TO: CHAIR AND MEMBERS - PLANNING COMMITTEE

FROM: R. W. PANZER
GENERAL MANAGER OF PLANNING AND DEVELOPMENT

SUBJECT: PROPOSED LEED - ND PLATINUM DEVELOPMENT
3700 COLONEL TALBOT ROAD -- WINDMILL DEVELOPMENT GROUP LIMITED

MEETING ON JUNE 17, 2008 at 4:00 p.m.

RECOMMENDATION

That, on the recommendation of the General Manager of Planning and Development,

a) the report respecting a preliminary proposal for a residential development by Windmill Development Group Limited at 3700 Colonel Talbot Road, which is proposed to achieve a Platinum LEED – ND standard, BE RECEIVED for information;

b) Staff BE DIRECTED to include in the Draft Terms of Reference for the Southwest London Area Study, as recommended in the Growth Management Implementation Strategy Report, an evaluation of the proposal by Windmill Development Group Limited for a Platinum LEED – ND development at 3700 Colonel Talbot Road, and that the consultant work actively with Windmill throughout the study period to evaluate the appropriateness of allowing the Windmill proposal to move forward in advance of the installation of the municipal services that will be required to serve conventional development in the area;

IT BEING NOTED THAT the Draft Terms of Reference will require that the consultant address, at a minimum, key issues related to: servicing; legal, financial and operational obligations; performance measures assuring the attainment of a Platinum LEED – ND standard; and, the practicality of moving forward with the project in advance of conventional development.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Planning Committee January 14, 2008 – Southwest Area Issues Summary Report

Environment and Transportation Committee February 11, 2008 – Greenway Pollution Control Centre Workshop Project No. ES2710

Planning Committee March 17, 2008 – Development of a Growth Management Implementation Strategy

Planning Committee May 5, 2008 - Growth Management Implementation Strategy Progress Report

Planning Committee June 16, 2008 – Growth Management Implementation Strategy
Purpose of this Report

The City has received a proposal for a LEED - ND (Neighbourhood Design) subdivision development, which will demonstrate leading edge green infrastructure and sustainable development design. However, the subject site is located outside of an area plan and is in the service-constrained southwest area of the City.

Given the extensive discussions that Council has been having with respect to the future growth of this area, the developer is seeking an understanding of Council's willingness to consider moving the proposal forward ahead of the completed Southwest London Area Study that is proposed by the Growth Management Implementation Strategy. If the City is not interested in proceeding at this time, the proposal will not be advanced by the developer. If there is interest, the developer will move to the next stage of preparing required background materials, a more detailed proposal, and ultimately a formal planning application.

The intent of this report is to provide information to Council and to obtain Council's level of support for moving forward on this project at this location, and at this time.

About Windmill Development Group Limited

Windmill Development Group, with head offices in Ottawa, designs and constructs "green" development projects that protect and enhance local communities and their ecosystems by incorporating innovations in land use, water, air, energy, design, waste management and smart building technologies. They use a triple bottom line approach that ensures strong ecological, social and financial returns are achieved in all of their projects.

Windmill’s development projects to date, in various stages of completion, include "Dockside Green", in Victoria, BC, "The Acqua & Vento" in Calgary, AB, and "The Currents" in Ottawa.

Dockside Green

In Phase 2 of a fifteen year construction project, Dockside Green is a redevelopment of a brownfield industrial site in response to a request for proposals by the City of Victoria. While the City targeted a LEED Gold standard, Windmill is targeting a LEED Platinum for Neighbourhood Development level of achievement. Comprised of a mix of office, commercial, hotel and residential uses including seniors, social and industrial housing, the development will house over 2200 residents on a 6.1 ha. site. Windmill expects this development to be the first North American large-scale community development to be "energy" greenhouse gas neutral. Environmental impacts are to be reduced by various means, such as biomass heating, on-site waste water treatment, use of treated water, an on-site car share program and smart meters.
The Acqua & Vento

The Acqua & Vento development is located in the Bridges area of Calgary, on a former brownfield site close to light rail transit. This LEED Platinum mixed use development includes commercial/retail and residential condominium components, has been completed and is sold out. The project has 70% natural light penetration, 50% lower potable water demand, 50% lower greenhouse gas emissions, and uses grey water recycling.
The Currents

This development on a remediated brownfield site, is a one-of-a-kind building with 42 state of the art condominium suites and the new home of the Great Canadian Live Arts Theatre Company. Targeted to be a LEED Gold development, it includes innovations in water, air, energy and waste management along with smart building technologies. Along with reduction of environmental impacts through natural light penetration, reduced greenhouse gas emissions, grey water recycling, and car share programs, this development successfully integrated solar wall technology.

More information about Windmill and their developments in other municipalities can be viewed at www.windmilldevelopments.com and in Appendix "A" of this report.

Windmill's Proposal for London

In context

The proposal site is a 72 ha (179 acre) agricultural property, with frontage on both Colonel Talbot Road and Bostwick Road, south of Pack Road. In the broader context, the lands are within the Urban Growth Boundary and south of the North Talbot Community Plan completed in 1999. Comprehensive planning for the Talbot Community Planning Area identified in the Official Plan, within which the property lies, has not been commenced or completed.

The lands are designated Urban Reserve – Community Growth in the Official Plan, with a wooded area identified for Environmental Review. The property is crossed by two watercourses that are within the area regulated by the Upper Thames River Conservation Authority. The lands also lie within the catchment area for the Southside Pollution Control Plant, planned to be constructed and commissioned in 2016 or later.

The Proposal

Windmill seeks to develop a community that sets a minimum standard of LEED Platinum for Neighbourhood Development certification, targeting greenhouse gas neutrality, and a minimum of 50% more energy and water efficiency than a comparable traditional development. They would conceive, design and construct a sustainable development model on the property, with the lack of sanitary sewage treatment capacity being just one element to build on. They propose to create a development that is self-sustaining related to sewage capacity, and also delivers a closed loop where "waste is food" for other energy sources, and resources are reused on site.

Windmill proposes that the development form will be a low to medium density residential development, and indicates that it would be the first LEED Platinum community of its kind in Canada.

Specific LEED features are proposed that deal with service provision and waste treatment that form a closed loop and reduce waste discharge and energy use. The facilities proposed by Windmill for the London development are described below, and a graphic example of a sustainable utility is included on the following page.

Servicing Infrastructure and Community Wide Facilities:

Sanitary Wastewater

All sanitary wastewater is to be treated on-site using a combination of biofiltration, biomembrane filtration, and constructed wetlands (if possible). The collection methodology for sanitary wastewater would be through a small bore sewer network with minor dispersed storage tanks.
Treated effluent would be filtered, sterilized on-site and then reused for toilet water and irrigation on site, creating a closed loop for the treated water and reducing potable water use.

Biosolids may be used for composting or used as an energy source for a biomass plant. There may be some waste discharge that will require an outlet off site.

Windmill would be seeking relief from the City to occupants and residents for sanitary service charges in order to allow a third party utility company to meter and bill customers.

**Stormwater Management**

Windmill proposes that development covenants be applied to the site to require maximum limits on the impervious surface area around the houses. Windmill would design roads and sidewalks to optimize the use of pervious membranes. On-site collection and retention would be handled in a manner that contributes to the overall amenity value of the property, and similar to sanitary wastewater, stormwater could potentially be reused for toilet water and irrigation. An outlet to a municipal system may be required.

**Water**

Water consumption is proposed to be reduced through the possible use of a community-wide wastewater treatment plant and re-use program, subject to negotiations with the City regarding metering, revenue collection, and cost recovery from those collections for a private third party energy and water utility company. Connection to the municipal water system would be required.

