

**FURNACE ASSOCIATES, INC.**  
**APPLICANT'S STATEMENT**  
**SPECIAL EXCEPTION AMENDMENT SEA 80-L/V-061-2**  
**December 10, 2013**

Pursuant to Sections 3-104, 9-201, 9-301, 9-501 and 9-607 of the Zoning Ordinance, Furnace Associates, Inc. (alternatively, "**Furnace**" or the "**Applicant**") requests Fairfax County Board of Supervisors' (the "**Board**") approval to amend Special Exception Amendment SEA 80-L/V-061 ("**SEA-1**") on Fairfax County Tax Map Parcels 113-1-((1))-5(pt.), -7 and -8, and 113-3-((1))-1, -2 and -4 (the "**Property**" or "**Application Property**") to (i) establish renewable energy electric generation facilities including wind, solar, geothermal infrastructure and methane gas collection systems as "interim uses" to further the County's "Green Energy Triangle" initiative; (ii) extend the useful life of the existing construction debris landfill to continue land filling activities until December 31, 2040; (iii) remove the previously-approved public park uses and facilities and the dedication requirement rescinded by the Fairfax County Park Authority Board (Park Authority Board and Staff collectively "**FCPA**") in March 2009; (iv) entitle three private, limited-access active recreation "end uses;" and (v) create and operate an "Observation Point" as a private, controlled access accessory use. This landfill "Observation Point" would be accessed solely via shuttle service operated by the Applicant from visitor parking located on Furnace's adjacent I-6 zoned tract (Tax Map Parcels 113-1-((1))-12, -13) (the "**PCA Property**"), which is the subject of pending Proffered Condition Amendment PCA Application 2000-MV-034 (the "**PCA**"). No increase in maximum final elevation of the landfill is being requested in this Application. Pursuant to Paragraph 3 of Section 9-304 and Section 9-607 of the Zoning Ordinance, Board of Supervisors' approval of a Category 6 Special Exception for an increase in height pertaining to the Category 3 Quasi-Public Uses (wind turbines only) is being requested in this Application.

The approximately 250-acre Property, zoned R-1, is occupied by a Construction Demolition Debris ("**CDD**") landfill which is classified as a "Category 2" Special Exception ("**SE**") use. A CDD landfill has been operated on the property since at least the 1970s, and ultimately in accordance with SE 80-L/V-061, approved on November 16, 1981 and amended by the Board in SEA-1 on January 8, 2007, subject to 56 development conditions. The landfill is inspected at least quarterly by the Virginia Department of Environmental Quality ("**DEQ**"). CDD landfills accept inert materials, such as concrete, rock, asphalt and glass, as well as scrap lumber, drywall, trees, brush, and other debris from construction sites and land clearing activities, as approved in the Property's DEQ waste permit. While no landfill may be permitted by DEQ without local government land use approval, no landfill use may be established without DEQ engineering review, approval, bonding requirements, operational limitations, environmental, monetary and reporting requirements, inspections and enforcement. No owner/operator of a DEQ permitted landfill can be released from its operational, maintenance, and monetary obligations until DEQ is satisfied, after typically ten (10) years of post-closure monitoring and inspections, that the landfill has completed settlement satisfactorily, the landfill cap is intact, and there is no existent environmental degradation or any indication thereof.

The Application Property generally is located between Interstate 95 and Furnace Road, south of Lorton Road and east of the County landfill, incinerator, and the Landfill Energy Systems ("**LES**") facility (formerly known as Michigan Co-Generation Systems, Inc.). In conjunction with this amendment application SEA 80-L/V-061-2 ("**SEA-2**"), Furnace has submitted a proposed, revised Plat dated March 22, 2013, as revised through December 10, 2013, consisting of 45 sheets and prepared by BC Consultants. Furnace is proposing revised



development conditions dated December 10, 2013 ("**Proposed Conditions**") which carry forward most of the previous commitments that are relevant, suggest changes based upon lessons learned and make new commitments described in this document. The Applicant's Proposed Conditions have been submitted under separate cover, as requested by staff.

The Applicant also owns two tracts adjacent to the Property which never have been used for landfilling, approximately 9 acres and 17 acres in size, respectively, and located on the west side of Furnace Road outside the boundaries of the Application Property. Furnace had proposed to construct and dedicate passive public recreation uses on the 17-acre, R-1 zoned tract (Tax Map Parcel 113-1-((1))-5(pt.)) which is part of the landfill Tax Map Parcel, but is now proposing to contribute \$3.2M in lieu of that dedication in response to FCPA's specific request. Furnace is proposing to relinquish its already-entitled mixed waste reclamation use and instead to construct an extensive solar panel farm and other renewable energy generating infrastructure on the PCA Property contingent upon Board approval of SEA-2 and the PCA.

