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# Bailey Broom Factory

Final Feasibility Study - September 22, 2020



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# THE FIRM

## RAW DESIGN

One of Ontario's most vibrant architectural studios, RAW possesses an international design sensibility combined with a wealth of local experience. We are a full-service architectural firm with professional experience in a diverse range of work including hi-rise residential, mid-size commercial/institutional, small-scale art installations, and everything in between. We specialize in projects involving Heritage elements and have carried out a large number of high-profile renovations and additions in the same vein as this project.

Our principal Roland Rom Colthoff is known for fresh ideas and clear thinking. He has 30+ years of professional experience designing and building award-winning projects and has been nationally recognized for his urban design skills. He currently serves on the Design Review Panel for the City of Toronto and Toronto Community Housing and is keen to share his expertise with the City of Kingston as well.

RAW currently employs an enthusiastic staff of 36 including 9 senior registered Architects. We are known for the wide range of our design vision and our ability to synthesize design constraints and provide efficient designs and documents both on time and on budget. We pride ourselves on our democratic work ethic and our seamless ability to share information throughout our office and with our clients. We work quickly in a full 3D environment to ensure our ideas can be clearly elaborated and presented. We are comfortable presenting our work in public forums and understand the importance of communications strategies in moving development proposals successfully through the approvals process.

In 2009, RAW was cited as the Ontario Association of Architects' Best Emerging Practice. We are currently working on the renovation of the Bailey Broom Factory, with a goal to establish a local RAW office there. We look forward to continued emergence in Kingston and will not disappoint.

## AWARDS

- 2019 Toronto Urban Design Award of Merit, *109OZ*
- 2018 Lieutenant Governor Awards for Excellence in Architecture, *Southport*
- 2018 HRM Mayor's Prize in Architecture, *Southport*
- 2018 Halifax Urban Design Award, *Southport*
- 2017 BILD Award, *George Condos & Towns*
- 2016 BILD Award, *35 Wabash*; BILD Award, *Cabin*
- 2015 OAA Concepts Award, *Prismatica*
- 2013 Toronto Urban Design Award, *CUBE* ; BILD Award, *109 OZ*; Winnipeg Warming Huts Competition Winner
- 2012 Simcoe Architectural Design Competition, Winner, *Harmony Village Lake*
- 2011 Canadian Urban Institute: Best Overall Development, *Lang Tannery*  
City of Kitchener: Mike Wagner Heritage Award, *Lang Tannery*  
BILD Award, *Bellefair Kew Beaches Residences*
- 2010 Toronto Construction Association Award, *Glenerin Inn*
- 2009 Ontario Association of Architects: Best Emerging Practice



# THE TEAM

The feasibility study was undertaken by RAW Factory Inc. and RAW Design Inc., two intertwined companies functioning as developer and architect, respectively [For the purpose of this Report, the two are so entwined that we will refer to the ownership entity as simply 'RAW']. Roland Rom Colthoff is owner, director and sole proprietor of these companies, and Jon Jeronimus is managing the feasibility study initiative in addition to functioning as project architect. Sydney Bookal and Sally Liao are handling the accounting and administrative tasks associated with the study, and Dakota Wares-Tani and Yasmin Al-Samarrai are responsible for the graphic work in this report.

There have been a great many other companies and individuals who have contributed to the feasibility study for this project. Our brownfields and real estate partnership with the City of Kingston is spearheaded by Nathan Richard, Paul MacLatchy, Peter Huigenbos and Saru Bajwa. Our Heritage and Planning partners at the City are Ryan Leary and James Bar. Our environmental consultant is Golder, with initial environmental consulting by Pinchin. Civil, Structural, Mechanical and Electrical Engineering has been provided by WSP Kingston. Our energy and sustainability advisor is Grant Peters of Fluent Group, and our Heritage specialist partner is Lindsay Reid from Branch Architecture. Our construction management teammate is PEAK Engineering and Construction.

Contact info for these entities can be found on the reports listed in the Appendix.



