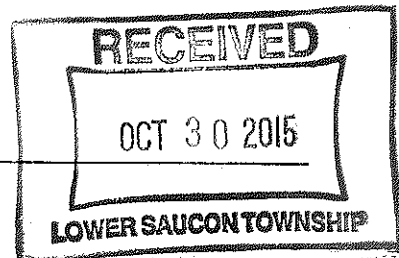


# Hanover

Engineering Associates Inc



October 29, 2015

Mr. Jack Cahalan, Manager  
Lower Saucon Township  
3700 Old Philadelphia Pike  
Bethlehem, PA 18015-5426

RE: IESI PA Bethlehem Landfill Corporation  
Facility ID 100020  
Phase IV and Southeastern Realignment  
Land Development Plan  
2335 Applebutter Road  
Tax Map Parcel P7-5-33  
LST Project LD01-2015  
Hanover Project LS15-28

Dear Jack:

We have reviewed the submission for the above-referenced project, consisting of a Plan dated August 17, 2015, with no revisions dates, as prepared by Martin and Martin, Inc.

IESI proposes to raise the height of the landfill from Elevation 707 to Elevation 725 (feet above sea level) and expand further to the east.

Public sewage disposal and public water facilities exist and are to be retained, with some modifications proposed in the area of the proposed office. According to the Zoning Map, the site is located in the Light Industrial (LI) Zone, and only the portion of the property directly along Applebutter Road is identified to be within the Carbonate Geology Overlay District.

We offer the following comments for your consideration:

## A. GENERAL COMMENTS

- S**
- ROUTING
- Council
  - Manager
  - Asst. Mgr.
  - Zoning *eng*
  - Finance
  - Police
  - P. Works
  - P/C
  - P & R
  - EAC
  - Engineer
  - Solicitor
  - Planner
  - Landfill
  - EMC
  - Other

1. The changes would allow an increase in total landfill solid waste disposal capacity, for which a Major Permit Modification would be required. The Township Technical Consultant Committee issued initial review comments on the proposal in their June 24, 2015 letter. Any approval by the Township should be contingent upon approval of the Major Permit Modification.

2. The Solicitor should review the condition of the April 6, 2005 Land Development approval regarding future activities to the southeast.

The third covenant of the First Modification to Land Development Agreement dated August 31, 2005 is "Developer/ Owner will not expand its landfill activities to the southeast portion of the Premises beyond the limits of the existing Department of Environmental Protection Solid Waste Permit No. 1000020-A003 (as issued 4/17/03)."

3. The Plan proposes the construction of a retaining wall along the southern access road that is approximately 60' tall. The design for this retaining wall must be certified by a Professional Engineer.
4. A full technical review of proposed features will be provided once a plan is provided that shows the site to be developed generally in conformance with Township Ordinances, with the exception of any provisions the Township (or Zoning Hearing Board, as applicable) have found acceptable to relieve, if any.
5. The methods of stormwater management provided (to address peak runoff rate) are generally consistent with those of the original approval for this project. However, these methods do not appear to be consistent with the current regulations (governing runoff volume, recharge volume, and water quality).

#### **B. GRADING ORDINANCE COMMENTS**

1. Section 77-5 – The work performed would appear to require a permit per this Ordinance. The Applicant shall consult with the Zoning Officer as to whether any separate application is necessary and whether the Land Development Plans submitted may also serve as the Grading/Earth Disturbance Permit Plans.
2. Sections 77-5.E(3)(a)[12], [13], and [14] – It appears that the information required by these sections have not been provided on the Plans.
3. Section 77-5.E(3)(a)[7] – See Stormwater and General/Technical Comments.
4. Section 77-5.E(5) – The Plans and Stormwater Reports must be signed and sealed by the registered professional engineer that prepared them.
5. Section 77-5E(6) – It does not appear that the time schedule provided addressed the dates and time of exposure identification requirements of this section.
6. Sections 77-7.A, J and K – These sections require compliance with Chapter 137; see comments on Chapter 137.
7. Sections 77.7.G and 137-23.G – All topsoil stockpiles must be noted to be protected from erosion, and a topsoil stockpile must exist until topsoil is spread over the site. The topsoil stockpile is currently only shown on Sheet ES01 and ES-2, in a location that is proposed to be disturbed by the proposed expansion to the southeast. The Plans should clarify where topsoil will be stockpiled while this area is being disturbed.