Two 2232 Applications also have been filed with the Department of Planning Zoning for the wind turbine and solar panel electric generating facilities on the SEA-2 Property and the solar panels PCA Property.

SEA-1 permits excavation, grading and filling associated with a CDD landfill, subject to 56 Development Conditions. Condition #12 limits the height of the landfill, prior to the installation of final cover, vegetation and structures, to a final waste fill elevation of 412 feet above sea level, and requires cessation of landfill operations on or before January 1, 2019 or upon reaching maximum height of fill, whichever occurs first. SEA-1 allowed quasi-public park uses on the Property and required its dedication to the FCPA after completion of post-closure monitoring by DEQ. Subsequent to imposition of these conditions by both the FCPA and the Board, in March 2009 the FCPA determined that it would not accept the future dedication of "Overlook Ridge." FCPA's reversal negated the underlying understanding of all three parties that the public park use would be owned and operated by the FCPA and that the liability associated with public access for recreational purposes would be the FCPA's.

In SEA-2, the Applicant seeks approval to add a vegetated berm in order to develop a near-level 40 acre platform by filling between the existing slope and that berm, and to extend the landfill's useful life to December 31, 2040. The Applicant also is requesting approval and committing to erect three wind turbines, create solar (on the PCA Property), all within Phase 1;" create renewable energy through electric generation facilities using wind, solar (on the PCA Property), methane (plus heat and cooling capability through geothermal facilities) all within Phase 1; and establish the near-level platform for future creation by others of a larger "Green Energy Park" which could include up to 12 wind turbines, up to 50 acres of solar panels, and/or more advanced technologies to be provided by public or other private entities with the Applicant's agreement.

In addition, after significant outreach with representatives of the Lorton Valley Homeowners Association located adjacent on the north to the Application Property, Furnace has committed to provide a recreation facility for use solely by Lorton Valley residents, to be conveyed to their HOA. This approximately 5.2 acre park and facilities would be provided as



determined solely by the Lorton Valley HOA. Given the limited open space available within Lorton Valley, this park would provide a desirable, permanent amenity to Association residents within walking distance of their homes. Should Lorton Valley elect to decline these facilities, they will not be provided and it will not be necessary to convey the land.

SEA-2 complies with the "General Standards" for all SE uses and with the "Additional Standards for the Category 2, 3 and 5 Uses" being requested, as well as the standards for increase in height per Section 9-607 as set forth in Article 9 of the Zoning Ordinance.

**A. Type of Operation.**

The Applicant proposes continuation of the existing CDD landfill activities over a phased plan of development that includes an extensive landscape planting program, as proposed on SEA-2 Plat Sheets 16 through 23, to be implemented both during Phases and after cessation of landfill operations. The new, proposed interim and ultimate landscape planting designs will establish an attractive buffer with a forested appearance. The extensive amount of landscape plantings currently provided on the slopes of the landfill, as well as the additional landscaping proposed over five phases in SEA-2, has presented a unique challenge to establish and maintain; many lessons have been learned. The Urban Forestry Management Division ("UFMD") has been working closely with the Applicant's Arborist regarding adjustments to planting types and design as reflected in this SEA-2 Application, incorporating lessons learned over the past several years to determine which trees and shrubs have the highest survivability rate. These principles will be used to maximize the creation of tree canopy and greening of the landfill. Maintaining the health and survivability of the extensive amount of vegetation is in the best interest of all parties. The amount of planting proposed is unprecedented for a landfill, which is not conducive for landscaping due its size, steep slopes, wind impacts, and deer.

This proposed extension of the only CDD landfill in the region with a significant remaining useful life, to a closure date of December 31, 2040, is consistent with and fulfills the goals set forth in the Fairfax County Solid Waste Management Plan ("SWMP"). The SWMP identifies a significant shortfall in landfill capacity for CDD generated in the County; specifically, the SWMP cites a need for 18 to 21 million tons of disposal capacity through 2024 (the end of its study period). The SWMP recommends the projected shortfall be addressed through continued use/expansion of local landfills and/or encouraging a regional approach to CDD disposal. The Applicant's projection is confirmed by Joyce Doughty, Assistant Director of the Solid Waste Management Program, who in her memorandum to ZED Staff dated November 6, 2013, states that, "In general terms, the benefit of continued operation of the Lorton Landfill would be assured CDD disposal capacity for the next 27 years, offsetting the need for longer transport of up to 400,000 tons per year of material." There were two other CDD landfills in the County. One of these has closed since filing of this SEA-2. The other site's capacity is practically exhausted. Standing alone, it could handle the CDD demand from the County for less than one year as of its available capacity today. Long-term CDD disposal capacity is critical to the economic vitality, economic development, and revitalization goals of the County. The continued availability of Applicant's landfill is crucial to solving the County's anticipated near-term exhaustion of CDD capacity.