**Dakota Wares-Tani**



**Jon Jeronimus**



**Roland Rom Colthoff**



**Yasmin Al-Samarrai**



**Sydney Bookal**



**Sally Liao**

# THE CONSULTANTS

## *Environmental Consultant*

### **GOLDER ASSOCIATES**

Golder has created a unique culture with pride in ownership, resulting in enduring relationships and long-term organizational stability. Golder has a 50 year history in subsurface investigation programs and environmental engineering.

## *Heritage Consultant*

### **ERA**

With over 20 years of experience in Toronto, Prince Edward County and Montreal, E.R.A. Architects Incorporated carry a team of 60 specializing in heritage architecture, landscape and planning, and provides full professional services to both private and public sector clients.

## *Sustainability / Green Consultant*

### **FLUENT GROUP**

Fluent Group Consulting Engineers Inc. is dedicated to developing design solutions for a sustainable built environment. The firm provides custom, client-responsive services in the fields of building energy performance, water conservation, indoor environmental quality, material efficiency and low-impact site development.

## *Civil / Structural / Mechanical / Electrical Consultant*

### **WSP GROUP**

Founded in Canada, WSP has been a trusted partner in helping clients succeed for over 50 years. WSP provides services and expertise ranging from environmental remediation to urban planning; engineering iconic buildings to designing sustainable transport networks.

## *Landscape Architect*

### **THINC**

thinc specializes in innovative and implementable design solutions for both large and small scale projects. The partners of the firm have been practicing for over 20 years and have led numerous part and public realm projects.

## *Planning Consultant*

### **IBI GROUP**

IBI Group is a full-service planning and engineering office dedicated to the development of urban and rural communities in Ontario. They offer a wide range of services for both private and public sector clients in community improvement, urban development, planning design and construction.



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**Brad Hurdis**  
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Project Manager

### **Speciality Consultants**

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Heritage Consultant  
ERA/BRANCH

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Landscape Architect  
THINC. DESIGN

**Misha Franta**  
Landscape Designer  
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**Mark Touw**  
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IBI GROUP

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Geotechnical Consultant  
SNC LAVALIN