**Geothermal, Solar and Photovoltaic Energy**

Windmill proposes that geoexchange and on-site solar hot water harvesting and thermal storage would provide heating, cooling and domestic hot water to all structures on the site.

The schematic on the following page demonstrates the various components of a closed loop system created to develop a sustainable utility, and the inputs and outputs required from outside the system. Appendix "A" also contains more detailed information provided by Windmill respecting the proposed Sustainable Master Plan Elements for the property.

**Homes:**

- Reduced water consumption through the use of:
  - Dual flush toilets;
  - Ultra-low, vacuum assisted showerheads and spray stream aerators on faucets;
  - No potable water used for irrigation;
  - Rainwater harvesting from rooftops;
  - Possible greywater recycling system at the household level;

- High performance fireplaces;

- Technologies to improve indoor air quality;

- ENERGY STAR advanced lighting package; and

- Very energy efficient appliances and heating and cooling systems.

**Other:**

- Use of drought tolerant and non-invasive plant species;

- Limit turf or "lawns";

- Locate trees to shade hardscapes;
An Example of a Sustainable Utility

Diagram showing connections between various systems:
- District Cool/Heat System
- Waste Water Treatment Plant
- Energy Capture
- Waste to Energy
- Discharge
- Industrial Process
- Parks
- Boulevards
- Golf Courses
- Reservoir/Other
- Geo-exchange
- High Value Fertilizer Applications
- Low Value Disposal
- Compost
- Non-toxic pest control;
- Average housing density of at least 25 units per hectare;
- Exceed performance of ENERGY STAR for homes for atmospheric impacts – Green House Gas neutral;
- Advanced framing techniques to reduce waste during construction; and
- Possible opportunity to establish a Zero Footprint Community post occupancy. This would involve a partnership with a Toronto based organization that helps people in a community come together on-line to cooperate on a variety of environmental projects, including composting, car pooling, gardening, and other activities that can reduce a community’s ecological footprint.

**What does LEED Platinum for Neighbourhood Development mean?**

The Leadership in Energy and Environmental Design Green Building Rating System (LEED) in Canada is an adaptation of the United States’ version and is tailored specifically to Canadian climates, construction practices and regulations. A points system based on five principal LEED categories (sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality) is applied to the project by the developer. Project ratings are subject to an independent review and audit, and are certified by the Canadian Green Building Council (CaGBC) based on the total point score. There are four possible levels of certification, the highest possible level of certification being Platinum.

Windmill has submitted to the City its draft score for LEED for Homes for the proposed development and on a preliminary basis would exceed the minimum requirements for a Platinum certification. The checklist is attached as Appendix “B” to this report.

The U.S. Green Building Council (USGBC) has developed a draft of the LEED for Neighbourhood Development (LEED - ND) rating system to guide and assess sustainable community development. The system is in the pilot project phase to test the draft standard with actual community development projects before finalizing and releasing LEED - ND in the U.S.. The market-ready version is expected to be launched in 2009.

The CaGBC plans to introduce LEED ND in Canada as soon as possible. At least 24 developments are part of the Canadian pilot project, in major centres such as Ottawa, Calgary, Victoria, Vancouver, Edmonton, and Toronto, and smaller centres such as Oakville and Cambridge.

The project totals for the United States version of LEED - ND are based on required criteria, and credits under the major categories of smart location and linkage, neighbourhood pattern and design, green construction and technology, and innovation and design process.

The required criteria are not included in the points total because if they are not present, the project will not qualify as a LEED project. The required criteria include:
- Smart Location;
- Proximity to water and wastewater infrastructure;
- Imperiled species and ecological communities;
- Wetland and water body conservation;
- Farmland conservation;
- Floodplain avoidance;
- Open community;
- Compact development; and
- Construction activity pollution prevention.

The entire United States LEED – ND checklist is attached as Appendix "C" to this report.
The benefits of developing a LEED for Neighbourhood Development as set out in a US Green Building Council website, include:

- **Reduce Urban Sprawl**, because LEED for Neighbourhood Development communities are closer to existing town and city centres; areas with good transit; infill sites; previously developed sites; or sites adjacent to existing development, reducing impacts on farmland, forests, wildlife habitat and air quality;

- **Encourage Healthy Living**, through the creation of compact, walkable, vibrant, mixed use neighbourhoods with good connections to nearby communities;

- **Protect Threatened Species**, by reducing fragmentation and loss of habitat;

- **Increase Transportation Choices** and decrease automobile dependence, by choosing locations that are near buses, trains, car pools, bicycle lanes and sidewalks and producing shorter automobile trips overall.

**What Assurances is the Proponent Proposing?**

The proponent recognizes that the proposed development is not “typical” and that the City will be looking for assurances with respect to its ability to work co-operatively with City Officials to deliver a product that is acceptable to the City, meets the promised LEED – ND Platinum standard and does not impose financial hardship on the City or its inhabitants. Accordingly, Windmill has indicated through its correspondence with City staff that:

- It has proven capability in development that minimizes municipal infrastructure and showcases a distributed utility model that can be proven to be more cost effective and efficient;

- **Sustainable infrastructure planning** (including underground services, road network, lot size and allocation) acts as the framework to assure much more sustainable vertical (building) development;

- **A joint-venture company** has been set up with one of Canada’s largest infrastructure finance companies to allow Windmill to integrate community scale renewable infrastructure technologies on a turnkey design, build and operate basis. Windmill uses several instruments to finance the incremental costs of green development. A Green Loan leverages life cycle operating costs savings from lower energy consumption in order to provide additional front end financing. Typically these loans are paid off with interest over 7 to 10 years under terms in which principal and interest combined are lower than the actual energy savings. As an alternative, a third party utility such as Corix Utilities takes on full responsibility for design-build own-operate and charges user fees for metered consumption of utility services;

- The proposed third party operator of private services is Corix Utilities. Windmill indicates that Corix is a pension fund owned, private utility, with tremendous financial strength and covenant on their own, and considerable experience in negotiating Municipal Responsibility Agreements to meet municipal and provincial requirements for the private operation of an on-site privately owned wastewater treatment facility. Such agreements are intended to ensure that proper covenants, financing and roles are agreed upon in the event the original service provider is no longer able to carry on the duties of being the operator;

- To date Windmill is the only developer in Canada to achieve LEED Gold and LEED Platinum status on residential and mixed use buildings. Windmill would be willing to explore with the City a penalty structure that would deliver a cost per square metre for every building that does not achieve a final LEED Platinum certification;

- Windmill would work with and educate several local home builders, in turn providing the local knowledge for them to replicate sustainable development practices on future developments.
What are the potential positives that come with this proposal?