The Applicant proposes to create a vegetated berm around the perimeter of the landfill and to fill the space between this berm and the existing side slope to develop the landfill's capacity over five, overlapping phases of operation. Reinforcement material, consisting of a geo-synthetic such as a "geo-grid" (commonly high density polyethylene which is the same material used in landfill liners), would be laid horizontally, adding strength and stability to the berm and requiring less earth material within a smaller footprint than a comparable earth-only berm. Facing materials also would include a geo-synthetic and be designed to promote vegetative growth. The vegetated berm and ground-level and upper-level access roads would be completed over five phases as depicted on Sheets 6 through 13 of the SEA-2 Plat. The Applicant also requests approval to add a southern "Right-In Only" access point, which would improve on-site queuing, filling and circulation patterns. As depicted on the Landscape Plans (Sheets 16 through 23 of the SEA-2 Plat), nearly 5,800 trees would be planted on primary and intermediate benches, mostly on the northern and eastern slopes of the landfill, with some on the western slope, by the completion of Phase 5. This would result in 1,800 more trees being planted on the landfill in SEA-2 than approved in SEA-1.

Instead of becoming merely a "closed landfill," this proposal creates a unique opportunity for renewable, green energy-producing facilities that functionally relate to the surrounding County infrastructure and provide environmental sustainability and economic benefits to the County. The Applicant proposes to locate a renewable or "Green Energy Park" on the landfill in accordance with the recommendations of the County's Energy Task Force (renamed the "Energy Alliance Task Force") and the broader, long-term sustainable energy goals established by the Board. One recommended goal of the Task Force was to establish a "Green Energy Triangle" as a transformational energy project in Lorton. In addition to installing and operating three wind turbines (Category 2 SE Electric Generating Facilities and Category 3 SE Quasi-Public Uses) during Phase 1 (the "**Initial Turbines**"), as well as geothermal and methane recovery facilities, the SEA-2 Plat provides in Phase 5 a 40 acre platform (enabled by the vegetated berm) for the potential of up to 12 wind turbines and/or a 40 acre solar panel farm ("**Full GEP**") to be provided by the Applicant/Owner and/or others after landfill closure. During Phase 4, the Applicant will also create a 10 acre area to accommodate additional solar infrastructure, for a total solar potential of 50 acres.

Each of the Initial Turbines to be installed on-site by the Applicant will be capable of producing at least one-quarter megawatt peak of electricity on that interim, southern portion of the platform as depicted on Sheet 6 of the SEA-2 Plat. The first turbine will be installed no later than 18 months after all necessary County, Virginia, and Federal approvals for implementation of SEA-2, to include, but not limited to, (i) FAA and/or other Federal, State and County approvals of the wind turbines; (ii) all requisite DEQ approvals of the landfill, including the Major Permit Amendment; (iii) all requisite County approvals such as GRB, site plan, land development and structure permits, non-DEQ bonding, and Non-RUP, have been obtained (all collectively, Necessary Approvals). The second and third turbines will be installed within 36 months after having received all such approvals. Fifty percent of any revenue, in excess of 2.5 cents per Kilowatt-hour, the Applicant receives from the sale of the electricity produced by these Initial Turbines will be donated to the County. The Applicant shall share 50% of the net profit from any renewable energy sales related to the "Full" GEP (as defined in paragraph 45(F) below) wind and/or solar infrastructure on the landfill site.



The Applicant also will install a methane gas recovery system within the landfill and will deliver to the County methane sufficient to generate the equivalent of two million kilowatt hours annually of electricity, with the intent that it will be used by the County to generate electricity sufficient (i) for the normal operating needs of the County-owned former Lorton Workhouse site ("**Workhouse Arts Center**"), thereby reducing the financial burdens of the Workhouse Arts Center, or (ii) for use at some other County facility. Applicant will pay the cost of processing the methane gas so that it is suitable for combustion by industry standard co-generation infrastructure.