**Michael Berry**  
Archaeological Services  
ABACU S



# THE PROCESS

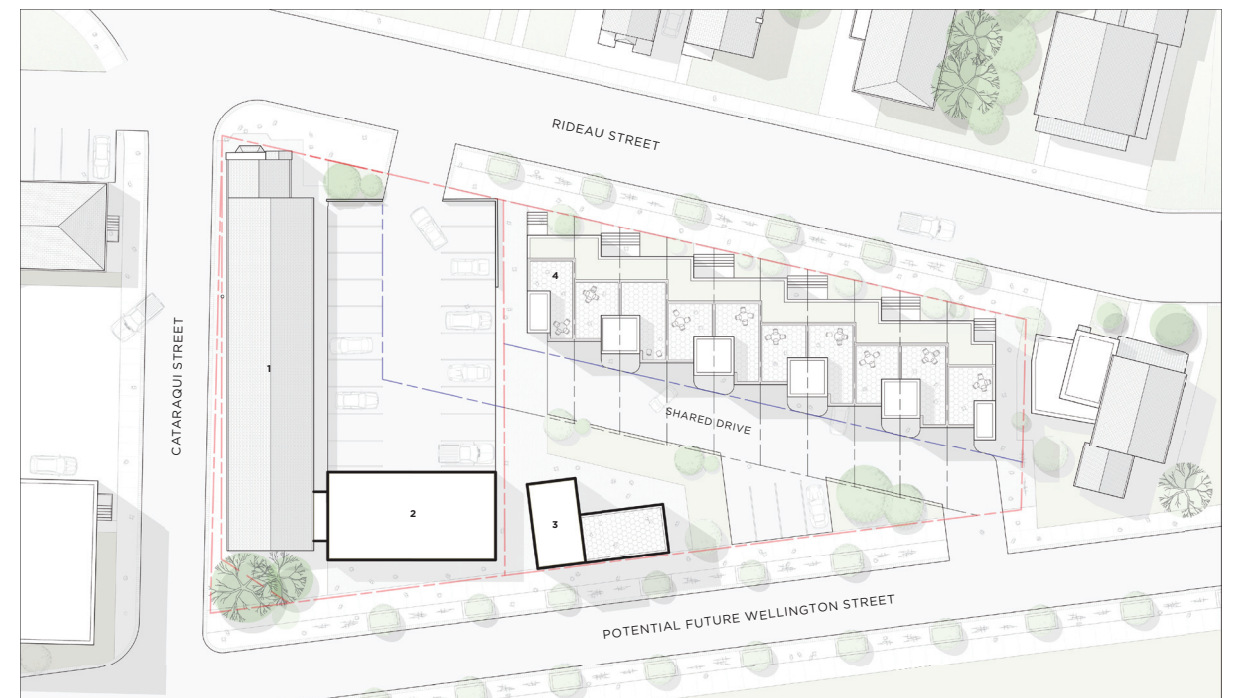
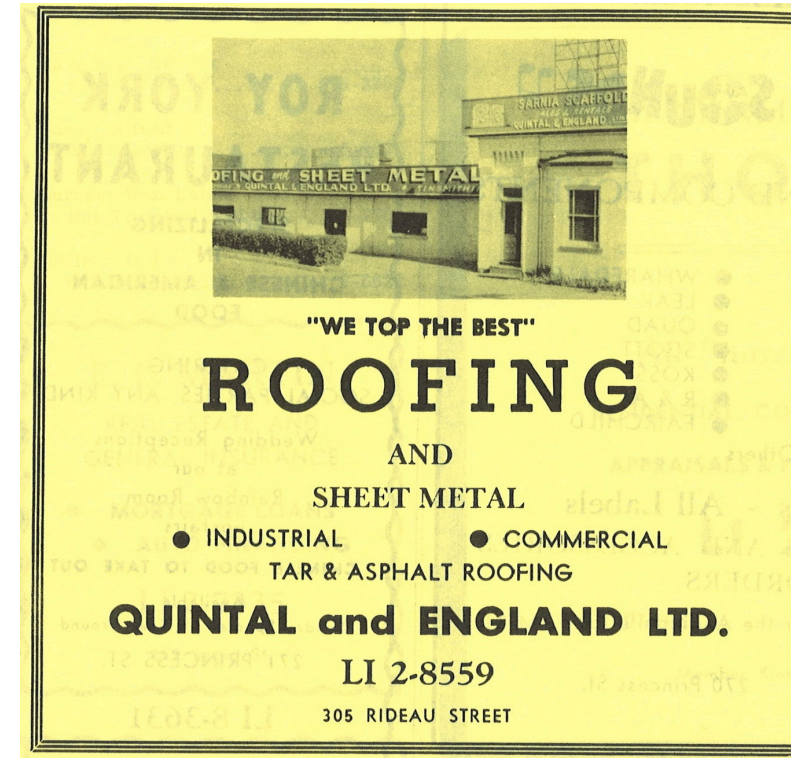
The process undertaken to make this feasibility study a reality has been fruitful, having provided an opportunity to more clearly define our key objectives for the project and focus on the elements which truly matter to us.

The process started with the desire to establish a branch of our architectural practice RAW Design in Kingston. We saw Kingston as an emerging market in the construction industry, and an opportunity for us to contribute to an interesting and rich collection of buildings in the City. This initial assumption has since been substantiated, as RAW Design has completed or is currently engaged in several active architectural projects in Kingston at present (6 in Kingston, 2 in Ottawa).

