Attachment 6

Environmental Protection Analysis

IESI PA BETHLEHEM LANDFILL
SOUTHEASTERN REALIGNEMENT
LAND DEVELOPMENT PLAN SUPPORTING DOCUMENTATION
SECTION 14

ENVIRONMENTAL PROTECTION ANALYSIS

A. Introduction

This narrative, combined with the Existing Natural Resources Plan contained within the Preliminary/Final Land Development Plan for the IESI PA Bethlehem Landfill Southeastern Realignment (Plan Sheet 7), is provided to document compliance with Lower Saucon Township Zoning Ordinance Section 180-95 Environmental Protection Standards. The referenced Ordinance section requires the delineation of existing natural resources within the site and prescribes a percentage of protection associated with each resource.

The IESI PA Bethlehem Landfill site is an existing permitted landfill in which the vast majority of the site has been developed as landfill. As shown on the Existing Natural Resources Plan and per discussions with Township staff and consultants, the currently approved landfill disposal area is deemed not to contain any existing natural resources.

B. Site Capacity Calculations

1. *Base Site Area*

In accordance with the Ordinance, the base site area is calculated by taking the gross property area from survey minus those rights-of-way and easements within the property as shown on plan sheet 1 of 19. The calculation is as follows:

Gross Site Area:	224.47 ac.
Existing Rights-of-Way:	(9.06 ac.)
Land Within Easements:	(2.95 ac.)
Base Site Area:	**212.46 ac.**

2. *Resource Protection*

As calculated above, the Base Site Area is 212.46 acres. Within this base area the resources described in the table below have been delineated along with the required resource protection area for each. As required where two (2) or more resources overlap, the one with the highest reservation was delineated.

RESOURCE	REQUIRED RESERVATION	X	LAND IN RESOURCE	=	RESOURCE PROTECTION LAND
Wetlands	100%		1.96 ac.		1.96 ac.
Waters of the Commonwealth	100%		2.69 ac.		2.69 ac.
Env. Sensitive Woodlands	85%		30.70 ac.		26.10 ac.
Steep Slopes >25%	85%		15.30 ac.		13.00 ac.
Woodlands	80%		2.15 ac.		1.72 ac.
Steep Slopes 15% to 25%	70%		10.80 ac.		7.56 ac.
Steep Slopes 8% to 15%	60%		7.50 ac.		4.50 ac.
	TOTALS		71.1 ac.		57.53 ac.

3. *Buildable Area*

Utilizing the base site area and the total resource protected land the net buildable area is calculated as follows:

Base Site Area:	212.46 ac.
Req'd. Resource Protection Area:	(57.53 ac.)
Buildable Site Area:	**154.93 ac.**

Upon development of the Southeastern Realignment, the total Landfill Disposal Area, defined as the limit of disposal, will be 133.80 acres, which is less than the Buildable Site Area of 154.49 acres.

4. *Dwelling Units*

The Ordinance requires calculation of a maximum number of dwelling units given the buildable area. Since the Southeastern Realignment proposes no dwellings this calculation was omitted, as it is not applicable to the proposed development.

5. *Maximum Impervious Area*

Calculation of the maximum impervious area is determined by multiplying the buildable site area times the maximum permitted impervious surfaces ratio. The subject property is located in three (3) zoning districts. Those districts are Light Industrial (LI), Light Manufacturing (LM) and Rural Agricultural (RA). The LI and LM districts have an allowable impervious ratio of 60% while the RA district maximum impervious ratio is 20%.

Given the low intensity of impervious surface associated with this development, and to be very conservative, the 20% impervious ratio was used to calculate the maximum allowable impervious surface for this analysis to document compliance with the ordinance. The maximum allowable impervious surface is calculated as follows:

Buildable Site Area (154.93 ac.) x 0.20 = 30.99 ac.

The proposed impervious area onsite, upon development of the Southeastern Realignment, is 7.5 acres. Thus, the maximum allowable impervious surface area is not exceeded with the proposed development.