The potential benefits to the City of this proposal revolve around the opportunity to attract a showcase sustainable development and demonstrate on a national and global scale the City of London's leadership and innovation in pursuing green development. More specifically, this development would:

- be consistent with several of council's strategic initiatives, for example, the work of the Mayor's Sustainable Energy Council;
- building on the good work already being done by London's developers and home builders, confirm that London is a leader in green development in Canada and encourage other developers to build LEED certified developments, setting the tone for more sustainable development in London;
- place London as one of the first Canadian municipalities to be home to a LEED Platinum for Neighbourhood Development certified neighbourhood. The proposal focuses not only on the technology of reducing reliance on municipal servicing systems but on addressing the details of all aspects of a community development that support a more ecologically friendly use of our limited resources;
- build on the momentum already created by other LEED registered buildings, developments and initiatives including the:
  o Sisters of St. Joseph Residence on Windermere Road;
  o Proposed Community Recreation Centre and Library on Sunningdale Road;
  o London SE Pumping Station & Reservoir;
  o Spencer Engineering Building Addition; and,
  o Proposed Hearthstone on Hyde Park apartment/townhouse complex at 250-300 South Carriage Road,
and the "London Riverbend Community District Energy System" enabled by the London Energy Efficiency Partnership (LEEP) Project on the Sifton Riverbend lands;
- act as a demonstration/pilot project to demonstrate the benefits of high quality community design and green technology; and;
- be managed throughout the conception, approval and design processes by an organization that has demonstrated its ability to deliver the expected product, be flexible and innovative in its approach, and be sensitive to the needs of the community within which it is developing.

What are some concerns or other considerations raised by this proposal?

Generally, the City is positioned to welcome green developments and in particular those that will continue to increase expectations about what we can offer in the marketplace. The proposed location, however, raises clear concerns with respect to the lack of some services; possible resultant pressure from others to justify development in the unserviced areas; barriers to achieving the intent of a LEED Platinum for Neighbourhood certification; and potential legal, financial and operational obligations of the City.

Municipal Services
- While Windmill's proposal aims to contain and reuse treated wastewater and stormwater on site as greywater and for irrigation, there is a distinct possibility that there will be some sludge and effluent that can not be used and must be disposed of off site. For example, the Dockside Green wastewater reclamation plant discharges directly into Victoria Harbour post treatment. Given the lack of outlets to municipal services in the proposed development area, disposing of excess wastewater may be an issue. Discharge of treated water directly to municipal drains or watercourses may not be a desirable solution. The City may need to require that the systems be
designed to be entirely self-contained. In the alternative, excess waste may need to be trucked off site.

- Some of the private service technologies proposed require a minimum critical mass of population to operate and are dependent, in the interim, on diverting waste from existing sources until the critical mass of population within the development is achieved. This is an issue that would require further exploration of solutions that do not require a minimum critical mass, or that would allow waste diversion to the site without a costly extension of municipal infrastructure.

Would allowing this proposal to proceed be precedent setting?

- Various areas of the City have prematurity issues. It is possible that consideration of LEED development at this location, separated from existing development, will create a precedent for increased pressure for LEED type developments on lands at, near or outside the Urban Growth Boundary that can not be serviced with municipal services.

- Windmill is proposing a LEED Platinum development, the highest possible level of achievement for environmentally sustainable growth. Platinum developments, because of the sophistication of the servicing solutions required, generally incur much larger up-front construction costs than traditional developments. The cost savings on investment, under traditional funding methods, are not realized by the developer, but by the people who ultimately occupy or purchase the units, making the venture much less attractive to some developers. Windmill's alternative funding methods are described elsewhere in this report. Through their various previous and ongoing projects in Victoria, Calgary and Ottawa, Windmill can demonstrate that it has a proven track record in achieving results. Windmill is of the opinion that the high start-up costs of construction make it unlikely that other developers will try to use this proposal as a precedent.

- Similar to the Riverbend's District Community Energy System project, this proposal could be viewed as a special situation and treated as a pilot/demonstration project, subject to a partnership and heavy involvement with the City and other levels of government. As a demonstration project, the development would become a basis for Council to decide whether the strategies employed are an appropriate approach for other future developments in the City. As a demonstration project, the development would be more clearly differentiated from other development proposals.

- If some services have to be extended to serve this development, pressure may build for the City to extend services to other properties in the growth area sooner than expected or planned - this could include soft services as well, such as emergency service buildings, community centers and transit service.

Potential Barriers to achieving LEED Platinum for Neighbourhood Development

- The subject lands are within the Urban Growth Boundary and based strictly on the existence of the Southwinds development to the immediate west and the ongoing development of the Southside lands to the north, this might be considered one of the next logical areas to be developed in the southwest, if development were to occur.

However, some LEED for Neighbourhood Development principles direct development to areas that have good access to alternative modes of transportation, are walkable, and accessible to community facilities, shopping and places of work. In fact, other Windmill developments discussed earlier in this report are located on brownfield sites that provide all of these opportunities in abundance. The proposed neighbourhood itself may be walkable, but there are no existing walkable destinations outside the subject lands. The closest bus service is available within the existing neighbourhood north east of the intersection of Colonel Talbot Road and Southdale Road West. The solution Windmill proposes to reduce air quality impacts is restricted to car share programs or shuttle buses. Privately managed and operated, these solutions would require a binding commitment from Windmill for the
ongoing operation of these programs after the development is completed and occupied.

Potential Legal, Operational and Financial Obligations of the City

Theoretically, the funding model described by Windmill ensures that the proposal is financially viable (i.e., the revenues exceed the costs) and guarantees the ability of the developer and/or its funding partner to finance the shorter term construction costs and the long operation of the private servicing systems on a permanent basis. The City would want to be satisfied that the development would be successfully completed by the developer and reduce possible future financial liability as much as possible. The following concepts for protective measures would need to be established early and throughout the development approval process:

- A full business model/financial analysis prepared by Windmill, acceptable to the City, providing full funding details, cost/revenue analysis for the developer and anticipated costs to the City associated with the development;
- Appropriate development agreements including acceptable contingencies and covenants that protect the City from financial liability for construction and long term operational costs as much as possible;
- The understanding that the City would hold appropriate security, plus inflation and contingencies;
- A review of land ownership models that would be supportive of keeping private facilities and special site features under private ownership and management. Some version of condominium registration over the entire development, or a combination of subdivision and condominium registration should be considered.

Regardless of any agreements that Windmill may enter into with the City, the Province requires municipalities to enter into Community Responsibility Agreements for communal sanitary service facilities that service more than five homes, placing the responsibility on the municipality in the event there is a system failure or the service provider can no longer operate the facility. The remediation and/or operation of such private facilities would be a significant financial obligation for the City. Current Official Plan policies set up a hierarchy of servicing options that do not contemplate communal systems of more than five residential units, in order to prevent this potential financial liability.

This development proposal may require the extension or upgrade of some municipal services in order to accommodate service requirements that cannot be dealt with on site. Besides potential sanitary and stormwater management facilities, the road network, in particular, would need to be evaluated to determine the roadworks required to accommodate anticipated traffic flows and address safety concerns. Eligible roadworks would be claimable from the current Urban Works Reserve Fund, and may place additional stress on the Fund to facilitate improvements ahead of schedule.

In order to make the third party private service model viable, Windmill will be requesting the City to grant an exemption on municipal sewage charges and would likely also be looking for special consideration regarding the City's other funding mechanisms for the construction and operation of municipal services. Ultimately, the City may be constructing services and facilities to service the southwest area, to which this privately serviced development will not be contributing. The City would need to review and make a decision on its future ability to fund the provision of major municipal infrastructure.
Considerations Relative to Recent Growth Policies

Southwest Area Issues Summary Report

Growth management issues for the City have been the subject of considerable attention by Council, the development industry and the community over the past few years. The "Southwest Area Issues Summary Report" considered at the January 14, 2008 Planning Committee meeting was prompted by three factors, related to the implementation of policies for the allocation of sanitary sewage treatment capacity, the recommendations and findings of the Blue Ribbon Panel respecting the financing of growth related services, and development pressure in the form of current planning applications and requests to initiate area plans.