Our Broom Factory initiative has been instrumental in landing these contracts. Having identified our desire to open an office in Kingston we began actively seeking potential opportunities to purchase properties that might house our firm. Around this time the City issued a Request for Statements of Interest for the Broom Factory site, with the caveat that any proponent must commit to rehabilitating the property to environmental and heritage standards. We saw this as a great opportunity to be our own client, create our own space, and at the same time establish a strong reputation in the local community as being focused on sustainability and quality of design. RAW was the only respondent to the City's RFSI, which we feel speaks to the level of intricacy and challenge posed by this particular site.

Having received our expression of interest, the City asked that we describe to them the general concept of our redevelopment proposal. This involved several pre-application conversations and meetings with the City before arriving at a concept they could bring to Council. Council approved in principle, and negotiations for purchase began in earnest.

A primary concern of ours was the general lack of information on the state of the soils. We knew the history of the site as a former industrial use, and were uncomfortable moving ahead with purchase until we could better understand and anticipate the costs to remediate. The City agreed to foot the bill for initial environmental studies required to assess the level of contamination on the site. A Phase I and Phase II Environmental Site Analysis was conducted, and RAW made the decision to purchase the property.



**PROPOSED FUTURE DEVELOPMENT:**  
1. EXISTING BUILDING TO BE RESTORED FOR COMMERCIAL USE  
2. 1 OR 2 STOREY COMMERCIAL ADDITION TO EXISTING COMMERCIAL BRICK BUILDING  
3. TWO 4-STOREY LIVE/WORK OR COMMERCIAL UNITS  
4. TEN 4-STOREY TOWNHOMES WITH GARAGES



# THE OBJECTIVES

**The objectives of the Feasibility Study were to identify the constraints posed by the site from an environmental and heritage perspective, and to recognize opportunities for sustainable architecture.**

## INITIATIVE

The catalyst for this initiative stems from actions taken by the community to prevent the existing Bailey Broom Factory building, which is located on the 'south parcel' of the property, from being torn down. The subsequent heritage designation of the existing building and tendering of the sale of the property tied in with our wish to establish a branch architectural office for RAW Design Inc. in the City of Kingston. After more than a year of negotiations with the City of Kingston the site was severed into two parcels north and south and purchased by development company RAW Factory Inc., with the understanding that the south parcel would be restored prior to any work being done on the north parcel. Our intent is to restore the existing building and lease space to RAW Design Inc. in addition to a community cafe and a co-working/incubator space.

## DRIVING FACTORS

The City of Kingston sold the subject property to RAW Factory Inc. on condition that we remediate the site and restore the existing building on the south parcel within 48 months from time of sale. Our financial analysis indicated that, while the costs to restore the building would be far greater than the projected value of the property, the intangible benefit to our architectural firm RAW Design Inc. would be priceless. It is therefore in our best interest to provide a development of the highest quality as a flagship project for our newly established Kingston architectural office. It is also a unique opportunity in that we will engage the active surrounding community and create opportunity for future architectural work by situating RAW Design in the same building as the City's entrepreneurs and future leaders in innovation through the co-working space.



## SOCIAL OBJECTIVE

By providing affordable co-working spaces with flexible membership options within the restored Bailey Broom Factory building our objective is to engage the entrepreneurial community and foster a culture of creativity and innovation. The cafe will serve the co-working space as well as the general public and will function as a gathering space for events and forums, supporting a culture of community engagement and social interaction. The RAW Design architectural office will complement these other uses and encourage engagement between designers and the surrounding community.



## ECONOMIC OBJECTIVE

The restored Bailey Broom Factory building will house commercial uses which improve the economic outlook for this community and the City of Kingston at large. Specifically, by fostering a culture of entrepreneurship and innovation, the Broom Factory becomes part of a growing network of infrastructural elements required to support and commercialize the ideas developed at local institutions such as Queen's University, where the historical trend has been a slow leak of talent to larger urban centres such as Toronto or San Francisco.



## ENVIRONMENTAL OBJECTIVE

Above all, our main objective is to provide a development of the highest quality with respect to sustainability and the environment.

The Bailey Broom Factory redevelopment will remove actual and potential sources of land, water and air contamination, while eliminating potential health and safety risks to those who live and work in the surrounding community.