**C. STORMWATER MANAGEMENT COMMENTS**

1. Sections 137-6.D and 29 – Significant revisions have been made and the Drainage Plan is subject to the provisions of Chapter 137. However, this review letter discusses only those features that have been revised and does not comment on the current Ordinance compliance of existing facilities (swales, pipes, basins) that were previously analyzed for drainage areas that have stayed the same or been reduced in size. A waiver may be required to have Ordinance compliance apply only to those features impacted by the proposed change.
2. Sections 137-11.K and 13.A – The Plan does not propose stormwater runoff volume controls as are required.
3. Section 137-11.O – All Drainage Plans and Reports must be signed and sealed by a Licensed Professional Engineer.
4. Sections 137-12 and 13.N – A Drainage Report (with all supporting information in one (1) cohesive, consistent document) must be provided which identifies that the stormwater management will comply with release rate requirements of either (or both) of these sections. Analysis has only been provided for postdevelopment areas that are proposed to be increased in contributory area from previous proposals. Analysis has not been provided for all areas, including those areas with proposed impervious cover.

A Drainage Map should be provided that shows the Watershed Subarea (release rate) drainage divides.

5. Section 137-13.A – The stormwater analysis compares previously proposed postdevelopment drainage areas (without considering cover type) with the currently proposed drainage areas.

The reports provide runoff rate analysis however does not provide runoff volume analysis, except for Water Quality Volume (2-year storm). Stormwater analysis is required to compare postdevelopment runoff volume from the drainage areas against the predevelopment runoff volume from the same drainage areas.

Unless predevelopment runoff volumes are met after development, reduced release rates must be met. The stormwater analysis notes that predevelopment (previously proposed) rates, without reduction are to be met, without reduction, as the predevelopment rates are considered to be reduced from a before-construction rate.

6. Section 137-13.C – This section requires that a Plan be provided showing the drainage boundaries to each watershed subarea.
7. Section 137-13.R – NPDES Permits must be obtained or updated/modified.

8. Sections 137-14.B and 26.C(2) – The tributary hydrographs to detention basins and time/elevation/storage volume/release rate tables for each routed hydrograph should be provided.

The Plan notes Formula B seed (ryegrass, fescue, and bluegrass) for non-stormwater management areas. The post-closure maintenance of this surface has not been identified.

Post-closure maintenance provisions must be provided on the PCSM Plans. Maintenance provisions are currently only noted on the Erosion Control Plans.

Post development analysis is provided for Basin 2 after conversion to a detention basin however not as a sediment basin. No analysis is provided for the other basins, as the tributary drainage areas are shown to have been reduced.

9. Section 137-14.F – The analysis does not use the SCS Curve Numbers and Rational Coefficients that are appropriate for the proposed site and generally consistent with Appendix C-3 and C-4 respectively.

The analysis uses a Curve Number of 61 for the post-development top of the landfill. The Designer should clarify how this curve number is appropriate, as it seems too low for the imperviously-lined vegetation. Similarly, justification must be provided for use of a Rational Coefficient of 0.30.

Also, the Curve Number of 61 is inconsistent with what is used as the “predevelopment” condition (i.e. previously proposed postdevelopment conditions) where a Curve Number of 80 is used, which correlates to poorly drained (Type D) soils.

Different covers (such as grass and impervious cover) must be considered separately in SCS analysis.