Additional, off-site proposals have been made by the Applicant in conjunction with this Application. The Applicant's I-6 PCA Property is already entitled for and operating a mixed waste reclamation use. The Applicant's business plan for the PCA Property is to accept the CDD currently accepted by the landfill, should the landfill cease operation on January 1, 2019 as required by SEA-1 Condition 12, sort and recycle that CDD, and continue to sort other mixed waste. Truck traffic currently entering the Applicant's landfill site is prohibited from approaching the site from Lorton Road, which is a major transportation artery for local residents. The PCA Property has no such restriction and has no required closure date. Cessation of landfill activity and redirection of related truck traffic to the PCA Property would result in a significant increase in truck traffic on Lorton Road and adjoining feeder roads. The mixed waste reclamation center would require, by its nature, that all material delivered to the site be transported out to end users or remote CDD landfills. This would increase the volume of truck traffic on neighboring roads (as opposed to the landfill use which does not require the transportation of CDD away from the site), and would require long distance transportation which would consume approximately 21,268,170 million gallons of diesel fuel over a 22 year period and produce approximately 236,076 tons of carbon dioxide equivalent. The benefit of these proposed revisions directly supports the County's objective to meet Clean Air Act National Ambient Air Quality Standards.

As proposed in the PCA, the Applicant is prepared to abandon this by-right "mixed waste reclamation" use and to erect a solar electric generating facility, complementary to green energy uses on the Property. Within 24 months after having received all Necessary Approvals for implementation of SEA-2, the Applicant will install and operate at least a one-half megawatt peak solar infrastructure on the PCA Property for distribution and sale on the electrical grid. All costs associated with the purchase, installation, operation, and electricity distribution of the solar infrastructure will be the responsibility of the Applicant. The infrastructure will be operated for its useful life, which is currently estimated to be 20 years. Fifty percent of any revenue, in excess of 2.5 cents per Kilowatt hour, the Applicant receives from the sale of the electricity produced by the solar infrastructure will be given to the County.

Remaining surface area on the I-6 site will allow for additional solar infrastructure, or other renewable energy operations, should the Applicant, or others with the Applicant's permission, elect to build out additional renewable energy capacity. Also on the PCA Property (see the PCA Application), the Applicant proposes to locate all visitor parking for the landfill "Observation Point." Access to the "Observation Point" would be strictly controlled by the property owner with limited access to the public, who would be required to sign liability waivers and releases and travel on-site in a shuttle from the PCA Property up to the "Observation Point."



Details for the Observation Point proposed to be established during Phase 1 and continue in several locations until DEQ release at the end of Phase 5, appear in the Applicant's Proposed Development Conditions. "Overlook Ridge," which was requested by the Applicant and the FCPA, and approved by the Board in January 2007, is proposed to be eliminated in this SEA-2 Application to reflect the FCPA's decision in March 2009 to reject dedication of the landfill site by ESI to the FCPA. SEA-2 continues to provide for open space and recreation facilities, but to be constructed in the north side buffer zone (which would be accessed from a trail connection to Lorton Valley) if requested by the Lorton Valley HOA.

The SEA also contemplates that funding will be provided for an educational feature at the Workhouse Arts Center or elsewhere, as determined by the County, that relates to the renewable energy activities both on the Applicant's sites as well as on the neighboring County property.

As shown on Plat Sheets 6 through 10 and Sheet 14, an "Observation Point" would be installed by the Applicant during Phase 1 in the general location of the Initial Turbines and be open for visitors when these three turbines begin operation. Outdoor style, wooden bench seating would be provided for up to approximately 20 visitors, with a lectern at the head of benches to provide for speakers. Tourist style telescopes (on posts) would be provided at the east and west flanks of the "Point" area. Actual location of each telescope could vary from edge of seating area to ridges of the elevation, in which case stone dust type trails would lead to the telescopes. Information signs describing the "Green Energy Triangle," history of the area, and local attractions would be provided. This initial Observation Point would exist from the end of Phase 1 until the beginning of Phase 5.

At the beginning of Phase 5, when the Initial Turbines are removed (to permit filling and capping of the southern area), the Observation Point and its related features would be relocated northward with the understanding that its exact location likely will need to be adjusted as Phase 5 landfill operations and capping proceed toward closure. Please note that, for public safety, during Phase 5 operations there would have to be a gap or transition periods (not to exceed 18 months cumulative) during which no Observation Point will be available due to filling, settling and capping of the 40-acre top platform. The Observation Point and shuttle service would continue through approximately 2050 and cease to exist upon release of the Applicant by DEQ from post-closure monitoring and maintenance of the landfill. A dustless surface waiver has been requested to provide access to this use, both for the initial gravel access road during Phases 1-4 and the subsequent gravel access proposed to be provided in Phase 5 through the post-closure period.

