	758.58	48.0	251.19	48.0	251.19
		55.8	616.60	47.6	239.88	47.6	239.88
		54.1	506.99	46.8	218.78	46.8	218.78
		53.8	489.78	63.1	1428.89	63.1	1428.89
		55.4	588.84	55.8	616.60		
		52.7	431.52	49.2	288.40	49.2	288.40
		52.4	416.87	49.1	285.10	49.1	285.10
		54.3	518.80	68.9	2786.12		
		53.5	473.15	61.0	1122.02		
		53.2	457.09	61.9	1244.51	61.9	1244.51
		57.9	785.24	55.3	582.10	55.3	582.10
		65.0	1778.28	60.0	1000.00	60.0	1000.00
		86.5	21134.89 (5)				
		63.8	1548.82				
		62.3	1303.17				
		54.9	555.90				
	AVERAGE	63.9	1564.36	58.4	833.41	57.2	720.93

NOTES:
(1) One compactor and one dozer spreading wastes with trucks delivering wastes about 9:10 to 9:25 AM
(2) Traffic noise from I-78 also audible at this location
(3) This point was across bench in slope so line of sight to working face no longer available; Working face noise not evident over other background noise (I-78 traffic in particular) except for scattered impact sounds and back-up alarms.
(4) Since dBA is a logarithmic scale, values are averaged using this column which is the Antilog (dBA/20).
(5) This high value caused by haul truck passing about 10' from meter.

EQUIPMENT USED - SPER SCIENTIFIC DIGITAL SOUND METER 840029

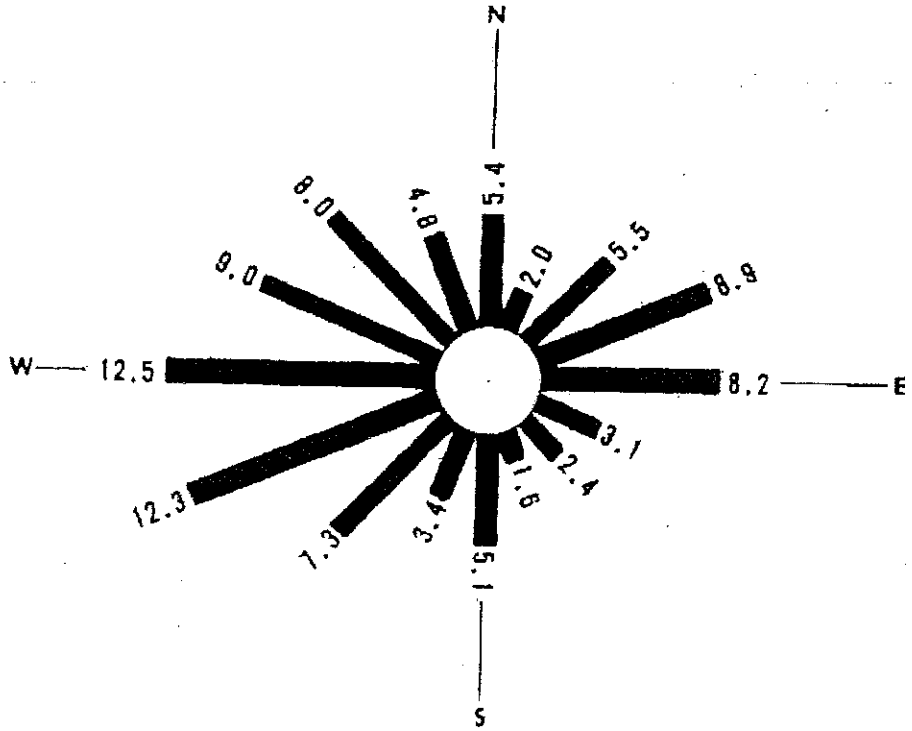
PERSONS PRESENT - Chuck Blough and Karen Christman - IESI, Allen O'Dell - Martin & Martin

Figure 1

WIND ROSE FOR THE LEHIGH VALLEY REGION

ALLENTOWN-BETHLEHEM-
EASTON AIRPORT

JAN. 1960 TO DEC. 1964
AND
JAN. 1970 TO DEC. 1972



NOTE: NUMBERS EXPRESS FREQUENCY
OF OCCURRENCE IN PERCENT.