

JUN 25 2015

Hanover

Engineering Associates Inc

June 24, 2015

Mr. Jack Cahalan, Manager
Lower Saucon Township
3700 Old Philadelphia Pike
Bethlehem, PA 18015

RE: IESI Bethlehem Landfill
Southeastern Realignment
Major Permit Modification
Form D – First Environmental Assessment Process
Review Comments of the Technical Consultant
Committee
Hanover Project LS15-19

Dear Mr. Cahalan:

The Lower Saucon Township Technical Consultant Committee has conducted their initial review of the above-referenced application. The Committee personnel involved in the review included the following:

- Mr. Jim Birdsall, PE
- Ms. Laoussa McNemar, PE
- Mr. Rich Sichler, PG
- Mr. Christopher Taylor, PG, HMI
- Mr. Jacob Schray, HMI

The initial comments generated by the Technical Consultant Committee review are presented in this letter for your consideration. While these comments primarily concern the First Environmental Assessment Process (EAP), we will also mention our concerns and questions about issues we may have noticed in other documents.

This initial Environmental Assessment review does not cover all potential concerns with the proposed application, as ongoing review by Lower Saucon Township consultants of the proposed expansion design will continue through the Phase 1 Environmental Assessment, the public hearing process and through the PA DEP technical Phase 2 review period. These initial concerns are brought forward at this early stage so that the PA DEP can be made fully aware of the Township and resident concerns, and determine if the IESI application demonstrates adequate mitigation of Council these concerns in its Harm Benefit Analysis, in the proposed design, in ongoing operations, and in new construction proposed for this expansion.

ROUTING

- ☒ Council
- ☒ Manager
- ☐ Asst. Mgr.

- ☐ Zoning
- ☐ Finance
- ☐ Police
- ☐ P. Works
- ☐ P/C
- ☐ P & R
- ☐ EAC
- ☐ Engineer
- ☒ Solicitor

- ☐ Planner

- ☒ Landfill

- ☐ EMC
- ☐ Other

It is noted that due to the volume of materials submitted, some of the application documents which bear on known or potential harms of the expansion have not yet been fully reviewed, including the MSE wall stability analysis and design, the Leachate Management (Form 25) and Liner System (Form 24), although the narrative portions of those technical documents have been reviewed.

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I. INTRODUCTION

IESI PA Bethlehem Landfill Corporation (IESI) has submitted an application to the Pennsylvania Department of Environmental Protection for a proposed permit modification to the IESI Bethlehem Landfill disposal area and capacity in what they are terming the "Southeastern Realignment." This application constitutes a major permit modification. Although the applicant's title is termed the "Southeastern Realignment," the actual plans show that the western, central and eastern sections of the Landfill will be utilized for capacity increases. Additions of capacity will extend from the west permit limit to the east permit limit.

Prior to actual submission of the application, IESI issued the following correspondence, either directly or through their engineering consultant, Martin and Martin, Incorporated (MM):

<u>DATE</u>	<u>SUBJECT/CONTENT</u>
July 16, 2014	Public news release from IESI entitled "IESI Bethlehem Landfill Announces Site Realignment Plans."
August 4, 2014	Letter from MM to Lower Saucon Township referenced as "Notice of Intent to File a Solid Waste Management Facility Permit Modification Application."
August 4, 2014	Letter from MM to Lower Saucon Township requesting a response to a Form D question regarding recreational areas or facilities.

Application documents were submitted to the PA DEP by MM under cover letter dated January 19, 2015, with a carbon copy to Lower Saucon Township and Northampton County. Three (3) volumes of hard copy documents were received from IESI by Lower Saucon Township on January 20, 2015. An electronic version of the submission was received by Lower Saucon Township on compact discs on January 28, 2015.

Prior to accepting the application documents for review, the PA DEP scheduled and conducted a Local Municipality Involvement Process (LMIP) meeting with Lower Saucon Township officials on March 11, 2015.

The PA DEP issued their Acceptance Letter to IESI (with a carbon copy to Lower Saucon Township), dated March 31, 2015, stating that the application package was deemed sufficiently complete to enable PA DEP to conduct the technical review. Attached to the letter was the Application Review Timeline. The letter stated that the first review timeframe begins with the date of the letter. Following is a tabulation of the review timeline, with actual deadline dates calculated accordingly:

<u>REVIEW ITEM</u>	<u>TIMEFRAME</u>	<u>DEADLINE</u>
<u>Environmental Assessment Process (EAP) – 225 days total</u>		
• First Environmental Assessment Process (EAP) Review	<u>120 days</u>	July 28, 2015
o Public/County/Municipality Comments (concurrent)	75 days	TBD*
o Public Meeting (concurrent)	90 days	TBD*
• Applicant response	Not specified	
• Second EAP Review	<u>75 days</u>	Oct 11, 2015
o Public/County/Municipality Comments (concurrent)	50 days	Sept 16, 2015
o Public Hearing (concurrent)	60 days	Sept 26, 2015
• Applicant response (if necessary)	Not specified	
• Final EAP Review and decision on EAP	<u>30 days</u>	Nov 10, 2015
<u>Technical Design and Operation Review – 180 days total</u>		
• First Technical Review	<u>90 days</u>	Feb 8, 2016
o Public/County/Municipality Comments (concurrent)	60 days	Jan 9, 2016
• Applicant response	Not specified	
• Second Technical Review or final decision (if appropriate)	<u>60 days</u>	April 8, 2016
• Applicant response (if necessary)	Not specified	
• Final technical review and decision	<u>30 days</u>	May 8, 2016

TBD* - The timeframe for these items starts when the application is published in the Pennsylvania Bulletin.

