



CITY OF VANCOUVER

ADMINISTRATIVE REPORT

Report Date: February 14, 2007
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Meeting Date: February 27, 2007

TO: Vancouver City Council

FROM: Project Manager, Southeast False Creek ("SEFC") and Olympic Village, in consultation with the Manager of Sustainability and the Director of the Housing Centre

SUBJECT: Net Zero Energy Initiative ("Net Zero") demonstration project in Southeast False Creek

RECOMMENDATION

- A. *THAT, subject to Recommendation C, the City Manager be authorized to enter into a contract with Canada Mortgage and Housing Corporation ("CMHC") for CMHC to participate in and provide funding of up to \$250,000 for the Net Zero Project in an Affordable Housing building in SEFC.*
- B. *THAT, subject to Recommendation C, the City Manager be authorized to enter into a contract with Merrick Architecture for up to \$284,000 for incremental design, construction documentation, tender review, and contract administration, work related to the construction of the Net Zero Affordable Housing Project in SEFC; source of funding to be the contribution from CMHC (\$250,000) pursuant to approval of Recommendation A and \$34,000 from the SEFC Affordable Housing allocation approved by Council on November 6, 2006.*
- C. *THAT the Director of Legal Services be authorized to execute and deliver, on behalf of the City, all legal documents required to implement Recommendations A and B;*

THAT all such legal documents be on terms and conditions satisfactory to the City Manager, the General Manager of Corporate Services and Director of Legal Services, and THAT no legal rights or obligations will be created or arise by Council's adoption of Recommendation A and B above unless

and until such legal documents are executed and delivered by the Director of Legal Services.

CITY MANAGER'S COMMENTS

The City Manager recommends approval of A, B and C above.

COUNCIL POLICY

On March 1, 2005, Council approved the Southeast False Creek Official Development ("ODP"), which sets the framework for development of the SEFC neighbourhood, including Area 2A. The ODP Bylaw was enacted by City Council in July 2005. On March 7, 2006, City Council approved amendments to the ODP Bylaw, which were enacted on March 21, 2006.

PURPOSE

This report seeks Council's authorization for the City Manager to enter into contracts with CMHC and Merrick Architecture to implement a "Net Zero" demonstration project as part of the Affordable Housing in SEFC Area 2A.

BACKGROUND

On April 4, 2006, Council selected Millennium Properties Limited to be the developer of SEFC Area 2A, subject to the settlement of the necessary legal agreement. The City and Millennium Southeast False Creek Properties LTD. ("Millennium", a wholly-owned subsidiary of Millennium Properties Limited) subsequently executed the legal agreement (the "Development Agreement") on August 31, 2006. In the Development Agreement, Merrick Architecture is part of the design team for the buildings to be constructed in SEFC Area 2A, including the Affordable Housing that Millennium will design and build (subject to settlement of the "construction agreement") on behalf of the City. All design and construction management fees for the Affordable Housing buildings, meeting LEED Gold certification, have been settled in the Development Agreement.

On May 26, 2006, the City and CMHC signed a Memorandum of Understanding that, among other things proposed that one of the buildings in SEFC Area 2A be considered as a Net Zero demonstration project. CMHC is piloting a new program, Net Zero Health Housing Initiative, which is mainly targeted at single family dwellings. CMHC is also very interested in applications to multiple unit residential building, and the Affordable Housing in SEFC provides a unique opportunity. CMHC indicated a willingness to fund the incremental design costs up to a maximum of \$250,000 for the Net Zero Affordable Housing Project, subject to settlement of the necessary legal agreement.

On November 2, 2006, Council approved the development of the City's Affordable Housing on Parcel 9 of SEFC Area 2A as a Net Zero demonstration project. The Project Manager of the SEFC Project Office and the Manager of Sustainability were authorized to negotiate the final arrangements with CMHC for Council's final approval. The arrangements are in place; however, Council authority is required to enter into the necessary legal agreements.

DISCUSSION

A Net Zero building strives to reduce energy use through passive design and incorporates enough energy production to meet its demand needs. At times, the building may require energy from the utility grid, but at other times it may provide energy back to the utility grid, with an overall net zero balance. It is also intended to be a building which maximizes occupant health and comfort. To determine performance it is desirable to undertake additional commissioning and monitoring once the building is operational.

Net Zero Work Program

As a result of a number of discussions with CMHC and Merrick Architecture, a work program has been agreed to for the additional design, construction documentation, tender review, and contract administration work required to take the 70-unit Seniors Affordable Housing Project on Parcel 9 from LEED Gold to Net Zero.

The work program is comprised of three phases:

Phase 1: Concept Design

It is in this phase where an integrated design process is employed to achieve maximum energy efficiency. Energy consumption is then estimated and energy generation options are identified, along with potential suppliers who might be interested in participating. The end product is a comprehensive report detailing: alternatives, technical requirements, an energy analysis, and costing. Phase 1 is now complete.

Phase 2: Design Development and Documentation

The second phase focuses on design development of the conceptual design with specific emphasis on detailed costing of: building envelope, heating system, lighting, energy generation options, and energy efficient appliances. Grey and black water treatment will also be investigated and costed. Net Zero provisions will also be incorporated into LEED Gold documentation and project specifications in preparation for project tendering. All documentation will be submitted to the City and CMHC for review.

Phase 3: Construction, Demonstration and Monitoring

The third phase deals with the construction, starting with permitting and building code issues, construction management and commissioning. A monitoring plan will be developed and undertaken and would include: energy and water consumption, renewable energy profiles, indoor air quality, and costs of operation and maintenance. The product would be a report assessing building performance, a report which could be reproduced on a regular basis.

An opportunity exists for advanced monitoring which could comprise Phase 4. This will be considered after occupancy and will need to involve the non-profit sponsor and the new residents. This work is not included in the contract between CMHC and the City.

Required Contractual Arrangements

To implement the Net Zero demonstration project, the \$250,000 contribution from CMHC needs to be secured. To do this, Council is asked to authorize the City Manager to enter into a contract with CMHC.

After the CMHC funding is secured, the City will enter into a contract with Merrick Architecture for the incremental design and construction documentation, tender review and contract administration work required for the Net Zero Project.

FINANCIAL IMPLICATIONS

The additional costs to complete the three phases of the Net Zero work have been estimated at \$284,000. CMHC has committed \$250,000 which will be secured with the execution of the necessary legal agreement. The shortfall of \$34,000 will be made up by the funds approved by Council for development of the Affordable Housing.

The Affordable Housing buildings in SEFC Area 2A are required to meet LEED Gold certification. The conceptual design work completed during Phase 1 indicates that to move from LEED Gold to Net Zero requires that the building be designed to maximize reductions in energy consumption. To achieve this, there will be additional envelope costs which are considered to be minor and will have to be justified by savings in operating costs or covered by funding from other sources. Based on the preliminary cost estimates completed as part of Phase 1, staff are satisfied that these building envelope costs can be justified.

Detailed costing as part of Phase 2 will provide more certainty and an opportunity to reconsider the program prior to construction. The Director of the Housing Centre is preparing a report on the capital costs, operating savings and the resulting affordability of the 250 Affordable Housing units, including the Net Zero Project, in SEFC Area 2A for Council's consideration in the late spring of this year.

CONCLUSION

Staff recommends that the City enter into contracts with CMHC and Merrick Architecture to proceed with the Net Zero Project.

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