The "Southwest Area Issues Summary Report" provided an overview of the servicing and planning related issues within the southwest quadrant of the City, bounded by Southdale Road West, Wellington Road, lands south of Exeter Road extending to the Dingman Creek, and the Urban Growth Boundary. The subject site is located within the west central portion of the identified Southwest Area.

It is not the purpose of this report to reiterate the details of servicing and planning constraints that have been addressed in detail within the "Southwest Area Issues Summary Report", the report to ETC on the "Greenway Pollution Control Centre Workshop", and touched on in later reports including the May 5 report to Planning Committee on the progress of the Growth Management Implementation Report. In brief, servicing constraints identified in the report that pertain to the subject lands include the following:

- This area requires an area study and the servicing impacts of development are not yet all known;
- There is 1 million gallons per day (MGD) in sanitary treatment allocation held in reserve at the Greenway Pollution Control Plant. The policies adopted as part of the Official Plan 5 year review place a priority for allocation on development in the built-up, serviced area of the City and on industrial growth. Remaining capacity will be allocated for non-industrial growth on previously undeveloped lands, with a priority on developments that, in the opinion of the City, best advance the public interest. There is no immediately available municipal outlet for biosolids and effluent that can not be contained and reused on site;
- Municipal stormwater outlets are not available for any stormwater that can not be accommodated and/or reused on site;
- The existing arterial and collector road network would require substantial upgrades in order to accommodate this development; and,
- Water service is available on Colonel Talbot Road and Bostwick Road. Additional study would be required to determine if supply and distribution upgrades are required to accommodate water service to this area.

Growth Management Implementation Strategy

As of the date of preparation of this report, Planning Committee was scheduled to receive the report and recommendations of the General Manager of Planning and Development with respect to a Growth Management Implementation Strategy for the City. One of the recommendations of this report is to obtain Council direction that a City initiated comprehensive area study be completed for the entire Southwest London Area and that applications for new development be considered premature until the area planning process is completed. The report also reflects that development within the Southwest London Area is not a priority for the 0 - 5 year time frame, but would be targeted to move ahead within a 5 - 10 year time frame. Based on the appropriate background studies, the comprehensive area study will address the growth management principles set out in the May 5, 2008 GMIS progress report, identify appropriate servicing solutions for the entire study area, identify and ensure the integrity of the transportation network, address transit service, plan for environmental protection and provide
the planning framework for municipal/public facilities such as community centres, libraries, schools, parks, and fire stations.

Conclusion

The Windmill proposal is a very innovative and exciting prospect and the concept would be extremely beneficial to the City with respect to the advancement of the “green” movement and our place on the map respecting LEED Platinum development.

The drawbacks identified with respect to this proposal revolve primarily around the location of the proposal within the unserviced Southwest area and its potential impacts on the provision and funding of municipal services, precedent setting, whether LEED Platinum for Neighbourhood Development certification can be achieved at this site, and serious financial, legal and operational considerations for the municipality. Many safeguards would need to be put in place to ensure that this was a successful venture for the City, including the preparation of appropriate background engineering and financial and planning analysis and the establishment of legal safeguard through one or more agreements between the City and Windmill.

June 5, 2008
BD /
Appendix “A”

Sustainable Master Plan Elements
The Windmill Development Group

Westeinde Lambeth Property Development
Sustainable Master Plan Elements
The Windmill Development Group

Feb 13, 2008
Jamie James
Partner, Clean Infrastructure Projects
james@windmilldevelopments.com
514.717.7305

The Windmill Development Group, Ltd.
Windmill Corporate Overview

The Windmill Development Group, Ltd. ("Windmill") is a visionary company dedicated to changing the development paradigm. We strive to be the driving force behind the creation of a landmark portfolio of "green" real estate that demonstrates competitive advantage over the traditional real estate model.

All of our projects are conceived, designed and constructed to protect and enhance the local community and its ecosystems by incorporating innovations in land use, water, air, energy, design, waste management and smart building technologies. The environmental balance is preserved, restored or enhanced; communities are enhanced; and the investors achieve market returns.
Windmill Corporate Structure

Divisional Structure

Windmill Developments
- Smart growth urban写字楼
- Broadside to green buildings + sustainable communities
- Broad-based deep expertise + niche opportunity focus
- Sources: Asian deals flow + Principal or co-developer
- "Head of the food chain"

BuildGreen Consulting
- LEED green strategies + private & corporate clients, government fund divisions + property managers
- Green building strategies + Broadside expertise + Green technology expertise
- "Eyes and ears of the group"

Windmill Micro-Utilities
- Building or district level infrastructure services
- Clean energy generation + production
- Waterlines, sold to third party
- Smart building infrastructure
- Helps franchise contractor + association with green buildings + owned infrastructure
- "Long term income"
Windmill Principals

Jonathan Westneade, Managing Partner: Jonathan is responsible for corporate strategy, finance and overall business development. Jonathan has particular expertise in corporate finance and green development practice. Prior to re-joining the Windmill Group as CFO, Jonathan was a founding partner of Goodlies, one of Canada’s leading law firms. Previously, Jonathan was CEO and Founder of T3G, Inc., a Boston-based venture capital firm and had senior positions within Dell Corporation and Ersson Consulting after completing his MBA. Prior to this, Jonathan spent several years in the real estate development industry in various high level leasing and financing positions.

MBA, Durham University, 1998
BA Economics, University of Western Ontario, 1990
Board Member, Canadian Green Building Council
Chair, Green Building Advisory Group for the Centre for Environmental Cooperation (A WACFA Initiative)

Jeff Westneade, Partner – Beausfelds: Jeff is a respected business leader in Canada’s environmental sector. He is active on numerous industry boards and initiatives and served on the Beausfelds Working Group to the National Roundtable on the Economy and the Environment. Jeff is the CEO of Quantum Mawnay LP, one of Canada’s largest decommissioning / environmental contractors.

B.Eng., University of Western Ontario, 1989
B.E.Sc., University of British Columbia, 1987
Entrepreneur of the Year, Ernst & Young Business Awards, 2000
Top 10 under 40, Canada - 2003

Jamie James – Partner, Sustainable Infrastructure Development: Jamie is responsible for Windmill’s micro-utility division and oversees the development and integration of integral sustainable infrastructure services in new green community developments. He recently helped establish a scalable public-private financing mechanism for energy efficient high-rise condominium construction that has contributed to the development of over 2 million square feet and consisting of new LEED construction in the City of Toronto. Jamie serves on the Real Estate and Environmental Committees of the Canada Green Building Council.

M.B.A., York University, 1999
B.A., Brown University, 1989
Our Philosophy: The Triple Bottom Line

The Triple Bottom Line

Windmill measures success based on a “Triple Bottom Line”. We optimize environmental and social impact and economic returns on every project.

1. Environmental Impact
   • Energy and water consumption is targeted to be at least 50% less than the traditional development model.
   • Our healthy green building design regenerates the natural ecosystems.

2. Social Impact
   • We achieve and advance the objectives, vision and quality of life of local communities.

3. Economic Returns
   • Targets traditional real estate returns.

Green IQ

Windmill’s experienced green development team is dedicated to a holistic approach to development. While there is a construction cost premium to building green; the Windmill approach can maintain the bottom line returns.