As depicted on Plat Sheets 6 through 10 and on Sheet 2 of the Generalized Development Plan Amendment ("**GDPA**") filed in the PCA (and described in the plat notes), access to this Observation Point would be controlled by the Applicant solely via shuttle and with the requirement that each visitor execute a liability waiver and release. Consequently, parking on the landfill for this accessory use would be for the shuttle, and periodic maintenance (one space combined). Visitors would park at the solar farm located on the PCA Property. Section 11-102 of the Zoning Ordinance allows offsite parking on a contiguous site under the same ownership, subject to compliance with certain conditions as may be approved by the Board.



As stated in its Proposed Development Conditions, the Applicant is committing to two established times for tours each week, and will also allow a limited number of tours to be scheduled on demand with ample notice. Both the regular and on-demand tours would require a minimum and maximum number of visitors to go forward, and the frequency of regularly scheduled tours may be reduced to reflect actual demand. Scheduled day(s)/hours would enable the property owner to allow visitors during the landfill's less busy operational timeframes. Applicant may implement a pre-registration system to better organize the groups in terms of numbers, special needs, obtaining executed waivers and releases, etc.

This CDD landfill currently accepts select volumes of dredged soils from lakes, ponds, and storm water management facilities in the County that are either publicly or privately maintained. (Certain of these dredged soils are accepted by the landfill for free, which saves the County significant costs.) Over time, such facilities accumulate sediment which, if not removed, will severely reduce their ability to function effectively, resulting in a serious threat to County and regional water quality and storm water capacity. Extending the closure date to 2040 will provide a long-term outlet for dredged soils produced in the County, a critical environmental need since there are no dredged soil treatment facilities in the County or the region.

This SEA-2 has evolved over the course of 24 months of extensive discussion and negotiation with the South County Federation Land Use Committee ("LUC") pursuing an alternative to the pre-empted Overlook Ridge, and simultaneous outreach with other community and countywide stakeholders. The Applicant committed to development of a Green Energy Park ("GEP") with four robust re-usable energy components – wind, solar, methane, and geo-thermal – plus certain additional revenue-generated contribution commitments. The LUC discussions came to a halt in late May 2012 despite leadership representations of support up to that time. At the Countywide level, a recommendation by the County Energy Task Force resulted in Board adoption of a Green Energy Triangle concept<sup>1</sup> for the immediate landfill area and commitments to establishment of a national model for the location of substantial green energy infrastructure components on public and private land in that area.

The SEA-2 Application proposes to implement a key component of the February 5, 2013 County Staff Report to the Board Environmental Committee recommending development of the Green Energy Triangle in Lorton. A key objective in this County staff recommendation, as noted in the Task Force report, is to rebrand the Lorton area. The Applicant's proposal further manifests the County Executive's FY 2014 report to the Board, which specifically cites the Green Energy Triangle as "leading to a re-branding of the Lorton area, changing its identity from being a site of the County's waste and debris disposal facilities to becoming a tangible expression of the County's renewable commitment". The Applicant's renewable energy program is a direct result of the work of the Task Force, the Board's Environmental Committee, and other Board policies.

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<sup>1</sup> In a Motion on October 16, 2012, the Board enthusiastically and unanimously endorsed the Chairman's "Private Sector Green Energy Task Force" recommendations, stating a purpose of "*stimulating a transformational energy project*" and creating "*with the private sector, pilot projects to demonstrate the use of local alternative energy sources for small and large scale development. These projects should: a) Not require legislative changes, nor changes to county policy; b) Be revenue neutral for the county of have the potential for revenue generation and c) Could be initiated within 24 months. The Lorton Green Energy Triangle is a potential example.*"



The approval of SEA-2 would (i) avoid the increased truck traffic caused by the closure of the landfill that results from the need to transport all CDD out of the County to remote landfills; (ii) avoid the impact of unrecovered methane gas generated by both the Applicant's landfill and by the additional waste that will be transported to other CDD landfills in Virginia (which are not required to capture methane gas); and (iii) produce offsets to energy produced by fossil fuels due to the impact of energy produced by the solar and wind facilities. The combined benefit of the application to the environment is approximately 3.6 million tons of avoided greenhouse gases (equivalent to 21,687 medium size cars driving for 22 years or 474,126 medium-sized cars driving for 1 year) which directly addresses the objectives called for in the County's adoption of the "Cool Counties" initiative.