II. CONTENTS OF APPLICATION SUBMISSION

Lower Saucon Township provided Hanover Engineering with one (1) set of compact discs containing the application documents. The set consisted of four (4) discs, labeled as follows:

- Southeastern Realignment Application Volume 1 of 3, undated
- Southeastern Realignment Application Volume 2 of 3, undated
- Southeastern Realignment Application Volume 3 of 3, undated
- Southeastern Realignment Application Plan Set, dated 12/31/2014

Hanover Engineering opened and printed the documents contained on the discs, which were found to consist of the following documents, labeled as indicated:

A. Disc Volume 1 of 3

1. Cover pages and table of contents
2. Introduction
3. Introductory Narrative
4. Form 1: Facility Plan
5. Form 3: Map Requirements – Phase II – Municipal Waste and Construction/Demolition Waste Landfills
6. Form 7: Hydrogeologic Supplemental Information
7. Form 24: Liner System – Phase II
8. Form 25: Leachate Management Phase II
9. Revised Bonding Calculations
10. Form A: Application for Municipal Waste Permit
11. Form B: Professional Certification
12. Form B-1: Application for Certification
13. Form C-1: Compliance History
14. Form D (cover page only, with a reference to Volume 2)
15. Form F: Soils Information Phase I
16. GIF: General Information Form
17. Form I (cover page only, with a reference to Volume 3)
18. Form K: Gas Management
19. Form G(A) and G(B): Air Resources Protection

B. Disc Volume 2 of 3

1. Cover pages
2. Form D
3. Attachment 1: Geologic
4. Attachment 2: Scenic Rivers
5. Attachment 3: Wetlands
6. Attachment 4: Parks
7. Attachment 5: Fish, Game, and Plants
8. Attachment 6: Water Uses
9. Attachment 7: Recreation
10. Attachment 8: Historic/Archaeologic
11. Attachment 9: Airports
12. Attachment 10: Traffic
13. Attachment 11: Zoning and Land Use
14. Attachment 12: Planning
15. Attachment 13: Air Quality Impact
16. Attachment 14: Benefits and Harm: Environmental, Social and Economic

C. Disc Volume 3 of 3

Form I: Erosion and Sedimentation Control

D. Disc Plan Set

1. Main plan set: cover sheet and Plan Sheets LF-1 through LF-65 inclusive
2. Leachate Management Drawings: Plan Sheets LM-1 through LM-7 inclusive
3. MSE Berm Drawings: Plan Sheets MSE 1 through MSE 9 inclusive
4. Gas Management Drawings: Plan Sheets LFG1 through LFG5 inclusive
5. E & S Drawings: Plan Sheets ES-1 through ES-16 inclusive, also Plan Sheets ES-9A, ES-15A, and ES-15B.

Please note that the file containing the MSE Berm Drawings was damaged and could not be opened. MM submitted a replacement disc to Lower Saucon Township under cover dated April 17, 2015. The MSE Berm Drawings were taken from this replacement disc.

Portions of the above documents were distributed to the other members of the Technical Consultant Committee, Ms. Laouessa McNemar, PE, and Mr. Rich Sichler, PG, as appropriate, for them to provide review comments relative to their area of expertise.

III. TECHNICAL CONSULTANT COMMITTEE REVIEW COMMENTS

A. GENERAL COMMENTS

The Committee feels that it is important to take note of certain important conditions and circumstances that have changed since the last major permit modification application, or certain aspects of this proposal which have not been encountered during prior applications, as follows:

1. Numerous complaints of Landfill odor have been received in the last two years..
2. The Bethlehem Renewable Energy Plant has been built. This facility affects landfill gas management and may be contributing to odor issues.
3. Flows in the leachate detection zones are a concern, in terms of both quantity and quality.
4. The use of offsite soils was not proposed for the last major permit modification. The applicant is, for the first time, committing to the use of offsite soils for the construction of this expansion. This raises issues regarding the trucks that will be used to haul soils to the site, including: the number of trucks involved; the traffic routes they will be allowed to take; whether they will be required to go through the truck wash, etc.

5. For the first time, this proposal entails working on unlined sections of the property. Exposed garbage will generate leachate during precipitation in areas where there is no leachate collection system to capture it.
6. The applicant is proposing to place waste over existing waste.
7. The elevation of the proposed landfill cap is higher than currently approved and is proposed to extend over a large section of the property.

B. SPECIFIC REVIEW COMMENTS FOR FORM D

The review comments and questions for Form D will be provided in an outline form that follows the numbering system of major "Environment Assessment Criteria" described in Form D.1.

1. Geologic (Attachment 1)

Form 7, Attachment 7-1 Monitoring Well Decommissioning Plan

The provided narrative indicates that a fracture trace analysis was performed, but no fracture traces were identified and, therefore, fracture trace locations may not have been used to aid in the location of proposed replacement abatement wells. This provides little assurance that the proposed abatement wells will perform as needed. Abatement wells need to provide hydraulic control on the fractured bedrock aquifer in a manner that will establish a capture zone for potentially impacted groundwater migrating from the landfill area. An established groundwater capture zone is particularly important with the proposed disturbance of in place waste located above portions of the landfill with either no liner system or a non-compliant liner system. It is recommended that the applicant propose a method of evaluating the performance of the replacement abatement wells to demonstrate that the wells will exert sufficient hydraulic control to establish an effective capture zone down gradient of the proposed cell construction. Such a demonstration might include aquifer testing and groundwater modeling. The applicant is proposing to eliminate three abatement wells and install two. If the eastern most well were to fail or go offline a large gap in coverage would result. A third abatement well would not only cover that area more completely, it would also provide redundancy in the event of a well malfunction.

Well decommissioning notes (LF-5) should state that the decommissioning should be performed by a Pennsylvania licensed driller and documentation of the proper closure should be provided to the DEP and the Township. The dimensions listed in Decommissioning note #6 should be reviewed. For any casing that can not be removed the cut off depth below the liner elevation should be sufficient to protect the liner. A protective concrete slab of adequate thickness should be considered

The applicant should provide the information documenting their location of the limit of the Non-Carbonate area (LF-6).