The Windmill approach effectively leverages life cycle cost savings and construction costs are offset by entitlement and marketing savings to preserve the bottom line.
# 1. Environmental Impact

<table>
<thead>
<tr>
<th>Traditional Development</th>
<th>The Windmill Approach Targets</th>
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<tbody>
<tr>
<td><strong>Energy Use</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
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<tr>
<td>□ 33% of the annual energy in North America</td>
<td>□ Energy and electricity reduced by 50% or greater</td>
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<tr>
<td>□ 67% of electricity in North America</td>
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<tr>
<td><strong>Climate Change</strong>&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td></td>
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<tr>
<td>□ 30% of CO₂ (greenhouse gas) emissions in North America</td>
<td>□ Greenhouse gases reduced by 50% – 100%</td>
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<td><strong>Water</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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</tr>
<tr>
<td>□ 16% of water consumption in North America</td>
<td>□ Potable water consumption reduced by 50% or greater</td>
</tr>
<tr>
<td></td>
<td>□ Introduction of water recycling strategies</td>
</tr>
<tr>
<td><strong>Solid Waste</strong></td>
<td></td>
</tr>
<tr>
<td>□ 20 – 40% of solid waste generated in North America</td>
<td>□ Construction waste reduced by up to 80% or greater / use of high content recycled materials</td>
</tr>
<tr>
<td>□ 30% of wood and raw materials waste generated in North America</td>
<td>□ Introduction of waste diversion and recycling for ongoing operations</td>
</tr>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
</tr>
<tr>
<td>□ Typically have poor indoor air quality due to stale air transfers and building materials that utilize organic materials and other irritants</td>
<td>□ Air quality improved through the use of non-toxic building materials</td>
</tr>
<tr>
<td></td>
<td>□ Elimination of the use of ozone depleting materials</td>
</tr>
<tr>
<td></td>
<td>□ Direct fresh air ventilation</td>
</tr>
<tr>
<td><strong>Natural Ecology</strong></td>
<td></td>
</tr>
<tr>
<td>□ Natural ecology is not typically considered</td>
<td>□ Natural ecology is considered in design to restore and/or enhance</td>
</tr>
</tbody>
</table>

---

1. Source: Natural Capitalism, Hawkin, Lovins and Lovins, 1999,
2. Social Impact

The Windmill Approach is to:

Preserve local quality of life
☐ Preserve historic architectural styles where applicable
☐ Increase neighborhood diversity and each area's unique social fabric
☐ Promote recreation

Improve each city's social fabric
☐ Increase the amount and quality of affordable housing
☐ Create integrated communities
☐ Development in support with First Nations, industry and environmental groups
☐ Better integration of public and non-public amenities
☐ Restore derelict, abandoned or underutilized properties in the urban core

Enhance public image
☐ Strengthens the sense of community pride
☐ Advance the objectives of "Smart Growth" developments

Augment municipal tax revenue
☐ For a brownfield site - the municipality gets a new source of tax revenue that goes back into supporting a stronger community

1. Smart Growth: an urban planning and transportation theory that concentrates growth in the center of a city to avoid urban sprawl; and advocates compact, transit-oriented, walkable, bicycle-friendly land use, including mixed-use development with a range of housing choices. Smart Growth values long-range, regional considerations of sustainability over a short term focus. Its goals are to achieve a unique sense of community and place; expand the range of transportation, employment and housing choices; equitably distribute the costs and benefits of development; preserve and enhance natural and cultural resources; and promote public health. (source: From Wikipedia, the free encyclopedia)
3. Economic Returns

Sustainable buildings have lower operating costs than conventional buildings.

- Lower operating costs
- Higher value
- Higher occupancy rates
- Increased occupant health and productivity

**EXAMPLE:**
100,000 ft² US Green Building Council LEED™ certified building

**Conventional vs LEED Building Operating Costs**

1. Source: The Institute for Market Transformation to Sustainability, "Valuing the Future of Sustainable Products, Buildings and Vehicles", Executive Summary, March 6, 2004
# The Windmill Competitive Advantage

## Market Leadership:
Windmill is recognized as having the “greenest” development portfolio in North America. Windmill partners are leaders in sustainable development, providing unique marketing potential for residential, retail and commercial properties.
- Healthier/more productive living/working environment
- Sustainable design results in greater real estate value and a higher quality end product
- Enhanced public image

## Intellectual Capital:
- Windmill’s BuildGreen Consulting division is a leader in green building solutions.
- Design Consultation
- LEED project management
- Environmental strategic consulting to community associations, governments and industry

## Proven Solutions:
Windmill has successfully installed an integrated development approach incorporating development and infrastructure projects that offer strong environmental and social impact and market economic returns.
- Integrated, sustainable development and project management services
- Experience with micro-utilities, including biomass incinerators, waste water treatment, sewage heat exchangers and geothermal heating and cooling

## Speed to Market:
Windmill works closely with community associations, municipalities and all levels of government.
- Increased access to properties due to strong demand for Windmill’s product
- Increased speed of the development process and access to strategic grants and loans

## Strategic Partners:
- Quantum is a full service demolition, hazardous material and site remediation contracting company.
- Hazardous materials abatement, site remediation, treatment of soil, water and other waste materials
- Founder was selected as the Entrepreneur of the Year by Ernst & Young in 2001
- Ranked in Profit magazine’s fastest growing companies in Canada list

- Busby, Perkins + Will Architects
- Over 750 LEED Accredited Professionals on staff
- Has the largest portfolio of completed green projects in Canada
Windmill’s Market Timing Advantage

The market is starting to realize that addressing today’s urban development and sustainability challenges offers enhanced asset value opportunities for the long-term.

Public Awareness Issue

Open space scarcity and urban sprawl
Energy supply constraints

Energy cost escalation

Climate Change & Urban Air Quality

Durability of systems and structures

Transportation

Affordable Housing and social fragmentation

Indoor air quality (odors, germs and chemicals)

Windmill Solution

- Urban renewal and intensification
- Reduced demand and sophisticated energy management
- New, clean on-site sources from distributed generation assets

- Reduced energy demand equals lower operating costs to begin with and long-term insulation from commodity price volatility
- Demand side management with cost allocation and sub-metering

- Reduced greenhouse gas emissions from lower energy use and clean distributed generation assets
- High performance equipment, commissioning and monitoring

- Focus on location efficient developments and provide transportation alternatives
- Integration of affordable units in healthy and economically diverse communities
- Direct fresh air ventilation

Windmill

Greening Our Urban Environments © 2007 Windmill Development Group, Ltd. All Rights Reserved. Page 10
## Development Projects to Date – A Summary of Windmill's Success

<table>
<thead>
<tr>
<th>Project</th>
<th>Award</th>
<th>In Recognition of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dockside Green, Victoria, BC</td>
<td>Certificate of merit by the Royal Architectural Institute of Canada</td>
<td>Urban Design and Environmental Innovation</td>
</tr>
<tr>
<td></td>
<td>“Smartie” at Smart Growth BC’s inaugural awards ceremony</td>
<td>'Smart Growth'</td>
</tr>
<tr>
<td></td>
<td>Award for Planning Excellence, Neighborhood Planning by the Canadian Institute of Planners</td>
<td>Planning and Urban Design</td>
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<tr>
<td></td>
<td>Award of Excellence Planning Institute of BC</td>
<td>Planning and Urban Design</td>
</tr>
<tr>
<td></td>
<td>Brownie Award - Green Design and Technological Innovation by the Canadian Urban Institute</td>
<td>Planning, Urban Design and Environmental Innovation</td>
</tr>
<tr>
<td></td>
<td>Brownie Award – Best Overall Project by the Canadian Urban Institute</td>
<td>Planning, Urban Design and Environmental Innovation</td>
</tr>
<tr>
<td></td>
<td>Award of Excellence by Canadian Architect magazine</td>
<td>Planning and Design</td>
</tr>
<tr>
<td>2. The Acqua &amp; Vento, Calgary, AB</td>
<td>LEED- Platinum\textsuperscript{TM} Certification</td>
<td>Planning, Design and Environmental Innovation</td>
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<tr>
<td></td>
<td>Project of the Year by Alberta Construction Magazine</td>
<td>Planning, Design and Environmental Innovation</td>
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<tr>
<td></td>
<td>Multi-Unit Residential Project of the Year by Environmental Design and Construction Magazine (US)</td>
<td>Green Building Design &amp; Construction</td>
</tr>
<tr>
<td>3. The Currents, Ottawa, ON</td>
<td>Brownie Award by the by the Canadian Urban Institute</td>
<td>Planning, Urban Design and Environmental Innovation</td>
</tr>
</tbody>
</table>
The Windmill Portfolio: Acqua & Vento Development *Calgary, AB*

**LEED-Platinum Certified**

We believe that green is the urban landscape of the future. Without giving up a thing in terms of quality, The Acqua & The Vento have become models of this future.