In its "2013 Annual Report on the Environment" dated November 2013, the County's Environmental Quality Council ("EQAC") identifies key ways to reduce greenhouse gas emissions, including landfill gas to energy systems (pages 11-17)). In praising the work on a "Lorton Green Energy Triangle," the 2013 EQAC report states, "These cooperative planning and efforts to make more efficient use of existing energy sources and to create renewable energy within the county is commendable" (page 31-32). EQAC commends the County for recognizing the importance of reducing greenhouse gas emissions and promoting education and outreach programs (page 34). EQAC states on page 35 that it "strongly supports the continuation of work started by the Chair's Energy Task Force be continued through the Energy Alliance." This SEA-2 Application fulfills all of those goals.

Applicant's commitment to the LUC had been to the provision of the GEP infrastructure and other proposed amenities, some of it up front and the remainder through 2040, the proposed operational life of its landfill needed to support such an enormous expenditure. In late November 2012, the LUC requested that Applicant instead fund a Recreation Center at a cost, according to FCPA, of \$50M (including debt service through 2040). The Applicant responded with a proposal to provide a significant but revised GEP infrastructure "up front," with a payment of \$15M over time towards a specified community need.

As committed in this Applicant's Proposed Development Conditions, the Applicant will construct, during Phase I, wind, methane and geothermal infrastructure on the landfill, and solar on the PCA Property (on which it will relinquish its entitled mixed waste reclamation use); provide methane fuel to the County for the Workhouse Arts Center and/or other local County facility, over the operational life of the landfill, enabling to the County an avoided energy cost of \$5M to \$6.25M; donate to the County 50% of the revenue, in excess of 2.5 cents per Kilowatt-hour, resulting from sale of electricity generated by the proposed Phase 1 wind and solar infrastructure; donate to the County 50% of the profit resulting from the sale of electricity generated by the Full GEP wind and solar infrastructures; provide educational features related to renewable energy at the Workhouse Arts Center or at such other location as agreed upon with the Applicant; at the specific request of FCPA; contribute \$3.2M to FCPA for recreational facilities in the Lorton Area, in lieu of Applicant's previous offer to dedicate a 17-acre parcel to the FCPA and provide recreational amenities on that parcel; and contribute \$15M towards a specified local County/community need, in installments of \$750,000 per year beginning in 2019 and ending in 2038.



As referenced above, the total cash and energy value being contributed to the County, FCPA, and community exceeds \$23M, plus revenue sharing in electricity sales. The cost to the Applicant of the amenities and GEP infrastructure to be constructed exceeds \$15M. These numbers do not include (i) the value of the I-6 land and entitle unlimited mixed waste reclamation use Applicant is willing to forego, and (ii) the long-term benefit that the Applicant's green energy park as a cornerstone provides in the rebranding of the Lorton area as one of the most progressive communities in the region, if not in the nation.

On August 15, 2013, the Applicant filed with County Staff a "Feasibility Study for Renewable Energy Technologies" prepared by Geosyntec and dated August 17, 2011, with six follow-up analyses performed since 2011. Preliminary foundation design information for the turbine installation and a diagram were prepared by Geosyntec and filed with the County Zoning Evaluation Division on June 24, 2013. The difficulty of placing waste and capping around existing turbines is a major driver for dismantling the Initial Turbines before proceeding with the potential installation of 12 turbines potentially at the end of Phase 5. The Initial Turbines are located in an area of the landfill that will be inactive for a significant period while other landfill areas are filled, and that will be filled and capped after relocation of the Initial Turbines. The entire landfill will be filled to final height and fully capped before installation of the 12 turbines. Due to potential issues with differential settlement, proper foundation design is critical for any large structure installed on a landfill. The foundation design for wind turbines on top of a landfill will require either deep foundations (drilled shaft or piles, which penetrate the final cover) or shallow foundations (concrete rafts, which do not penetrate the cover). Design selection will be based on the settlement characteristics and bearing capacity of underlying cover, waste, and soil/rock properties at a site, and regulatory conditions governing cover penetrations. Note that to avoid excessive movement of the wind turbines and transmission of high dynamic forces to the tower and foundation during high winds, automatic breaking and cut-off systems are built into the turbines' control systems which stop operating if wind speeds exceed a predetermined level.

As requested by the Planning Staff, Phase 5 of the SEA-2 (Sheets 10 through 14) have been revised to add the potential for a Category 5 "outdoor baseball hitting range" use after landfill operations have ceased, beginning after DEQ Release. This active recreation use during the end of Phase 5 could be established before or coterminous with the potential wind turbines in Phase 5 and be operated by a lessee who would assume liability for private use on the landfill.