2. Scenic Rivers (Attachment 2)

Section 11 includes the statement that the Stormwater Management Plan “is designed to dampen discharges to predevelopment rates per the Saucon Creek Watershed Act 167 Plan.” The review of the Stormwater Management Plan has not been undertaken as part of this EAP review.

Section 12 further describes that the Stormwater Management Plan “is designed to dampen discharges to predevelopment rates per the Saucon Creek Watershed Act 537 Plan and the Lower Saucon Township ordinances.” The review of the Stormwater Management Plan has not been undertaken as part of this EAP review, but based upon general reviews of the plans, we raise a concern that the Stormwater Management Plan may not meet the criteria of Lower Saucon Township ordinances. Among the concerns are lack of water quality volume and/or recharge as Best Management Practices and the steep side slopes of Stormwater Management basins.

3. Wetlands (Attachment 3)

- a. The response indicates that wetlands were delineated in 1991 and again in 2014, with a decrease in total wetlands from 3.74 acres to 1.32 acres, over that period. While this may have occurred, this is a sizeable change that is uncommon. Therefore, it is recommended that the most recent delineation be verified by the United States Army Corps of Engineers through a Jurisdictional Determination prior to issuing any approvals or permits for the proposed project. It should also be noted that the applicant does not identify in their response whether or not the wetlands identified and delineated are listed as Exceptional Value (EV). The wetland report for 2014 explains that nothing was observed onsite which would indicate that the wetlands are EV. Note, however, that the onsite wetlands are shown to be connected to the unnamed tributary to East Branch Saucon Creek. If a connection exists the wetland may be designated as EV due to the listing of East Branch Saucon Creek (and Saucon Creek) to support wild trout reproduction by the Pennsylvania Fish and Boat Commission.
- b. An environmental assessment “evaluating the wetland’s functions and values” was not included with the submission, as required. Note that there is no specific discussion in Attachment 3 – Exhibit 1 which addresses each of the seven (7) sub-parts listed for such discussion as part of this required response.

4. Parks (Attachment 4)

This section describes that the project is located within one (1) mile of the Delaware and Lehigh National Heritage Corridor, a unit of the National Parks System. The report offers the opinion that the Corridor is “not impacted” by the proposed expansion and, further, that the mountain ridge obstructs the view of the Landfill and the proposed expansion from the parks and trails along the Lehigh River Corridor. The applicant is proposing significant increases in the height of major portions of the Landfill, but has not presented any technical information to confirm the validity of the above-referenced statement. We recommend that this statement

be verified by way of onsite observations using either a crane and flag or balloon raised to the elevation of the proposed cap at several locations along the cap and that observations be made from various locations along the Delaware and Lehigh National Heritage Corridor. During the review of the 2003 Permit Application, right angle cross-sections were provided to confirm "non-observation" but these cross-sections did not take into account views of the Landfill from angles either east or west of the location of the cross-section.

This section also describes the location of the Lutz Franklin Schoolhouse near Applebutter Road. If trucks delivering cover soil material approach from the east, those trucks would pass close to the Lutz Franklin Schoolhouse and adjacent Kingston Park. If this impact is proposed, it should be documented and mitigated. The travel path bringing soil cover potential to the Landfill should be identified in the traffic section.

5. Fish, Game and Plants (Attachment 5)

- a. Section 1: The response to this question is "No. See Attachment 5, Exhibit 1." The supporting information in Attachment 5, Exhibit 1, is from 2001. Given this reference, the response is insufficient, as the supporting information is outdated. Sub-parts a.-d. should be addressed, accordingly, based on updated information which sufficiently addresses this question.
- b. Section 2: The response provided is acceptable.
- c. Section 3: The response does not sufficiently address this item, specifically with regard to adequate correspondence with the U.S. Fish & Wildlife Service, Pennsylvania Game Commission, and the Pennsylvania Department of Conservation and Natural Resources.

U.S. Fish & Wildlife Service

Attachment 5, Exhibit 4, states: "Per the U.S. Fish & Wildlife Service response faxed to Martin and Martin, Inc. on 09-29-2014 [date error], we note the following: Although this is a slightly different project (different location) from the 2011 area, Attachment 3, Exhibit 1 indicates that bog turtles are not present in this location." Therefore, the response issued by the U.S. Fish & Wildlife Service is not for the current project location. Further, Attachment 3, Exhibit 1 is merely the professional opinion of John Roemer, the private consultant that performed the wetland evaluation. Mr. Roemer is not a representative of the U.S. Fish & Wildlife Service.

Pennsylvania Game Commission

The response provided by the Pennsylvania Game Commission regarding the potential conflict with northern myotis (*Myotis septentrionalis*) is also unacceptable or incomplete. The PGC responded that a Potential Impact (is) Anticipated and listed a required Conservation Measure, which is not discussed in the applicant's response. The Conservation Measure addresses a "seasonal restriction (which) is suggested to avoid potential impacts to *Myotis septentrionalis* and other tree

roosting bats within the area: All trees or dead snags greater than 5 inches in diameter at breast height that need to be harvested to facilitate the project shall be cut between November 1 and March 31." There is no indication in the response that this Conservation Measure will be implemented by the applicant.

Based on recently released regulatory guidance by the U.S. Fish & Wildlife Service and the U.S. Army Corps of Engineers, all searches of the Pennsylvania Natural Diversity Inventory (PNDI) conducted prior to May 4, 2015, are no longer acceptable and must be renewed to address potential conflicts with the long-eared bat (*Myotis septentrionalis*). Therefore, the application which is currently under review by the Township should address this new requirement. Presumably, this will only require the applicant to provide an updated PNDI Project Environmental Review Receipt. It will be the applicant's responsibility, however, to fully address any additional requirements related to *Myotis septentrionalis*, as well as any additional Potential Conflicts listed on the updated PNDI Project Environmental Review Receipt.