**Project Economics**

Project Size: approximately $19 million construction costs.

**Social Impact**

Approximately 10% of the residential units are affordable housing.

**Sample of Environmental Impact**

**Site:**
- Former brownfield site
- Close to light rail transit

**Resource Efficiency Targeting:**
- 70% natural light penetration
- 50% lower potable water demand
- 50% lower GHG emissions
- Grey water recycling

**Energy Efficiency Targeting:**
- 47% energy savings

**Indoor Air Quality:**
- 100% fresh air systems → better indoor air quality

**Environmental Innovation**

First project in Alberta to recycle rainwater for toilet flush.
Expecting to be the first residential LEED Gold development in Canada.

**SITE STATISTICS (SF)**

<table>
<thead>
<tr>
<th></th>
<th>Land</th>
<th>Commercial / Retail</th>
<th>GFA</th>
<th>Parking</th>
<th>Coverage</th>
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<td>44,000</td>
<td>28,000</td>
<td>72,000</td>
<td>28,000</td>
<td>1.63</td>
</tr>
</tbody>
</table>

*Windmill*

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Windmill Portfolio: The Currents Ottawa, ON

Targeted to be a LEED Gold development.

This one-of-a-kind building offers 42 state-of-the-art, condominium suites and the new home of the Great Canadian Live Arts Theatre Company, one of Canada’s most successful small theatre companies.

The distinctly green development program includes innovations in water, air, energy and waste management together with the use of smart building technologies.

Project Economics

Project Size: approximately $20 million construction costs.

Social Impact

The community’s desire for additional arts oriented patronage lead Windmill to successfully pursue the Great Canadian Live Arts Theatre Company to select the Currents as its new home.

Sample of Environmental Impact

Site:
Remediating brownfield site
80% waste diversion in construction
Car share program
Close to public transit

Resource Efficiency Targeting:
70% natural light penetration
50% lower potable water demand
50% lower GHG emissions
Grey water recycling

Energy Efficiency Targeting:
47% energy savings

Indoor Air Quality:
100% fresh air systems → better indoor air quality

Environmental Innovation

Successfully integrated solar wall technology
Windmill Portfolio: Dockside Green Victoria, BC

Targeted to be a LEED Platinum community.

Expected to be the first North American large-scale community development to be “energy” greenhouse gas neutral.

Windmill’s vision is a socially vibrant, ecologically restorative, economically sound community.

**SITE STATISTICS (SF)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Residential</th>
<th>Office</th>
<th>Commercial</th>
<th>Seniors Residential</th>
<th>Social Housing</th>
<th>Industrial Housing</th>
<th>Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>1,300,000</td>
<td>671,527</td>
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<td></td>
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</tr>
<tr>
<td>GFA</td>
<td>650,000</td>
<td>75,350</td>
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<td></td>
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<td>Coverage</td>
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<td>71,044</td>
<td>54,897</td>
<td>48,331</td>
<td>45,209</td>
<td></td>
<td>44,133</td>
<td></td>
</tr>
</tbody>
</table>

**Project Economics**

Project Size: approximately $500 million construction costs.

Phase 1 currently under budget and Phase 2 has commenced construction and is on budget.

**Social Impact**

The Dockside Green site uses the principals of “Smart Growth” and will house over 2200 residents on a 15 acre site whereas a traditional development housing project for that number of residents would cover approximately 115 acres (approximately 115 football fields).

Approximately 10% of the residential units are affordable housing.

**Sample of Environmental Impact**

**Resource Efficiency Targeting:**
- Remediated brownfield site
- 100% sewage treatment onsite
- Car-share program onsite
- 70% natural light penetration
- 67% lower potable water demand
- 100% lower GHG emissions

**Energy Efficiency Targeting:**
- 50% energy savings
- Planned biomass plant onsite
- 100% of heating requirements
- Indoor air quality
- 100% fresh air systems → better indoor air quality

**Environmental Innovation**
- Greenhouse gas neutral development with biomass heating and 100% waste water treatment onsite and use of treated water.
Utility Projects To Date: Dockside Green Power Ltd

Waste Wood (Biomass) Gasification District Hot Water Plant

Third party owned-operated district energy system. Revenue derived from rates charged to on-site (and off-site) thermal customers.

Over 1 million square feet of new construction to be heated with climate neutral fuel source. Additional opportunity to service neighboring properties.

Supplementary Hot Water Supplied by Sewage Heat Recovery

Municipal trunk line available for transferring heat onto district energy network.

Project Economics

Project Size: $6 million

Total Heat Demand at Buildout: 6,600 MWh/yr (10,000 MWh including offsite customers)

Supporting grants and incentives provided by the Federal Government and BC Hydro.

Ownership Structure

Minority Owners:
• Windmill Development Group
• Vancouver-based infrastructure owner-operator

Majority Owners:
• Vancouver based financial group

Sample of Social & Environmental Impact

Fuel Source:
100% of heating fuel derived from pre-sorted clean waste wood supplied by local waste management and recycling facility

Greenhouse gas emissions:
On site sales result in no net long-term CO2 atmospheric deposition + off-site sales displacing natural gas boilers results in CO2 net reduction

Life Cycle Operating Costs:
Heating costs insulated from natural gas price volatility.

Efficiency measures + Biomass Heating results in lower overall heating costs.
Utility Projects to Date: Dockside Wastewater Reclamation Plant

Advanced Biofiltration Membrane Technology

The Dockside Green Master Plan calls for 100% wastewater collection and conveyance to an on-site treatment plant that treats it to stormwater discharge quality or, if need be, drinking water quality. The reclaimed water is re-plumbed to the buildings for use in toilet basins.

Additional biofiltration, using plants and wetlands, complete the treatment process for direct discharge into Victoria Harbour.

Project Preliminary Economics: Wastewater Treatment and Re-use

<table>
<thead>
<tr>
<th>Total Water Saved from Treated Water</th>
<th>Reclaimed Water Savings</th>
<th>Total Water Elected</th>
<th>Total Water</th>
<th>Cost $/Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 Gallons</td>
<td>120,000 Gallons</td>
<td>110,000 Gallons</td>
<td>220,000</td>
<td>$1.00/Gallon</td>
</tr>
</tbody>
</table>

Additional Infrastructure

Corix Utilities will operate the wastewater treatment plant and is negotiating to acquire the asset.

InfraCore Partner

Corix Utilities will operate the wastewater treatment plant and is negotiating to acquire the asset.