# METHODOLOGY + **APPROACH**



The methodology we put in place to meet these objectives was a deliberate one. As an architectural practice we are well-versed in crafting projects to meet the vision and objectives of our clients, and for the first time we found ourselves in the position of being able to design a building based entirely on our own preferences. From the outset we recognized our opportunity on this project to focus heavily on sustainability, and we engaged our sustainability consultant Fluent Group to provide us with a menu of ‘green’ options and criteria to consider, to help inform the parameters for the project. Fluent developed a tailor-made ‘green building strategies report’ for the project with a list of recommended sustainability measures. These measures included relative capital and life cycle costs, and corresponded with several green building rating systems including The WELL Building Standard, Passivhaus, and the Living Building Challenge Certification. We digested this report as a team, selected the measures that were most important to us, and have used these as ‘guiding principles’ throughout the design of the project.

Through this process we arrived at the main driving factor in our approach to sustainability on this project: energy conservation. As part of the initial analysis work and in addition to the ‘green building strategies report’, Fluent evaluated the existing Broom Factory building and found that, by targeting specific thresholds for insulation, window performance, and mechanical/electrical systems, we could achieve a Net Zero energy building by installing solar PV array on the existing roof. Our approach to the building envelope and the mechanical/electrical design has been informed by these targets and we are on track to meet this Net Zero objective, which is relatively unheard of for a heritage-designated building like this.

As to the identified constraints on the project, far and away the most challenging has been the state of the existing soils. Our Phase II ESA identified risks on the project including the presence of arsenic, lead and zinc, petroleum hydrocarbons and benzene concentrations in the soil greater than permitted maximums. The remediation requirements for these soils have had a major impact on the project budget and have led to some design elements needing to be ‘value-engineered’. We have stayed true to the sustainable objectives of the project, but it has been challenging.

Another element that may be considered as both a ‘constraint’ and an ‘opportunity’ is the heritage-designation of the property. The requirement to stabilize and rehabilitate rather than build anew influenced several design decisions, and combined with our mandate for energy efficiency and a high-performance building envelope proved to be a very challenging undertaking. The strategies we adopted to integrate appropriate heritage measures was very much informed by our heritage architectural teammate Lindsay Reid of Branch Architecture. Lindsay analysed the existing conditions from a heritage-sensitive perspective and crafted a Heritage Impact Statement (HIS) outlining the proposed heritage concept for the redevelopment, through varying lenses of ‘conservation’, ‘rehabilitation’, and ‘interpretation’. The HIS has since served as a guide for the heritage approach on the project, and we have referenced it throughout the process, from design through municipal approvals (including heritage permits) and construction documents. The City of Kingston’s Heritage Planning staff, specifically Ryan Leary, have also been very helpful and supportive of the project, ultimately strengthening the quality of the work through their thoughtful and considerate review of our approvals applications.

**Feasibility Study Findings +  
Recommendations**

**3**

# ENVIRONMENTAL FINDINGS

The environmental findings related to the options explored in the Feasibility Study may be found in the attached Due Diligence Risk Assessment and Conditions Letter, both of which were prepared by our environmental consultant Golder Associates. These findings have led to specific requirements such as a Health and Safety Action Plan to be implemented during the excavation process, and a sub-slab vapour depressurization system to remain ever active once the building is complete. The Action Plan and Vapour Depressurization drawings can be found in the Appendix. The feasibility study also allowed for a careful approach to sustainability and energy on the project, which was further verified by analysis and design by Geotechnical, Heritage, Civil, Mechanical, Electrical, Structural and Landscape teammates, with supporting documents from each of these disciplines also provided in the appendix. Based on analysis and coordination with these disciplines, the initiative remains on track to be a Net Zero Energy, brownfield remediation, Heritage Restoration project with an emphasis on clean and contemporary architectural design.