Pennsylvania Department of Conservation and Natural Resources

The applicant provided materials sent to the Pennsylvania Department of Conservation and Natural Resources to address a Potential Impact to *Ellisia nysctelea*, as listed on the PNDI Project Environmental Review Receipt. No return correspondence or the required resolution was provided by the applicant.

- d. Section 4: The response provided may be acceptable, if all issues noted above in Item 3 are fully addressed as required by the respective regulatory agencies.
- e. Section 5: The response provided is acceptable, based on a review of available data from the Pennsylvania Fish and Boat Commission (PFBC), noting that the correspondence provided in the application is not directly from the PFBC but rather an e-mail describing a telephone conversation with Tom Green, a PFBC representative.
- f. Section 6: The response provided is acceptable, based on a review of available data from the Pennsylvania Fish and Boat Commission (PFBC), noting that the correspondence provided in the application is not directly from the PFBC but rather an e-mail describing a telephone conversation with Tom Green, a PFBC representative.
- g. Section 7: The response provided is acceptable.
- h. Section 8: The response provided is incomplete, as follows by sub-item:
 - (1) a. The response identifies the stream on site, but does not identify "the location of the stream(s) in relation to the project."
 - (2) b. The response does not identify the fish species present within the stream on-site, but rather simply lists "unknown."
 - (3) c. The response provided is acceptable.

- (4) d. The response provided is not acceptable, as there is nothing offered as support for the finding of "None Anticipated" for what is generally accepted as a high impact land-use.
 - (5) e. The response provided is not acceptable. The response notes that "The Project will conform to all stormwater rules and regulations of the PA DEP, Northampton County, and Lower Saucon Township." The response does not include any supporting information regarding the measures to be taken to minimize adverse impacts to groundwater inputs that support the stream channel. This is of particular concern, noting the reported decrease in wetlands on the site by 50% between the period from 1991 through 2014, which may be attributable to ongoing on-site activities and associated impacts.
- i. Section 9: The response provided is acceptable.
- (1) a. The response provided is acceptable.
 - (2) B.. The response provided is acceptable.

Section 8 Subsection E of this attachment repeats the statement that the project will "conform to all stormwater rules and regulations of the DEP, Northampton County and Lower Saucon Township." As mentioned above, we have not yet reviewed the Stormwater Management Plans for this project.

Section 9.a describes that Landfill truck traffic will turn left onto Shimersville Road and will, therefore, "not present any impact to the river corridor." This statement does not provide any information with regard to trucks bringing soil cover onto the site from off-site sources. Depending upon the route taken for soil delivery trucks (arriving and leaving), the areas of impact for new truck traffic may be substantially larger than the areas of impact for landfill trucks.

6. Water Uses (Attachment 6)

Exhibit 3 for this report is a letter identifying off-site public water well supplies in the area of the Landfill. It is stated August 30, 2001, and we recommend that this evaluation be updated.

7. Recreation (Attachment 7)

This report indicates that the parks and trails along the Lehigh River Corridor are obstructed from view of the Landfill. It is requested that this be verified by field inspections as described above and that, if the Landfill is visible from these locations, mitigation be provided to minimize any adverse impacts.

Report indicates that the Lutz Franklin Schoolhouse will not be affected by the project. The applicant should identify the travel routes of trucks bringing offsite soil cover to the Landfill in order to determine whether or not these trucks would create an impact on the Lutz Franklin Schoolhouse and adjacent Kingston Park.

The applicant has not identified whether or not the Landfill expansion will have any impacts on the historic and archeological features of the area including; the Applebutter Road Historic Area.

The applicant has not identified whether or not odors from the proposed expansion will adversely affect citizens utilizing the Steel City Park, the Delaware and Lehigh National Corridor, and/or the Kingston Park.

8. Historic and Archeologic impacts (Attachment 8)

This report indicates that the proposed expansion will not have any negative impact on the Applebutter Road Historic Area. If trucks carrying offsite cover soil material to the Landfill travel through or past this area, there may be noise, odor, and vibration impacts.

This section did not include a response from the Pennsylvania Historical and Museum Commission to a letter from Martin Martin, dated August 4, 2014. If a response was provided, it should be included in this section.

9. Airports (Attachment 9)

No Comments

10. Traffic (Attachment 10)

This section of the report provides the opinion that "the existing traffic route will not be impacted by this project". This opinion is based upon the presumption that the current number of waste disposal trucks will continue and the current access and departure routes for these trucks will not be changing.

This opinion and justification do not take into account the new traffic that will be resulting from the transportation of off-site cover soil material to the landfill site. The impact of these additional trucks should be identified and mitigated. The number of trucks, time of day of deliveries, truck routes, and impacts associated with intersection congestion, noise and vibrations should be identified.

Reference is made to Form F - Soils information, Phase 1. All cell construction, daily, intermediate, and final cover is proposed to be obtained off site. The air quality form G(A), identifies dust emissions, but does not appear to account for all the trucks that will deliver the subbase, liner or protective cover materials, MSE wall construction materials, or deliveries of materials for leachate collection, gas control, or stormwater management construction and cover soil over the life of the requested permit. The staging and construction of the various new cell developments, as well as mandatory closure and capping of completed site areas, indicate this property will be a continuous heavy construction project with near continuous construction and soil hauling truck traffic for the next 5.5 years of projected lifetime. Noise, traffic and fugitive dust emissions from this increased heavy truck traffic flow has not been addressed in the application. This type of truck traffic was not considered in previous

traffic studies for the Phase IV permit, and will be a significant impact in this proposed expansion. The current practice of importing daily and intermediate cover was also never required to undergo traffic impact analysis by PA DEP when the site ran out of available cover dirt on site approximately two years ago. Current soil hauling truck traffic is a current unmitigated harm never identified in the past Phase IV traffic study review.