Phase 6 (Plat Sheet 45) seeks approval of alternative private active recreation uses which will consist of either a Category 5 outdoor baseball hitting range and/or private golf driving range and/or a Category 3 model aircraft field, or similar private club or benefit association uses. One, two or three of these uses would operate either: (a) subsequent to cessation of the "interim" Green Energy Program, if installed or (b) if the GEP is never implemented, upon release of the Applicant by DEQ from post-closure monitoring and maintenance of the landfill. The lessees would assume liability for private use on the closed landfill property.



**B. Hours of Operation.**

Landfill Operations (Phases 1 – 5): Monday through Friday 7:00 a.m. to 5:30 p.m. and Saturday 7:00 a.m. to 3:00 p.m., with continuation of certain limited exceptions as permitted under the SEA-1 Development Condition #27.

Outdoor Baseball Hitting Range (Phases 5/6):

April 1 to October 31: 4:00 PM – 10:00 PM Monday – Friday  
10:00 AM – 10:00 PM Saturday & Sunday

Golf Driving Range (Phase 6):

All year round: Sunday – Saturday 10:00 AM – 10:00 PM

Model Airplane Flying Field - Private Club or Benefit Association (Phase 6):

April 1 to October 31: 9:00 AM – 8:00 PM Monday-Sunday  
November 1 to March 31: 9:00 AM – 5:00 PM Monday-Sunday

**C. Estimated Number of Patrons.**

Landfill (Phases 1 - 5): No change from current and prior experience. The number of patrons varies with weather conditions, time of year and the prevailing economy, which directly impacts regional development activity and the amount of construction debris to be disposed.

Outdoor Baseball Hitting Range (Phase 5 end and possibly continuing and expanding in Phase 6): 125 patrons.

Golf Driving Range (Phase 6): 170 patrons.

Private Club or Benefit Association (Phase 6): 21 patrons.

There is little expectation all three will exist simultaneously.

**D. Proposed Number of Employees.**

Landfill (Phases 1 - 5): It is anticipated that there will be approximately 15 full-time equivalent employees working at the landfill during the operations time period.

Outdoor Baseball Hitting Range (Phase 5 end and possibly continuing and expanding in Phase 6): Two full-time equivalent.

Golf Driving Range (Phase 6): Two full-time equivalent.

Private Club or Benefit Association (Phase 6): One full-time equivalent.

There is little expectation all 3 will exist simultaneously.



**E. Estimate of Traffic Impact of the Proposed Use.**

No change to landfill operations is proposed, so there will be no change in related trip generation. As prepared by Wells + Associates, Inc., trip generation estimates associated with the proposed SEA-2 use are based on the 2011 load counts taken at the landfill truck scales and are as follows:

	Acres	Annual Loads	Average Daily Loads	Average Daily Trips
Existing Use	250	112,698	394	788
Proposed Use (estimated)	250	112,698	394	788
Net New Loads and Trips		0	0	0

Attached is a copy of the FCDOT determination dated July 31, 2012 that no Chapter 870 (formerly 527) study is required because no material increase in trip generation is projected.

Estimated traffic impact of the three alternative recreation uses would be relatively minimal, and would not occur until after landfiling activity has ceased. The following is based on ITE Trip Generation estimates:

Outdoor Baseball Hitting Range (Phase 5 end and possibly continuing and/or expanding in Phase 6): 220 Average Daily Trips.

Golf Driving Range (Phase 6): 341 Average Daily Trips.

Private Club or Benefit Association (Phase 6): 42 Average Daily Trips.

None of the three uses produces any material peak hour trips. There is little expectation all three will exist simultaneously.

**F. Vicinity or General Area to be Served.**

This is a regional CDD landfill which serves the entirety of Fairfax County.

**G. Description of Building Façade and Architecture.**

There are no architectural treatment considerations relevant to this Application. After creating the southern portion of the platform during Phase 1, the Applicant proposes to erect three (3) wind turbines (see SEA-2 Plat Sheet 6). Other minor "structures" consist of construction trailers, with all but one to be demolished or removed during the course of development. One permanent operations trailer with an associated parking lot will be located in the northwest corner of the property and remain subsequent to Phase 5 closure. Other facilities are leachate pump houses, gate houses and gates, portable scale houses, scales, and tire wash facilities which will be relocated on-site during phases as necessary when landfiling operations are adjusted over the five phases. These facility locations are identified by Phase on the SEA-2 Plat. Minimal structures as depicted on the SEA-2 Plat would be associated with the three proposed, alternative recreation uses described above.