# FINANCIAL FINDINGS

## STORMWATER MANAGEMENT

Financial findings related to options explored were varied and multiple. The largest and most impactful of these relates to the Civil design and construction, specifically the sanitary and stormwater management approach to the site. In the initial design phase our team had proposed oversized stormwater piping to capture stormwater and provide suitable pre-post development ratios for runoff. In addition to this, we had proposed 2 large structures for sanitary that connected to the municipal infrastructure on the other side of Rideau St. In evaluating the prices for these systems our team found that this was very inefficient and a better approach was to simplify the design. After conferring with the municipality a simpler solution was achieved which saved roughly \$200k from the construction budget.

While this is only one component of the feasibility findings, based on the findings noted in item b) above, the Feasibility Study found that the simpler solution was the best solution. The Municipality agreed and have since provided us with a Site Plan Control Agreement for the project.



**Lead Applicant's Next Steps**

**4**

# SUSTAINABILITY INITIATIVES



This section of Schedule E refers to the municipality being the lead applicant, and we will not speak for them. We can however offer our suggested next steps, and can confirm that the City of Kingston is taking action to implement this: that the municipality created incentive for developers to put sustainability at the forefront of their projects. We'd like there to be some sort of incentive program, to encourage owners and builders to outperform baseline building code minimums. Discussions are underway with the City of Kingston and they are actively seeking partners to help facilitate such programs.







## OUR RECOMMENDATIONS

For others interested in a similar Feasibility Study we can offer the following comments. The first is that the FCM Green Municipal Fund has been an enjoyable group to work with. Professional, helpful, and willing to work with us through each step of the process. The paperwork can be onerous but worth it in the end. Second, the process relative to the timing of construction and municipal approvals can be challenging. For instance, due to the abandoned and decrepit/unsafe state of the building when we purchased, we were put in a position where we needed to perform emergency stabilization construction on site before this report was complete. We expect this would be the case even for other projects that don't require emergency stabilization, as the approvals process can be long and drawn out, with opportunities for partial permits to be awarded for foundations for example. We are grateful for the flexibility shown to us by the Green Municipal Fund, and if we have any suggestions to make in this regard it would be to consider formalizing or quantifying this process a little more to anticipate these types of scheduling challenges alongside the Feasibility Study objectives.

We encountered zero barriers with the Feasibility Study, although we have found it somewhat complicated to complete this report as its completion does not necessarily coincide with all the eligible design work being completed. Once this report is complete and submitted, for example, we will still have further invoices and design work to perform as there are items such as environmental work that have a much longer time frame than we wish to wait on before completing this report and drawing on the eligible funds. In our case the amount of eligible funding far exceeds the maximum we are authorized to draw, but the point is that there are further complications schedule-wise when considering the Feasibility Study process relative to the design work quantified in the Work Plan.