Traffic impacts and patterns (including proposed and/or restricted use of certain public roads in the Township) associated with operating and construction materials delivery to the site, storing at the site, and haul road movement of construction materials within the site, should be explained.

Although a Traffic Control Plan is in place and implemented, it has been only partially effective in making a lasting reduction in overweight vehicles entering the site. The latest PA DEP engineer's report of March, 2015 reported 50 overweight vehicles with no citations issued. Additional construction and soil hauling trucks which will be entering the site on a continuous basis, are not monitored under this plan, but should be.

Based on the comments above, traffic increase and control is an existing known harm not fully mitigated and an increased known environmental harm of the expansion based on high intensity, frequency and duration of the increased traffic needed to develop, fill and close the expansion area. The applicant refers to certain impacts as a "short duration." Five or six years of ongoing daily impacts is not considered a short duration for those who are affected by these impacts.

The Traffic Impact Evaluation prepared by Pennoni Associates, Inc., dated December 8, 2014 indicates that the waste transportation vehicles approaching and leaving the IESI site have insignificant impacts on the traffic volumes along Route 412 and/or at the intersections of Route 412 and I-78. However, there did not appear to be any information on the more local impacts of waste vehicles and offsite cover soil trucks as they relate to the ongoing and increasing usage of Applebutter Road and Shimersville Road. Form D, Section J-Entitled Traffic-requires certain information to be provided as specifically related to traffic impacts on the approach roads. Specifically J2, J6-10, J12-14, and J16 information should be provided.

Any deficiencies identified during this additional investigation should be mitigated. The traffic studies prepared in 2003 should not be relied upon since road conditions may have changed in the intervening years.

11. Zoning and Land Use (Attachment 11)

In this section of the report, the applicant is to identify possible conflicts between the "new facility" and local zoning and land use plans. They are also required to identify the measures that have been or will be taken to obtain Municipal approvals, or in the alternative provide copies of information documenting such approvals. This information has not been provided and should be provided to identify whether or

not the proposed expansion and changes meet zoning, subdivision, stormwater management, and land disturbance criteria of the Township.

12. Planning (Attachment 12)

This section describes compatibility between the IESI proposed expansion and the Northampton and Lehigh Counties solid waste management plans. While it is recognized that the IESI facility currently provides waste disposal services for waste generated in both Counties, it is noted that Northampton County and IESI do not have any agreement for this disposal and use. As a result, IESI is not "included" in the ten (10) year County Solid Waste Disposal Plan. It is further noted that IESI does not make any voluntary payments or contributions to help fund any of the Northampton County Waste Management activity or the Hazardous Household Waste Program.

13. Air Quality Impact (Attachment 13)

This section of the report indicates that IESI will be amending their Title V operation permit. This section also indicates that IESI has submitted a request for "Air Plan approval."

This section also provides the opinion that "no adverse air impacts to the surrounding community are anticipated."

A full evaluation of this statement and the above-referenced permit documents and plans are one of the most important aspects of the evaluation of the proposed capacity expansion. The Township should be provided with copies of any proposed amendment to the existing Title V Operating Permit and proposed "air plan" that has been submitted to the Department. The Township should request that DEP provide permit coordination so that any questions with regards to air quality or odor can be identified and satisfactorily addressed prior to the issuance of any air quality permit or solid waste permit.

The fugitive dust emission estimates from vehicles listed on Page 1 of Form G(A) do not appear to include all the trucks required to deliver daily, intermediate and final cover, sub-base and protective cover materials based on the capacity and number of trucks listed versus quantities of materials needed as presented in the various narratives, plan sheets and closure plan documents. The emissions estimate also accounts for only one bulldozer daily and no other earth moving equipment during this 5.5 year extensive operating/new construction/closure operation. Earth moving equipment has the highest dust emission factor of any of the other activities listed (Page 4 of 7, Form G(A)). As noted elsewhere in these comments, significantly more truck traffic will contribute to fugitive dust emissions, noise, and traffic increases, which have not been identified as harms or proposed to be mitigated.

Based on comments under the FORM D, traffic, the air quality form G(A), does not identify dust emissions from all construction and soil delivery traffic. Emissions estimates should include truck deliveries for the subbase, liner or protective cover

materials, MSE wall construction materials, or deliveries of materials for leachate collection, gas control, or storm water management construction and cover soil over this period. All construction, operations and refuse truck traffic will be traveling the interior roads and creating fugitive dust emissions.

Profile plan sheets show the removal of the top cap material in already capped and closed areas of the old Phases 1, 2, original landfill area and Phase III. In addition, the Landfill drawings, Sheets LFG 1 through 5, demonstrate the exposure of old waste leaving only a remaining 6 inches of anticipated existing daily cover. While then uncapped, waste will be excavated for cutting and sealing of old gas wells and installation of old fill gas collection trenches. How will odors and gas be controlled during this activity?

The application did not include copies of the air quality plan approval or application for Title V permit amendment, as referred to in the application documents. The total air quality control plans, emissions controls and proposed monitoring, especially of the vulnerable-uncapped areas, cannot be reviewed without those documents. It is highly recommended that the Forms G(A), G(B) and FORM K be closely reviewed by the PA DEP Air Quality personnel most familiar with the odor and SEM exceedance issues at the site. These forms do not appear to acknowledge any current odor or gas control issues, nor do they indicate any types of different controls proposed for an expansion project that will create new additional sources of emissions.

There is no indication in the application documents that surface emission monitoring for methane or other waste degradation emissions will be monitored during and directly at locations of cap removal or refuse excavation for gas system trenching in the piggyback areas or during Cell 4E waste excavation. This should be required on a daily basis starting when any cap is first removed and during waste removal and reburial until all areas are sealed. A separate odor control operations plan identifying trigger readings and immediate odor elimination requirements should be developed, to mitigate existing harms and future harms. The readings should be documented and open for inspection by both the PA DEP and the Host Municipal Inspector. Requiring the continual on-site monitoring of emissions will also quickly identify the source area, and ensure that the problem is immediately corrected, instead of relying on continuous odor complaints and once-per-quarter surface emission monitoring. Neither the complaints from area residents nor SEM results has resulted in any continuous operations improvements to eliminate these harms.