C. **Resource Impacts**

1. *Floodplain & Floodplain Soils*

As per FIRM Map Number 42095C0335E dated July 16, 2014 and a review of soils located within the base site area against those listed as floodplain soils within the Lower Saucon Township Zoning Ordinance, no floodplains or floodplain soils exist within the base site area.

2. *Wetlands and Wetland Buffers*

Based upon a wetland determination and study performed onsite, three (3) wetlands exist within the base site area having a total acreage of 1.96 acres. No wetlands shall be impacted as a result of the development as required by the Ordinance. Further, by Ordinance a wetland buffer consists of an area within 50 feet of a wetland boundary. No impacts are proposed within 50 feet of a wetland, thus the wetland buffers are not impacted, meeting the 85% protection rate.

3. *Riparian Buffers/Waters of the Commonwealth*

Unnamed tributaries to the East Branch of Saucon Creek are located within the gross property area. A stream easement for one of the tributaries containing 0.927 acres was removed as easement area when computing the base site area. Further as defined on previous plan approvals for the landfill, a 75 foot riparian buffer is defined. The current Ordinance defines the riparian buffer as 100 feet from the stream or waterway. Riparian buffer areas have a protection rate of 85%. The Southeastern Realignment proposes no impacts to the previously defined 75' riparian buffer or the Ordinance defined 100' riparian buffer. Thus, the Ordinance protection requirement is met.

4. *Lakes and Ponds*

No lakes or ponds exist within the base site area. The Southeastern Realignment proposes no impacts to lakes or ponds or lake and pond buffers onsite, thus meeting the 100% protection rate for lakes and ponds and the 85% protection rate for buffers as prescribed by the Ordinance. For this analysis, as previously determined by the Township, existing sediment/stormwater basins were not considered lakes or ponds.

5. *Steep Slopes*

Steep slopes are those which exceed 8% having an area greater than 3,000 square feet. A breakdown of steep slopes along with required protection rates are as follows:

- Steep slopes 8% to 15% - Protection Rate 60%
- Steep slopes 15% to 25% - Protection Rate 70%
- Steep slopes greater than 25% - Protection Rate 85%

The Table below outlines the total amount of steep slopes for each category along with the percentage protection based upon the impacted area as a result of the Southeastern Realignment.

Steep Slope	Total Resource Area	Impacted Area	Protection Rate (Allowable)
8% to 15%	12.1 ac.	2.5 ac.	79% (60%)
15% to 25%	17.4 ac.	2.7 ac.	84% (70%)
Greater than 25%	34.8 ac.	4.6 ac.	87% (85%)

As shown above the required protection rate for each steep slope category is met upon development of the Southeastern Realignment.

6. *Rock Outcrops*

Upon review of pertinent mapping no rock outcrops where delineated within the base site area.

7. *Woodlands*

Woodlands are defined as all areas within the base site area of 3,000 square feet or more which contain an average of one or more trees measuring six inches in caliper or greater per 1,000 square feet.

In addition, woodlands meeting the criteria above which also co-exist with other resources (steep slopes, wetlands, floodplains) are considered environmentally sensitive woodlands. For the purposes of defining the limits of woodlands onsite, the 2013 aerial photography was utilized. The required protection rates for Woodland and Environmentally Sensitive Woodlands is 80% and 85% respectively. The table

below outlines the total amount of woodlands and environmentally sensitive woodlands, areas of impact and the percentage protection.

Woodlands	Resource Total Area	Impacted Area	Protection Rate (Allowable)
Woodlands	6.8 ac.	0.20 ac.	97% (80%)
Env. Sen. Woodlands	30.70 ac.	4.6 ac.	85% (85%)

As outlined above, the required protection rate for all woodlands is met upon development of the Southeastern Realignment.

D. **Conclusions**

As presented, development of the Southeastern Realignment within the IESI PA Bethlehem Landfill is in accordance and consistent with the Environmental Protection Standards of the Lower Saucon Township Zoning Ordinance.

This is achieved by limiting the landfill disposal area to less than the buildable site area, limiting impervious surfaces to less than allowable, and protecting existing natural resources at a rate that meets or exceeds that which is required.