10. Section 137-14.M – The Designer should confirm that predevelopment analyses considered only 50% of existing previously unmanaged impervious cover. Predevelopment analysis appears to consider all existing impervious cover.
11. Section 137-15 – This section requires that the Water Quality Volume (WQv) must be captured and treated during the 2-year, 24-hour storm event. The Plan does not propose water quality treatment as required. For the watersheds that are not to receive increase in tributary area, no water quality is proposed. For the watershed with increased runoff, water quality is identified to be met by attenuation in the basin. WQv is required to be met by infiltration where geology permits.

The Designer should clarify why the Post Construction Water Quality Analysis states "infiltration is prohibited onsite by Ordinance."

Justifications for the groundcover coefficients used in the calculations for the required WQv should be provided.

The Post Construction Water Quality Analysis indicates that runoff will be treated by vegetated swales. However the swales are rock-lined?

12. Section 137-16 – This section requires that the Recharge Volume must be captured and treated during the 2-year, 5-minute storm event. The Plan does not propose infiltration of the recharge volume as required.
13. Section 137-17 – This section requires infiltration for stormwater management. The Plan does not propose stormwater infiltration as required.
14. Sections 137-18.C and L – The basin analyzed does not dewater as quickly as required. Analysis has not been provided for all basins.

The analyses for Basin 2 assume a dry basin at the beginning of the storm. The analysis should not assume any dewatering beneath the lowest outlet orifice beyond what can reasonably be assumed to dewater between storms. The Designer must clarify the drain-down rate of the faircloth skimmer and determine the time it would take to drain the water beneath the lowest outlet orifice.

If ponding or longer storage durations are to be permitted, the Designer should confirm that basin routing analysis is performed as if the basin starts full or partially filled in the analysis.

15. Section 137-18.E – The basin analyzed (Basin 2) uses an orifice size of 2.5 inches rather than one meeting the minimum 3 inch orifice size required. Basin 4 uses an orifice size of 2 inches. Details for the outlet structures for the other basins have not been provided as the Developer does not propose to change them. The Applicant seeks a waiver of the requirement as previously conditionally approved with the Cell 4F Modification Plans.
16. Section 137-18.F – The Designer must verify whether plantings proposed for the basins will tolerate the prolonged water storage proposed.
17. Section 137-18.G – This section requires an access ramp for basins.
18. Sections 137-18.H and L(6) – The basin is not fenced as required. The Applicant seeks a waiver of the requirement as previously conditionally approved with the Cell 4F Modification Plans.
19. Section 137-18.I – Basin landscaping is required by this section.

20. Section 137-18.K – The maximum external slope for a basin is 3:1. The Applicant seeks a **waiver** of the requirement for the basins that are not proposed to change as previously conditionally approved with the Cell 4F Modification Plans. The only basin proposed to be revised (Basin 2) does meet this requirement.
21. Section 137-18.L – The basin maximum slope, storage depth, and storage duration are exceeded. The applicant seeks a **waiver** of the requirement as previously conditionally approved with the Cell 4F Modification Plans.
22. Section 137-18.N – This section requires permanent detention basins to have a minimum bottom slope of 1%. Flat bottoms are only permissible for sedimentation basins and for approved infiltration basins. The plan proposes a flat bottom for Basin 2.
23. Section 137-18.O - The stormwater analysis indicates that 100-year storm, water is stored in Basin 2 to a height of 471.67. The spillway elevation is 471.50 and the top of the inlet grate is 471.00. A vertical separation of 0.5' should be provided between the height of the expected storage elevation and the spillway.
24. Section 137-18.P – The 100-year peak storage elevation in the revised basins is required to be shown on the Plan. These elevations and the required building setbacks should be provided on a Record Plan Sheet.
25. Section 137-18.S – The toe of the Basin 4 slope appears to be within the required 50-foot setback from the ultimate right-of-way of Applebutter Road.
26. Sections 137-19.G(8), (10), and Appendix A.B – These sections require all stormwater structures to be consistent with PennDOT Design Standards (including PennDOT Publication 408 Section 605 and the Standards for Roadway Construction). Most of the endwalls and detention basin outlet structures are not consistent with PennDOT standards. Concrete footers for endwalls have not been identified, as required. The Applicant seeks a **waiver** of the requirement for temporary erosion control structures, as previously conditionally approved with the Cell 4F Modification Plans. Postconstruction design has not been provided for all basins.
27. Section 137-19.G(14) – Flow is required to be conveyed overland to the same destination if storm sewers fail. If the C-17 endwall is clogged, water will drain northward rather than southward to Basin 2.
28. Sections 137-21 and 22 – Department of Environmental Protection approval of the Erosion and Sediment Pollution Control Plan and receipt of a NPDES Permit are required.