GE Water & Process Technologies

ZENON Membrane Solutions

ZeeWeed MBR

Water Reuse Process
Other Sustainable Infrastructure Approaches: Streetscape Eco-Iconography for Awareness and Community-Site Connectivity
Other Sustainable Infrastructure Approaches: Streetscape Renewables
supporting services and infrastructure
Lambeth Solar-Geo Community Energy System

Third Party Utility Model

In order to make an advanced solar-geo community affordable for builders and buyers, Windmill and Cozix will establish a community-based energy utility. Solar thermal panels and underground assets will be owned by the utility and monthly fixed and consumption charges will be recovered on metered energy use. The rates will be modeled to be competitive with today's natural gas and grid-supplied electricity costs.

A similar model will be developed for wastewater treatment, pending further discussions with the City of London on water metering and charges.

Drawings are from the Drakes Landing Development in Okotoks, AB:
www.dlc.ca
Windmill’s Utility Partner:  

- Privately held Canadian company whose principal owners are CAI Capital Management Inc. (CAI) and BC Investment Management Corporation (BCIMC), large and stable members of the investment community with >$80 billion assets under management.
- Specialize in the provision of sustainable utility infrastructure including water, wastewater and energy solutions in partnerships with communities.
- Role ranges from providing products for water or wastewater distribution systems to turnkey multi-utility systems management.
- Headquartered in Vancouver, BC with over 1,100 employees across North America.
- Own and/or operate over 100 utility infrastructure systems in over 50 communities across Canada.

- Corix has 15 locations across Southern Ontario and over 135 staff in Ontario focused on water, wastewater and energy.
- **London is Corix Utilities Eastern Canada Regional Headquarters**
- Corix can provide full operational support for facilities management of the site infrastructure including all MOE regulatory & compliance reporting.
- Through our O&M joint venture with the Chatham-Kent PUC (CKC Water Services Co.), Corix Utilities has over 45 licensed operators in Ontario.
- **Corix has a strategic equity stake Chatham Kent Energy and is working on other sustainable energy projects in the Province.**

Corix Utilities offers flexible and comprehensive services to meet a wide range of utility needs, including:
- Complete design, build, own, operate and maintenance services
- Project financing
- Water and sewer utility services and supplies
- GeoExchange design, build, own, operate
- Specialist utility services (rate design, system analysis, public relations and marketing, metering, customer care, etc.)
Focus on Communities
- Small to mid sized communities
- Universities
- First Nations developments
- Resort developments
- Large strata developments
- Sustainability focus
Putting the Pieces Together for A Sustainable Master Plan:

The Team: Windmill Developments will be the master planner and will work with Corix Utilities to establish privately financed on-site infrastructure.

Sustainable Servicing:

- **Wastewater Collection, Treatment and Reclamation:** Small Bore Sewer™ collection system will convey wastewater to wastewater treatment facilities. Depending on development density, wastewater will be reclaimed for re-use in toilets, or will be safely discharged into surface water features and landscaping.

- **Clean Energy Systems:** GeoExchange and on-site solar hot water harvesting and thermal storage will provide heating, cooling and domestic hot water to all structures on the site.

- **Sustainable Infrastructure:** Impervious surfaces will be minimized in order to enhance groundwater re-charge; recycled content will be specified; traffic and road lights will minimize light pollution, use energy efficient technology and renewables.

Sustainability Covenants: The site plan and development covenants will require all builders on the site to tie into the sustainable energy and wastewater systems.

Supplementary Private Financing: On-site services will be provided by a turn-key multi-utility owner operator as part of a joint venture between Windmill Developments and Corix Utilities.

Certified Green: Windmill will pursue certification under the LEED-Neighborhood Development (ND) program, which is currently in pilot phase. Windmill will also provide carbon and ecological footprint calculations for the life cycle of the community.
## Project Checklist - LEED for Homes

### Windmill Development Group, Lambeth Farm

**Builder Name:** Windmill Development Group, Ltd., Lambeth Farm

### Project Checklist

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Max Points Available</th>
<th>LEED Rating Score</th>
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<tbody>
<tr>
<td>2</td>
<td>2 Site Selection</td>
<td>2</td>
<td>L1 2</td>
</tr>
<tr>
<td>3.1</td>
<td>Preferred Locations</td>
<td>1</td>
<td>L1 1</td>
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<tr>
<td>3.2</td>
<td>Select on an Edge Development Site</td>
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<td>L1 2</td>
</tr>
<tr>
<td>3.3</td>
<td>Select a Previously Developed Site</td>
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<tr>
<td>4</td>
<td>Infrastructure</td>
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<tr>
<td>5.1</td>
<td>Community Resources</td>
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<tr>
<td>5.2</td>
<td>Basic Community Resources / Public Transportation</td>
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<td>L1 2</td>
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<tr>
<td>5.3</td>
<td>Outstanding Community Resources / Public Transportation</td>
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<tr>
<td>6</td>
<td>Access to Open Space</td>
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<td>7</td>
<td>Sub-Total</td>
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</tr>
<tr>
<td>8</td>
<td>3 Site Stewardship</td>
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<td>Pre</td>
</tr>
<tr>
<td>1</td>
<td>Site Stewardship</td>
<td>1</td>
<td>L1 1</td>
</tr>
<tr>
<td>2.1</td>
<td>Site Selection</td>
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<tr>
<td>2.2</td>
<td>No Invasive Plants</td>
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<tr>
<td>2.3</td>
<td>Limit Turf</td>
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<td>2.4</td>
<td>Drought Tolerant Plants</td>
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<tr>
<td>10</td>
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<td>L1 1</td>
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</tbody>
</table>

**Total Points:** 100

**Notes:**
- This checklist is for demonstration purposes only.
- Complete documents are available from the US Green Building Council.

**Version:** 1.1

**Updated:** August, 2007
## Project Checklist (cont’d)

**Project Totals (pre-certification estimates):**

- **Total Credits Achieved:** 120

**Sub-Total:**

### HERS Index Value Achieved (HI):

- **HI:** 0.0

### 3.4 HERS Compliance:

- **HI:** 1.5

### Energy STAR Home:

- Meets Performance Requirements of ENERGY STAR for Homes
- **Prerequisite**
- **Points Achieved:** 34

### Water Heating:

- **Points Achieved:** 2

### Refrigerant Management:

- **Points Achieved:** 1

### Advanced Framing Techniques:

- **Points Achieved:** 3

### Structural Insulated Panels:

- **Points Achieved:** 2

### EPA Zone 1 IEQI:

- **Points Achieved:** 8

### Energy Star with SAP:

- **Points Achieved:** 11

### Space Heating & DHW Equipped with Closed/Power-Exhaust

- **Points Achieved:** 1

### Install High Performance Fireplace

- **Points Achieved:** 1

### Analyze Moisture Loads AND Install Central System (if Needed)

- **Points Achieved:** 1

### Dedicated Outdoor Air System (w/ Heat Recovery)

- **Points Achieved:** 2

### Third Party Testing of Outdoor Air Flow Rate into Home

- **Points Achieved:** 3

### Third Party Testing of Bathroom Exhaust Fans

- **Points Achieved:** 1

### Third Party Testing of Exhaust Air Flow Rate Out of Home

- **Points Achieved:** 1

### Supply Air Distribution

- **Points Achieved:** 2

### Third Party Testing of Supply Air Flow into Each Room in Home

- **Points Achieved:** 2

### Supply Air Filtration

- **Points Achieved:** 1

### 10 MERV Filters, w/ Adequate System Air Flow

- **Points Achieved:** 1

### 13 MERV Filters, w/ Adequate System Air Flow

- **Points Achieved:** 2

### Minimize Duct Ducts During Construction

- **Points Achieved:** 1

### Perimeter Walls & Main OR Storage OR Central Vacuum

- **Points Achieved:** 2

### Flush Home Controllably for 1 Week with Windows Open

- **Points Achieved:** 1

### Install Radon Resistant Construction if Home is in EPA Zone 1

- **Points Achieved:** 1

### Install Radon Resistant Construction if Home is Not in EPA Zone 1

- **Points Achieved:** 1

### Garage Ducts or Air Curtains

- **Points Achieved:** 2

### Exhaust Fan in Garage

- **Points Achieved:** 1

### Detached Garage or Not Garage

- **Points Achieved:** 3

**Total Credits Achieved:** 120
## Project Checklist, Addendum A

### Prescriptive Approach for Energy and Atmosphere (EA) Credits

Detailed information on the measures below are provided in the companion document “LEED for Homes Rating System”