Prevention of additional sources of air contaminants and odors released by (1) peeling off the cap of 26 acres of existing in-place refuse; (2) excavation into that old fill for gas system installation; and (3) re-excavation of over 315,000 cubic yards of waste relocated from Cell 4E in order to properly close the western boundary should be addressed.

Based on the comments above, the known existing and future environmental and health based harms of odor and air emissions from the activities at the site are not

mitigated and the application does not address how new sources of odors and emissions will be controlled or eliminated.

14. Benefits and Harm-Environmental Social and Economic (Attachment 14)

The benefits and harms analysis in the application does not address the level of impact the traffic, noise, visual impacts, air quality and odors have on the surrounding residents. The summarized harms based on this initial review and in many cases discussed above, as well as response to some of the benefits claimed by IESI include:

- a. Existing and increased traffic harms not mitigated
- b. Existing and increased air quality degradation harms not mitigated
- c. Existing and increased odor harms not mitigated
- d. Existing and increased uncontrolled leachate harms not mitigated
- e. Increased visual impacts not studied or mitigated

This section includes a transportation compliance plan as Exhibit B, dated December 2014. No comment.

This section also includes a Nuisance Minimization and Control Plan (Exhibit C) which is undated.

Odors – While IESI proposes minimization and mitigation measures, the measures currently utilized since approximately 2012 have not been adequate to address the odor complaints from residential neighborhoods. More specific information with regard to daily intermediate and final cover and capping should be provided and or improvement to the gas collection system and flare system should be described so that mitigation of odors can be demonstrated.

Noise – The potential nuisance of noise impact on residents immediately to the southeast of the landfill should be identified and specific mitigation measures should be proposed.

Traffic – The hours of operation and location of direction should be identified for cover soil trucks approaching and leaving the site, and the nuisance of this additional traffic should be identified and mitigated.

A reevaluation of road capacity and safety conditions along Applebutter Road and Shimersville Road should be reevaluated and updated to address existing conditions and if deficiencies are found they should be mitigated.

Runoff – Stormwater Management Plans and Soil Erosion Control Plans will be evaluated under the technical reviews.

Leachate – Separate comments will be provided on this (potential nuisance) during the technical review of plans and designs.

C. OTHER GENERAL COMMENTS AND QUESTIONS REGARDING SUBMITTED APPLICATION

During the review of the Form D and this first Environmental Assessment Process (EAP), the following concerns and questions were developed. These comments and questions do not constitute a full review of any of the technical aspects of this submission but are provided in a way of preliminary comments.

1. GIF (General Information Form):

- a. Samuel Donato - under client and site information. Mr. Donato is no longer employed by IESI to the Township's knowledge. The application and any future application supplements should be certified by the appropriate official, and new certification forms provided if Mr. Donato is no longer the IESI authorized contact, spokesperson or responsible official for this application, future application supplements, or for the proposed construction and performance of the design as submitted.

Item 1. Existing known environmental harms associated with landfill gas emissions have not been fully mitigated. Offsite odors continue to be a reported problem and concern. Documentation exists as to the numerous odor complaints received by IESI, the Township and PA DEP. The citing of excess methane emission readings by both IESI and PA DEP, and tracked by the Township since 2010 identify methane readings above regulatory limits in every Surface Emission Monitoring (SEM) event. PA DEP attributes these exceedances to lack of adequate cover (either in spot locations or area-wide) during current operations, and IESI then addresses the problem as required by the PA DEP. Lack of adequate cover in many areas of the site was also documented by PA DEP in a site inspection August 27, 2014. Although the documentation confirms known harms of odor and air emissions attributed to inadequate cover practices, IESI has not been issued any substantive penalty, and the issue is temporarily mitigated by PA DEP directing actions until the next surface emission monitoring again indicates exceedances. The monitoring of emissions on only a quarterly basis by IESI and about twice per year by PA DEP, does not determine if exceedances across the site are continuing between those testing periods. The odor and gas exceedance problems are considered known harms with a long duration of recorded occurrence, a high frequency documented by numerous parties and a high intensity as also reported and documented. These existing harms are not proposed to be mitigated by the application, and several aspects of the proposed design (removal of over 30 acres of cap and excavation of existing waste discussed later in these comments), is expected to exacerbate the gas release and odor harms.

Another known environmental harm that has not been addressed prior to submission of this application, nor mitigated or proposed to be mitigated, is the presence of leachate in the detection zone of one or more leachate management chambers originating from the Phase III lined area. This known harm has not been mitigated and there is no plan for further investigation or mitigation in this

application. This condition has been a documented concern of the Township since the Township first brought this to light in the year 2000. This harm is possibly associated with some type of breach in the primary liner system, has increased in frequency (the flow is continuous), of long duration (since 2000), and of high intensity (exceeding the 100 gallons per acre per day triggering additional actions by the PA DEP). The application calls for removal of capped areas in Phase III, and more waste placed in this currently closed and capped area of the landfill. The potential harm of additional leachate generated by these new Phase III activities and resulting in even more leachate not being captured by the primary collection system has not been addressed.