Copies of all Plans and calculations submitted to other government agencies shall be submitted to the Township and shall be consistent with the design presented in the Subdivision Plan submissions to the Township.

29. Section 137-23.M – The plan shows slopes in excess of the maximum 3:1 permitted. At the southeastern corner of the site, slopes are proposed at 3:2, or approximately double the slope permitted. The grading proposed at the retaining wall is 1:6, or approximately 18 times the slope permitted. The Applicant seeks a waiver of this requirement. The Applicant notes that they believe IESI has the equipment necessary to maintain this slope. It is not clear whether and how they expect these slopes to be maintained after active maintenance of the site has ended.
30. Section 137-26.C(4) – See General/Technical Comments.
31. Sections 137-26.D, E, 34, 36, 37, 38, and 145-34.D(5) – Legal Agreements (addressing easements and maintenance responsibilities) must be addressed. The Applicant seeks a waiver of the requirement, pending satisfaction of the Township Solicitor with the postclosure maintenance of the site as previously conditionally approved with the Cell 4F Modification Plans.  
  
Stormwater Management Facilities are to be inspected and maintained (per notes on Sheet ES-16) after closure on a monthly basis. An inspection should also occur after any rainstorm in excess of 3".
32. Section 137-26.F – This section requires an environmental resources site design assessment. The newly proposed disturbance of the wooded areas and any new disturbance of steep slopes seem to be the resources most applicable to this project. Disturbance of natural resources are reviewed by the Township Planner.
33. Sections 137-37.B and C – Easements have not been identified on and around culverts, swales, and basins as required by this section. The Applicant seeks a waiver of the requirement, pending satisfaction of the Township Solicitor with the postclosure maintenance of the site, as previously conditionally approved with the Cell 4F Modification Plans.
34. Sections 137-Appendix I – The Storm Drainage Easement Maintenance Covenant is not provided. If infiltration requirements are not waived, then the applicable infiltration notes from Appendix I must also be provided. The Applicant seeks a waiver of the requirement, pending satisfaction of the Township Solicitor with the postclosure maintenance of the site, as previously conditionally approved with the Cell 4F Modification Plans.

**D. SUBDIVISION AND LAND DEVELOPMENT COMMENTS**

1. Sections 145-19.C(4)(b),(c), (f), and 145-34.D(8) – Confirmation of outside agency approval of the Erosion and Sedimentation Control Plan must be provided, as must adequate copies of the approved Plans and Narratives.
2. Sections 145-19.C(4)(g) and 33.E(12) – The Applicant has provided copies of 14 notifications of adjoining property owners (as well as property owners adjoining properties adjoining this property). It is not clear whether every adjoining property owner, and every property owner adjoining those properties, has been notified. Most of the non-corporate owners shown on the Record Plan were not included in the notifications provided, though the ownership of those properties may have changed. A map of the nearby parcels (e.g. from the Northampton County tax mapping) should be provided showing parcel ownership.
3. Section 145-21.B(1)(d)[7] – Comments from the Fire Chief and Police Chief should be obtained and considered.
4. Section 145-26.A – Deeds (and descriptions) for all easements shall be prepared per this section.
5. Section 145-26.B – The Plans should note that As-built Plans shall be provided as required, or a certification letter that all facilities were installed per Plan.
6. Sections 145-30 and 34.D.(6) – Insurance for the construction is required per these sections. The Applicant seeks a waiver of the requirement to allow use of existing liability insurance, as previously conditionally approved with the Cell 4F Modification Plans.  
  