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
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<td>2.1</td>
<td>Insulation</td>
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<td>2.2</td>
<td>Third-Party Inspection of Insulation, At Least HERS Grade II</td>
<td>EA 1</td>
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<tr>
<td>2.3</td>
<td>Third-Party Inspection of Insulation, Grade I AND 7.5% above code</td>
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<td>3.1</td>
<td>Air Infiltration</td>
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<td>3.2</td>
<td>Third-Party Envelope Air Leakage Tested &lt;= 7.0 ACH 60 (CZ 1-2)</td>
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<td>3.3</td>
<td>OR Third-Party Envelope Air Leakage Tested &lt;= 6.0 ACH 50 (CZ 1-2)</td>
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<td>4.1</td>
<td>Windows</td>
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<td>4.2</td>
<td>Windows Meet ENERGY STAR for Windows (See Table)</td>
<td>EA 1</td>
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<tr>
<td>4.3</td>
<td>OR Windows Exceed ENERGY STAR for Windows (See Table)</td>
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<td>5.2</td>
<td>Duct Tightness</td>
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<td>5.3</td>
<td>Third-Party Duct Leakage Tested &lt;= 4.0 CFM 257 / 100 SF to Outside</td>
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<td>5.4</td>
<td>OR Third-Party Duct Leakage Tested &lt;= 3.6 CFM 257 / 100 SF to Outside</td>
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<td>6.1</td>
<td>Space Heating and Cooling</td>
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<td>6.2</td>
<td>Meet ENERGY STAR for HVAC w/ Manual J &amp; refrigerant charge test</td>
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<td>6.3</td>
<td>HVAC is Better than ENERGY STAR</td>
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<td>7.1</td>
<td>Water Heating</td>
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<tr>
<td>7.2</td>
<td>Improved Hot Water Distribution System</td>
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<td>7.3</td>
<td>Pipe Insulation</td>
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<td>8.1</td>
<td>Lighting</td>
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<tr>
<td>8.2</td>
<td>Install at Least Three ENERGY STAR Rated Light Fixtures (of CFLs)</td>
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<tr>
<td>8.3</td>
<td>OR ENERGY STAR Advanced Lighting Package</td>
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<tr>
<td>9.1</td>
<td>Appliances</td>
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<td>9.2</td>
<td>Very Efficient Clothes Washer (MEP &gt; 1.8, AND WPF 4.0)</td>
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<td>10</td>
<td>Renewable Energy</td>
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<td>11</td>
<td>Refrigerant Management</td>
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<td></td>
<td>Minimize Carbon Emission and Global Warming Contributions</td>
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<tr>
<td>Sub-Total</td>
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<td>30</td>
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</table>

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents.

**Responsible Party’s Name**

**Company**

**Signature**

**Date**

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

**Rater’s Name**

**Company**

**Signature**

**Date**

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

**Provider’s Name**

**Company**

**Signature**

**Date**

---

US Green Building Council

Page 3

Version 1.11a

Updated August, 2007
LEED for Neighborhood Development Pilot
Draft Project Checklist

Project Name: ________________________________
Project City: ____________________________ Project State: ____________

*Note: Registration for the LEED for Neighborhood Development Pilot Program is closed; registration for the fully launched program is planned to open in late 2009, pending USGBC member ballot approval.

Yes  ?  No

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<thead>
<tr>
<th>Project Totals (Pre-Certification Estimates)</th>
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<td>Certified: 40-49 points</td>
<td>Silver: 50-59 points</td>
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Yes  ?  No

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<thead>
<tr>
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<tr>
<td>Prereq 2  Proximity to Water and Wastewater Infrastructure</td>
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<tr>
<td>Prereq 3  Imperiled Species and Ecological Communities</td>
<td>Required</td>
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<tr>
<td>Prereq 4  Wetland and Water Body Conservation</td>
<td>Required</td>
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<tr>
<td>Prereq 5  Farmland Conservation</td>
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<td>Prereq 6  Floodplain Avoidance</td>
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<td>Credit 1  Brownfield Redevelopment</td>
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<td>Credit 3  Preferred Location</td>
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<td>Credit 4  Reduced Automobile Dependence</td>
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<td>Credit 5  Bicycle Network</td>
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<td>Credit 6  Housing and Jobs Proximity</td>
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<td>Credit 7  School Proximity</td>
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<td>Credit 9  Site Design for Habitat or Wetlands Conservation</td>
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<td>Credit 10 Restoration of Habitat or Wetlands</td>
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<td>Credit 11 Conservation Management of Habitat or Wetlands</td>
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## LEED for Neighborhood Development Pilot
### Draft Project Checklist

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<th>Yes</th>
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<td>Neighborhood Pattern &amp; Design</td>
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<td>Yes</td>
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<td>Prereq 1</td>
<td>Open Community</td>
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<td>Prereq 2</td>
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<td>Credit 3</td>
<td>Diversity of Housing Types</td>
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<td>Affordable Rental Housing</td>
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<td>Credit 5</td>
<td>Affordable For-Sale Housing</td>
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<td>Credit 6</td>
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<td>Credit 7</td>
<td>Walkable Streets</td>
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<td>Credit 9</td>
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<td>Credit 11</td>
<td>Access to Surrounding Vicinity</td>
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<td>Credit 12</td>
<td>Access to Public Spaces</td>
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<td>Credit 13</td>
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<td>Credit 14</td>
<td>Universal Accessibility</td>
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<td>Credit 15</td>
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<td>Credit 16</td>
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# LEED for Neighborhood Development Pilot

## Draft Project Checklist

### Green Construction & Technology

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<th>Credit</th>
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<td>Credit 1</td>
<td>LEED Certified Green Buildings</td>
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<td>Energy Efficiency in Buildings</td>
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<td>Credit 3</td>
<td>Reduced Water Use</td>
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<td>Building Reuse and Adaptive Reuse</td>
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<td>Credit 5</td>
<td>Reuse of Historic Buildings</td>
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<td>Credit 6</td>
<td>Minimize Site Disturbance through Site Design</td>
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<td>Credit 7</td>
<td>Minimize Site Disturbance during Construction</td>
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<td>Credit 8</td>
<td>Contaminant Reduction in Brownfields Remediation</td>
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### Innovation & Design Process

| Credit 1.1 | Innovation in Design: Provide Specific Title         | 1      |
| Credit 1.2 | Innovation in Design: Provide Specific Title         | 1      |
| Credit 1.3 | Innovation in Design: Provide Specific Title         | 1      |
| Credit 1.4 | Innovation in Design: Provide Specific Title         | 1      |
| Credit 1.5 | Innovation in Design: Provide Specific Title         | 1      |
| Credit 2   | LEED Accredited Professional                          | 1      |