## ONLINE INFORMATION

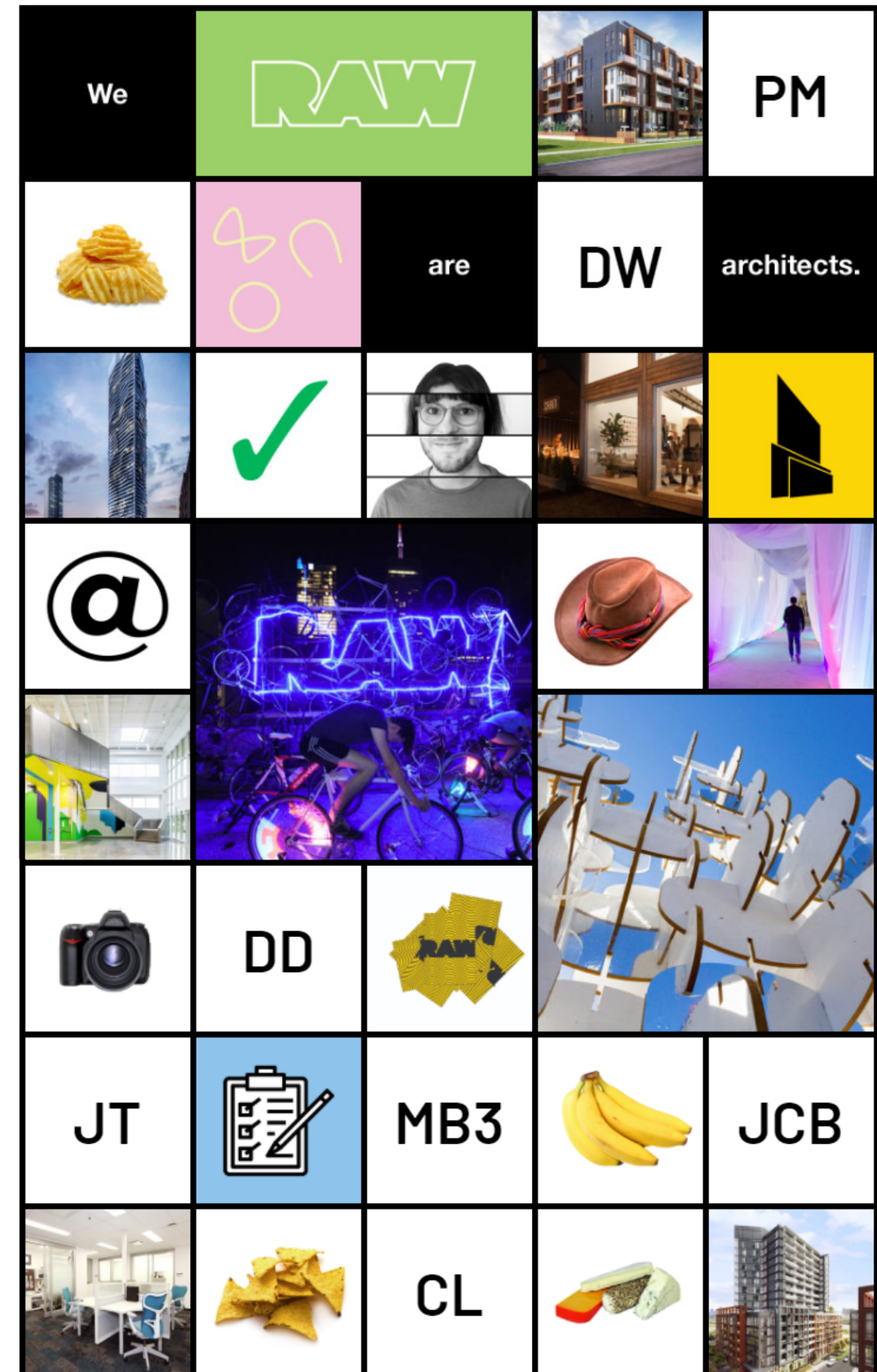
This Feasibility Study has resulted in a better connection with the municipality, as they are working towards improving the paths available to incentivize Net Zero Energy developments and sustainable solutions. There is an extensive portfolio of similar properties in the City of Kingston, and the hope is that our project will pave the way for future projects of this ilk.

visit [rawdesign.ca](http://rawdesign.ca) for more information about the project.

## FUNDING ACKNOWLEDGMENT

The preparation of this feasibility study was carried out with assistance from the Green Municipal Fund, a Fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.

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# SUPPORTING DOCUMENTS

All supporting documents can be found in an accompanied .zip folder:

- 1.1.1** P1 ESA North
- 1.1.2** P1 ESA South
- 1.1.3** P2 ESA North
- 1.1.4** P2 ESA South
- 1.1.5** Additional Drilling
- 1.1.7** RA South
- 1.1.8** DSS South
- 1.2.1** Sustainability
- 1.2.2** Energy
- 1.2.4** Heritage
- 1.2.5** Geotech
- 1.2.6** Civil
- 1.2.7** Mechanical
- 1.2.8** Electrical
- 1.2.9** Structural
- 1.2.10** Landscape
- 1.2.11** Architecture
- 1.2.12** Planning
- 1.2.13** Acoustics

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