An Improvements Agreement, with security, as found acceptable by the Township, shall be provided.
7. Section 145-33.A – A separate Preliminary Plan is required. The Applicant seeks a waiver of the requirement as previously conditionally approved with the Cell 4F Modification Plans.
8. Sections 145-33.C(1) and (2) – Some of the required existing features information has not been provided. The Applicant seeks a waiver of the requirement to not show any further detail than is currently on the plans, and to use 2013 aerial survey information.
9. Sections 145-33.C(1) and (5) – The wetland delineation performed in 2013 shows a substantial decrease in wetland area from what was delineated in 1993. The Township may wish to request a Jurisdictional Determination from the Army Corps of Engineers.



The Designer should clarify whether the wetlands are classified as EV (exceptional value), as the Saucon Creek and East Branch Saucon Creek are listed for wild trout reproduction.

10. Section 145-33.C(3) – The Plan is required to identify the approximate age of the buildings and wooded areas.
11. Sections 145-33.C(4) and 34.C(6) – The Applicant or Designer should confirm that the Plans note all existing and proposed easements, deed restrictions, right-of-way and maintenance responsibilities.

Easement and road right-of-way line types should be noted in the Legend.

15. Sections 145-33.E(8) and 34.C(10) – The sequence of construction must provide approximate durations and dates.

The sequence of construction must be corrected to include all proposed development. Several cells (Cells 3A, 3B, 3D, 4A, 4B, 4D) which are proposed to be changed are not noted or are noted as “Completed” in the Sequence.

16. Section 145-33.F(1)(a) – A plan notes for drainage easements are required. The Applicant seeks a waiver of the requirement, pending satisfaction of the Township Solicitor with the postclosure maintenance of the site as previously conditionally approved with the Cell 4F Modification Plans.
17. Section 145-34.D(5) – Agreements are required for the operation and maintenance of stormwater management facilities. The Applicant seeks a waiver of the requirement, pending satisfaction of the Township Solicitor with the postclosure maintenance of the site as previously conditionally approved with the Cell 4F Modification Plans.
18. Section 145-33.D(11) – This section requires tie-down dimensions for the existing buildings.
19. Section 145-33.D(15) – This section requires any easement maintenance requirements or restrictions to be shown on the Plan.
20. Sections 145-33.D(18) and (19) – Grading and (the Zoning Ordinance’s) site capacity calculations are required by this section and are subject to review by the Township Planner.
22. Sections 145-33.E(3), (4), and (5) – Comments on the geology, soil testing, and Stormwater Management Reports are under Chapter 137 comments.
24. Sections 145-33.F, 34.C(8), and 34.E – All signature blocks must be properly executed (signed, sealed, and/or notarized) prior to unconditional Plan approval.

25. Sections 145-41.B(4) and 45.B(9) – These sections require that existing roads adjacent to the property must be improved to Township construction standards.
26. Section 145-43.B(2) and Appendix A-5.B – These sections require an additional setback, planting screen, buffer berm, and easement along Applebutter Road.
27. Section 145-45.B(3) and Appendices A-2.A and M – Sidewalk and curb are required for collector roads; neither has been proposed along Applebutter Road (a collector road).
28. Section 145-45.G(2) – Driveways are required to meet the minimum specifications of this section. The Applicant seeks a waiver of the requirement, as previously conditionally approved with the Cell 4F Modification Plans. The waiver justification references temporary drives being used during waste hauling, but does not discuss post-closure drives for site access.  
  