- b. Page 7 of 7 – Final certification should be signed by an authorized representative of the applicant. Mr. Donato is no longer employed by IESI Bethlehem Landfill.
2. Form A (Application for Municipal Waste Permit) – We recommend that the public notice be issued to every adjacent property owner. The Affidavit should be signed by a current authorized representative.
3. Form B (Professional Certification) – The soil scientist certification has not been completed.
4. Form C-1 (Compliance History Certification) – The Compliance History Form HW-C of June 10, 2014 (referred to and not included) may name Mr. Samuel Donato within its contents. If that is the case, the HW-C should be updated to identify his replacement.
5. Form F (Soil Information) – This section states that soil information is not applicable. If soils are to be imported, it is recommended that detailed soils information be provided.
6. It is recommended that the Lower Saucon Municipal Authority provide review comments on proposed changes to the western edge of the landfill near the tower and waterline.
7. Emergency Response – It is recommended that IESI verify that the City of Bethlehem Fire Department will remain available to fight fires at the landfill and that annual training of Emergency and Fire Company groups is still provided in accordance with Host Municipal Agreement.
8. Industrial Waste Permitting – It is recommended that IESI verify that they will be able to continue utilizing the City of Bethlehem Waste Water Treatment Plant, and as a backup, the Allentown Waste Water Treatment Plant for Leachate Treatment.
9. Air Quality Reviews – It is recommended that all Air Quality Permitting (for modifications and extensions of existing permits) be coordinated with the application process for this expansion.

10. Mechanically Stabilized Earth (MSE) – It is recommended that IESI retain a Consulting Engineer to inspect the construction of the wall and provide a certification, upon its completion, that it has been constructed in accordance with certified design plans.
11. Seismic Stability (Attachment 24) – D.A. Geologic (Seismic)(includes referenced Form 24) – Review continues (these preliminary comments do not yet consider a review of the MSE wall stability analysis or a complete technical review of the liner system Form 24).
 - a. The stability analysis narrative in Attachment 24-8 states that the new landfilling will occur over old Phases 1 and 2 of the site (16.25 acres), where non-compliant liners exist, and also over the area identified as “original landfill area” or “old fill” as designated on various plan sheets (an additional 6.16 acres). This description is different than what was conveyed at the public meeting on March 11, 2015, where the underlying areas were described as having “non-compliant liner systems.” There is no liner under the “old fill” area. There were statements made during the public meeting regarding the intent to remove the existing cap and/or final cover soils on the Phases 1, 2 and old fill areas in approximately 5 acre sections prior to beginning reconstruction of a new gas collection system for the existing fill, then constructing the new liner on top. There is no construction or operations plan detailing, or even summarizing how the whole process will occur, and in what relative or timing sequence. Exposed, uncapped old fill areas will remain exposed to rainfall and could result in new leachate generation in unlined and non-compliant lined areas. The length of time and amount of area at any time this condition is to exist is not identified. The stability analysis does not seem to address a potentially wet surface of old refuse forming the foundation of sub-base stability for the added piggyback waste. New leachate could be generated in areas of unlined or non-compliant liners where the cap or existing cover is removed. There is no plan to prevent this leachate development or a plan to collect and control it within this application.
 - b. The characteristics and compressibility of the decades old waste in Phases 1, 2, and the old original landfill “was assumed based on published values and load tests on waste from studies at other MSW landfills.” (Attachment 24-8, Section 6.1.2) However, the waste buried in the older sections consist of much construction/demolition debris, among potentially unregulated waste during the time period it was filled (1940s to 1980s). The waste was in place before the requirements of the 1988 municipal solid waste regulations which required compaction of the waste in 8 feet lifts, before different handling criteria for construction demolition waste landfills versus municipal waste landfills was enacted, and before RCRA (hazardous waste regulations) of 1976. Although eluded to in various sections of the stability analysis and other narratives, that many borings were taken and analyzed, borings or actual site characterization of the in-place refuse in Phases 1, 2, and the old fill have not been included in this application. There has been available fly over topography taken of the entire permitted area annually during Phases III and IV fill activities. The determination of settlement of the realignment area does not seem to have been evaluated from

this available topographic data and used in the design. The geophysical survey is limited in useful data for this proposed operation in that large voids, existing moisture content, and increased moisture content of the old fill once the cap is removed, do not appear to be considered. It appears that full reliance on the stability of the new completed refuse mass is on the manufactured liner system to withstand whatever would happen below it, and no reliance on the stability of the waste mass beneath. This poses a concern with the design and stability of the piggyback waste area under static and seismic conditions.

- c. How many and which other landfills in Pennsylvania with similar age and type of waste that was buried in the 1940s through 1980s have been studied as to waste mass stability under similar new loading conditions as proposed here? Have those sites' long term history of piggyback waste over decades old uncharacterized waste been studied regarding differential settlement? Where differential settlement should be expected to occur, how is the geogrid evaluated after surface evidence of settlement to determine if it is holding over the void, thereby verifying the primary liner has not been compromised?
- d. Soil borings were presented from various historical drill logs. These drill locations are previous or existing monitor well locations, outside the existing waste boundaries proposed for piggyback fill. There were no borings, bearing capacities or subsurface investigation of the Phases 1, 2 or original unlined landfill areas to determine the in-situ characterization of waste that is expected to support a new liner and waste load. The use of book values instead of actual site values for the analyses does not lend confidence to the stability of the proposed expansion.
- e. Because the existing waste has not been characterized for this design, it must be considered that there may be closed metal or plastic containers, drums, or pockets of old wastes which are not even permitted to be buried in the compliant lined portion of the facility. Without documentation to the contrary, the potential for any number of hazardous, flammable, explosive, medical, or radioactive wastes underneath the new liner system and waste pack does exist. The added weight of additional refuse in this expansion could potentially break old containers open creating new mobile sources of contaminants which would be a threat to the groundwater aquifer. How does this design eliminate this risk?
- f. The geophysical survey conducted at the site generally detects metals in the upper 20 or so feet of old refuse. This survey did not discuss voids but did indicate areas of "rubble fill," a berm area that was surveyed, and the suggestion that mining had occurred in some areas in the last century due to piles of rock detected. In addition, it is known that there is much construction/demolition waste in this older landfill area, and stumps and other bulky clearing debris in the area referred to as the "notch" (which is not shown on the landfill drawings). The variability in waste type, placement location, depth, moisture, and level of degradation can be expected to result in differential settlement, and shifting under various load conditions (static and earthquake) much differently than a typical literature-based municipal solid waste pack that is more uniform in nature.