**H. Listing, If Known, of All Hazardous or Toxic Substances.**

Hazardous and/or toxic substances currently stored and contained on-site are limited to products which are used for the general operation of the landfill, its equipment and vehicles. Methods for use and disposal shall adhere to County, State and/or Federal law.

**I. Statement of Conformance with Applicable Ordinances, Regulations and Standards.**

This Application shall comply with all applicable ordinances, regulations and standards, with the exception of requested waivers and modifications as outlined below. This Application shall comply with the "General Standards" for all Special Exceptions and with any other "Standards" for the Category 2 (Landfills and Electrical Generating Facilities), Category 3 (Quasi-Public Uses, Private Clubs and Public Benefit Associations) and Category 5 (Outdoor Baseball Hitting Ranges and Golf Driving Ranges) Special Exception uses set forth in the Zoning Ordinance. A detailed compliance analysis of the various "General Standards" and "Additional Standards" has been prepared by the Applicant and filed with County Staff on October 7, 2013.

In addition, Board of Supervisors' approval for an increase in height for "Quasi-Public Uses" (wind turbines only) is being requested pursuant to Paragraph 4 of Section 9-304 and Section 9-607. The Application complies with the "Standards" set forth in Paragraphs 1 through 3 of Section 9-607. The requested increase in height for the wind turbines is in harmony with Comprehensive Plan policies which encourage renewable energy and reuse of landfills. Wind turbines will not be detrimental to the character and development of adjacent land due to their proposed, generally central locations on the 250 acre site and low visual impact from adjacent properties (see photo illustratives filed July 25, 2013), and because the adjacent surrounding uses are industrial and I-95 except for the direct north side. The remaining R-1 District provisions are satisfied.

The Applicant seeks a waiver of the dustless surface requirement for on-site roads, including for the initial gravel access road during Phases 1-4 and the subsequent gravel access proposed to be provided in Phase 5 through the post-closure period and for the Phase 6 active recreation uses. The upper and lower berm access roads also are proposed to be gravel. This waiver is appropriate given the unusually large site, the nature of the uses being proposed in the various phases and the fact that private vehicle access is strictly limited and controlled for landfill and for the other uses being proposed.

A waiver of the Countywide Trails Plan requirement for an eight-foot (8') wide trail along the east side of Furnace Road also is being requested. This waiver is appropriate due to the nature of the use, the lack of room between the right-of-way and the landfill berm, because such improvement would not connect to any portion of an established trail system, and a trail exists on the west side of Furnace Road along the frontage of Parcels 12 and 13.

As described in detail on the SEA Plat, the Applicant is requesting modifications of tree preservation requirements and of the transitional screening requirement and waiver of the barrier



requirements in favor of those shown on the Special Exception Amendment Plat in accordance with Article 13, Section 13-305, subparagraphs -3, -5, -7, -11, -12 and -14, of the Zoning Ordinance. A minimum fifty foot-wide treed buffer shall be provided along the entire northern property boundary and consist of a combination of existing, mature trees and supplemental plantings which shall be installed and maintained by the Applicant in accordance with that shown on Plat Sheet 21. Minimal grading shall be permitted within this buffer area, as determined by the Urban Forestry Management Division, as necessary for installation of the below trail and/or other improvements. Adjacent to this buffer area, a natural trail and any off-site trail connection, exercise stations along the trail, a multi-purpose open space area, a dog park, and picnic tables shall be provided at the sole option of and to the extent determined by the Lorton Valley HOA. At the sole option of the Lorton Valley HOA, the recreation uses shown may be eliminated or adjusted, provided that they do not encroach into the fifty foot wide buffer area.

Pursuant to Section 11-102 of the Zoning Ordinance, the Applicant also is requesting Board of Supervisors' approval of an off-site parking and shuttle access to the "Observation Point" which would be strictly controlled by the Applicant with the requirement that each visitor execute a liability waiver and release. Consequently, parking on the landfill for this accessory use would be minimal. Visitors would park and board a shuttle at the solar farm located on the PCA Property. Section 11-102 of the Zoning Ordinance allows offsite parking on a contiguous site under the same ownership, subject to compliance with conditions as may be approved by the Board.

Finally, as granted by the Board of Supervisors on January 8, 2007 in the previous SEA approval, a waiver of Paragraph 9 of Section 9-205 of the Zoning Ordinance is requested to permit improvements as depicted on the SEA-2 Plat which are proposed after termination of landfill operations and prior to DEQ release. These improvements would include all those shown on the Plat, such as the Observation Point, trailer, and green energy uses. A summary chart of requested waivers and modifications is included in this Application.



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Attorney for Applicant