The Plan now does not identify the width of the access drive and does not identify which portions of the drive will be paved and which portions will be only aggregate.
29. Section 145-46.B(3) – Drainage easements are required for stormwater conveyance. Drainage easements have not been provided over the swales, culverts, and basins. The Applicant seeks a waiver of the requirement.
30. Section 145-48 – Stormwater management comments are provided in this letter under Chapter 137.
31. Sections 145-51.D and E – Land dedication or fee for recreation/open space may be required per these sections; we are not aware that the Township is seeking this as the use of the property is not changing.
32. Section 145-52 – Most aspects pertaining to landscaping are reviewed by the Township Planner.
33. Section 145-52.B – Street trees are required by this section. The Applicant seeks a waiver of the requirement.
34. Section 145-52.C – Landscaping is required per this section.
35. Appendix A-2 – Additional details must be provided for any widening proposed to existing streets.
36. Appendix A-5.C(4) – Wetland plantings are required for detention basins unless the Township approves another wet-tolerant planting. The Note on

Sheet ES-16 references Formula D seed throughout the basin, however the detail sheet for Basin 2 identifies "Retention Basin Floor Seed Mix" for the lower portion of the basins. The Plan must clarify what "Retention Basin Floor Seed Mix" is proposed. The Designer must clarify whether the seed proposed for the basin will thrive during the expected duration of stormwater storage.

**E. ZONING COMMENTS**

1. Section 180-98 – The Applicant is required to address any traffic impacts caused by the development.

The Traffic Impact Study indicates that no additional traffic will occur as the rate of refuse deliveries will not change, however it does not address delivery of the cover material for the landfill.

While the daily refuse traffic may not change, the duration of the traffic will increase as the duration of landfill operation increases.

Additional traffic concerns are identified in the review letter from the Township Technical Consultant Committee.

**F. GENERAL/TECHNICAL COMMENTS**

1. Section 77-9.G - The Applicant has indicated that the Plan shows all proposed erosion control features. Erosion control features are being reviewed by DEP; however, we would recommend the use of silt fence or silt soxx for disturbed areas until they are stabilized. Silt fence is noted in the construction sequence; however, fence is not shown in Plan View.
2. The approved Modification Plans and Land Development Plans must be consistent. Copies of the approved Modification Plans will need to be provided to the Township.
3. The narrow strip in the northeast that looped from the maintenance building to the access drive is now shown to not have the last 150 feet so that it no longer connects to the access drive. The Designer should confirm whether this was intended.
4. The citizen drop off area is proposed to be relocated.
5. The Plan should reference the Modification Plans for landfill design details such as leachate collection and cap cover.
6. The Plan must verify that the discharge from the level spreader at the end of Channel Z will be conveyed without erosion to the point where the flow used to drain (Wetland C, rather than discharge onto the adjoining properties to the

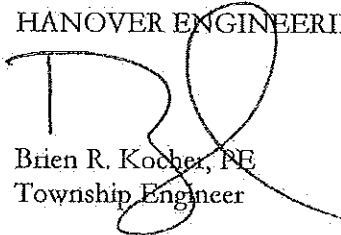
south). As the construction sequence is to be based upon the sequence of Cells, the map of Cells must be included in the Erosion Control Plans.

Due to the number of comments that could significantly impact the design if ordinance requirements are not waived, we have issued this letter without a complete technical review. Some technical review, and thus related additional comments, may be best addressed after it has been determined whether significant conceptual items (such as the runoff coefficients, natural resource protections, previous prohibitions on expansion, and waivers from infiltration and basin design requirements) have been resolved.

If you have any questions concerning this review, please contact the undersigned.

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



Brian R. Kocher, PE  
Township Engineer

ddm:ddm/jlg

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cc: Ms Leslie Huhn, Assistant Manager  
Mr. Chris Garges, Zoning Officer  
B. Lincoln Treadwell Jr., Esquire  
Ms. Judith Stern Goldstein, ASLA, RLA  
Mr. Richard M. Bodner, PE, Martin & Martin, Inc.  
Mr. Al Schleyer, IESI  
Mr. Dave Buzzell  
Ms. Mary Anne Garber