How are the assumed values used in the stability analyses considered to be representative of what is actually buried in Phases 1, 2 and the old fill with no actual underlying waste data obtained for the design? The reaction of large potential existing void spaces, and larger area shifting of potential rubble piles in the old landfill areas under earthquake loading conditions does not seem to have been considered in the stability of the new proposed piggyback waste mass. Have this and any other such areas been further investigated?

- g. The gas collection system modifications on Phases 1, 2, and old fill areas call for the cutting off of existing vertical gas collection wells (19) at grade, and backfilling with bentonite (Plan Sheet LFG-1). With the new piggyback waste load further compressing the old in-place waste beneath it and around the old wellheads, how will these permanent and top cut well casings be prevented from becoming puncture points on the new secondary and potentially primary liner system above them? Has the design determined an additional expected settlement of the underlying area that ensures these abandoned in-place gas well casings (to be cut off at existing grade) do not breach the sub-base of the new liner system under a maximum settlement scenario?
- h. It is known that the Landfill slope stability, settlement and bearing capacity evaluation was performed by a different consultant than the MSE wall. It is known that the reaction of the waste mass to failure under static or earthquake load conditions will also have forces against the MSE wall. Has the stability and failure scenarios of the entire waste mass area been considered in the static and seismic stability of the MSE wall?

Based on the comments above, stability of the designed waste mass is of concern under static and earthquake loading conditions. Potential harms of extremely high intensity could result from a failure of this design. The duration of harms in such a case would be lengthy and potentially irreversible by causing damage to neighboring properties, and onsite engineered control systems (liner, cap, leachate collection, gas management, storm water management systems, for example).

12. Form 1 (Facility Plan):

The Facility plan Form 1, Attachment 1-1, Page 3 table shows the Cell 4-E will be the last area to be filled. Given its final grade continuity with the remaining Phases III and IV, and that the timeframe to fill Cell 4-E is only 4 months, it is unclear why the western half of the facility is not being filled and capped first. The immediate completion and follow-up capping of the western portion of the facility would most certainly better control landfill gases. It is requested that PA DEP require the facility to develop a construction/fill/capping/operations plan, completing to grade and then final capping. The amount of uncapped area should be minimized by developing a staging plan that does not allow uncapped areas across the entire site. By the application mapping, it can be stated that since permitting of Phase IV in 2003, 30 of the 46 acres of the entire Phase IV remains uncapped across the entire hillside, while the remainder of Phase IV and many portions of the previous Phase III (permitted in 1993) have only been capped in recent years. In addition, as part of

this application, portions of the capped Phase III will actually be removed. The capping/staging plans, Sheets LF-26, 27, 28 have no schedule for capping, only a general sequence. The acreage of capped versus uncapped area for each stage, and the length of time any active area remains uncapped should be identified. Capping is the single most effective method of containing and control landfill gas emissions and odors. It appears from the information provided that even more area will become uncapped or active during this operation than currently exists. The closure sequence should demonstrate much less uncapped area in each phase depicted on the referenced plan sheets, with committed time frames for the capping.

13. Site Capacity:

Ability for existing site to support the proposed expansion- Comments on space demonstrated to support the new construction, daily operations, and capping activities simultaneously.

It is stated in the application that there is no change to the existing Phase IV Operations Plan. However, changes in operations will include several items which are significantly different than Phase IV. A detailed operations, construction and staging plan to identify the following items and sequence of activities was not identified, including:

- Stockpiling of soils and construction materials – Soil stockpiling for daily and intermediate cover is indicated on the Erosion and Sedimentation Control Plans in the southeast corner where the new MSE wall is proposed. There are extremely limited remaining areas within the permit boundary that are unfilled. Sufficient non-capped or non-active areas of the site for stockpile of construction materials, including additional sub-base soils, protective layer stone, piping and liner materials area staging should be clearly demonstrated, especially with an aggressive construction, fill, cap and close plan of approximately 6 years total.
- The Phase IV permit does not allow any stockpiling of soils/materials on capped areas due to the potential for cap damage, as demonstrated during that previous permit expansion review. The existing capped areas with the existing gas collection systems that are to remain functional and intact until modified or replaced should be delineated on the site plans and protected from all potentially damaging haul road traffic and staging activities.
- The process of cap removal of existing areas (proposed “piggyback” areas) should identify where and how the removed cap materials will be stored, staged, disposed or reused, without affecting existing capped areas.
- The method of excavation of existing waste, staging, re-burial and complete odor suppression for both the re-alignment area waste excavated (trenches dug 3½ feet into the waste with additional 6 feet deep by 6 feet wide drainage pits

throughout the area), and the excavation and removal of over 315,000 cubic yards of waste from cell 4E should be explained.

The plans and narratives do not clearly demonstrate the ability for the existing permitted area to support all existing and new activities associated with the expansion without harm to existing on-site systems, nor do they demonstrate how the new harms will be mitigated.

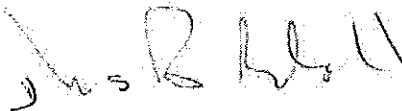
On behalf of the Township Technical Consultant Committee, we recommend that the Township forward these comments and questions to DEP and to the applicant for their use and consideration.

All the comments and questions in this letter are provided to a reasonable degree of engineering certainty. The size and complexity of the application and the short length of the review time may have resulted in our missing some answers to some of our questions or may have resulted in our missing sections of reports that have already addressed concerns we have raised. We look forward to responses to these questions and comments from the applicant as part of the review process.

If you have any comments or questions on this review, please let me know.

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



James B. Birdsall, PE
For the Township Engineer

jbb:cat/llb/dad

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Enclosure(s)