TOWN OF COBOURG

NORTHAM INDUSTRIAL PARK-BUILDING #7 BUILDING CONDITIONS ASSESSMENT REPORT & SPATIAL FEASIBILITY STUDY PUBLIC WORKS & PARKS DEPARTMENTS





FINAL REPORT DECEMBER 2013





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PROJECT COSTING

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INTRODUCTION

During our Office's preliminary investigations during the various dates in July and August in addition to contact representatives from adjacent industries of supplied products and systems, as they pertain to this specific project, DG Biddle & Associates and Nick Swerdfeger Architects Inc. has begun a preliminary building conditions assessment of Building No.7 at the Northam Industrial Park, as it applies to the Re-Use possibilities for the relocation of the Town of Cobourg Public Work's Department.

The format of this report is organized as such through the applicable Architectural and Engineering disciplines and their respective components in how they apply to Site and Building. This report will begin with a series of observations and analysis of the current site and building systems as they exist in present day, as well as reference to the existing record drawings, prepared in 1954. Within these respective sections will identify major and minor issues that could impact the building's usage going forward.

The second part of this report will describe and document possible future RE-USE of the building as it pertains to the original program requirements set forth in the original RFP, and further requirements through the Town of Cobourg Public Works Department. At the conclusion of this section we have also added in a feasibility study, with associated costing at a schematic level, and units/square footage basis, which can be further investigated as the project progresses.











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CONDITIONS ASSESSMENT

SITE / CIVIL :

The Original site and Building was constructed in 1954 by the Federal Department of National Defence. This building would have been constructed following the requirements of the National Building Code which was the model building code at the time. The approximate site area is 1.62 ha, with a building area of 2960 m2.

With reference to the attached site plan, the current site is organized with maximum frontage, and landscaped area, while consisting of vehicular access on the north, south and west sides of the building. A CN rail spur exists to the building's south lot line, which is consistent with the buildings original usage as military storage. The majority of parking exists on the building's east frontage.

The current state of the site as it exists in present day shows a degradation of existing asphalt surfacing, and minimal storm water drainage found throughout the site. There are very large soil overburden piles and vegetative debris on site presumably stored by the current tenant, The Town of Cobourg Parks Department.

As well there three vehicular access ramps to the building's finished floor that have been installed at some point through building's ownership. Theses ramps along the West face of the building have been constructed to raise the grade approximately 1.2m and proving drivein access to the building. These ramps are on poor condition and should be reconstructed as their retaining structures are not adequate to support the existing and proposed vehicle usage. As the site will require extensive cleanup, resurfacing, and grading there is an opportunity to replace these ramps with compacted fill to achieve access to the buildings elevated floor slab as part of the proposed site and building revitalization project.

As the intended use for this building is partially as for vehicular repair and maintenance/cleaning, the installation of oil interceptors will be required to intercept the existing and proposed floor drains. Their use will be dictated by the intensity of use and where specific localized vehicle maintenance/cleaning is to occur. The conditions of the existing site services are unknown at the time of writing this report. While planning and designing for the proposed use of this building the condition of these services should be evaluated to determine their suitability.

Soft-Landscape surfaces should/could be increased and upgraded to allow for possible storm water strategies.

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ARCHITECTURAL:

With the original construction of the building in 1954, built for the ministry of defence, preliminary the building conditions were suitable and had met or exceeded models for construction of a defence and storage facility the National Building Code of Canada, which was the model building code at the time. The current facility is considered to be a Low Hazard F-3 Occupancy, storage warehouse facility. The current building area of 31,866 square feet with a small mezzanine area of 500sq. ft and a central truck loading bay of 1000 sq.ft approx. 4 feet below the finished floor. The current finished floor is located approximately 4 feet above the parking lot grade, and has pedestrian access through a ramp at the south and north ends of the east building faces. With respect to vehicular access to the interior of the building, the south west corner, currently occupied by the parks department, is serviced through a ramp (constructed of asphalt and concrete retaining walls, which seemingly is in need of demolition and more adequate construction methodologies to accomplish the proper use. In addition, the adjacent occupied unit to the north is also serviced through a similar vehicular access ramp, which again should be replaced.

With respect to architectural issues and existing conditions the following sub-categories should be acknowledged with their respective identification of component issues. In addition, an overall assumption of works to be performed for the proposed design solution(s) will be included.

Building Envelope

The originally designed building envelope is constructed from 12" concrete masonry units with reinforced concrete structural system of beams and columns. (see structural sections). The building envelope assembly also contains occasional punch windows, at various clerestory locations. The wall construction assembly as referenced on the previous page(s) is an uninsulated assembly which can challenge the future use of the building. Referencing part 11 of the Ontario Building Code, and current ASHRAE standards as they pertain to renovations and minor change of occupancy, Our office feels that there is need of building envelope upgrades in selective areas, as they pertain to the conceptual design.

Areas that are requiring improvements with respect to building envelope issues are as follows;

- Administration Areas (all exterior walls, windows, doors and associated penetrations) will require extensive upgrades with respect to ASHRAE 90.1 and the Ontario Building Code 2006.
- All shop area clerestory windows need full replacement as they are not adequate for permanent occupancy.
- Shop area doors, are found to be inadequate for new occupancy and should be replaced for new and future use.

Roofing Systems

The originally designed roofing system is a 20yr built-up bitumen roofing systems, all issues with respect to the roofing system of building no.7 should consult the current roofing system report provided by Building No.7's landlord. Any additional work/upgrades and repairs with respect to the roofing system, should consult the roofing report, prior to execution of any work(s).

Areas requiring further investigation that are applicable to the future occupancy are as follows;

- -All new penetrations with respect to mechanical systems introduced to satisfy new occupancies, and associated roof curbing/drainage.
- Insulation systems with respect to heat loss will require further investigation.





Building Code & Accessibility Issues

Through a brief analysis of egress and life safety systems Building No.7 is equipped with the appropriate systems allowing for current and future use. Adequate egress systems through existing is positioned in the appropriate locations, with acceptable travel distances, as they pertain to the current and proposed use of a low hazard industrial occupancy (F-3) with reference to the Ontario Building Code. The travel distances in the building are also assisted through the current sprinkler systems which allows for increased Gross Floor Area and travel distances between points of egress and exiting. Additional provisions will have to be made for the requirements of a vehicular storage garage, and associated building code requirements from section 3.1 OBC 2006.

With respect to accessibility the Town of Cobourg as well as the Province of Ontario has mandated all public facilities to be barrier free accessible, through entries, washrooms, and occupied spaces set forth in section in section 3.8 OBC 2006. The current entry systems do not meet these standards and will have to be augmented for future public use capabilities.

With respect to the current conditions and the anticipation of future occupancy use, the following items will require attention and applicable upgrades;

- Exiting and Emergency Lighting
- Sprinkler Systems testing and commissioning.
- Smoke alarms and fire safety systems applicable to the office administration area.
- New plumbing systems for barrier free accessibility and occupancy numbers
- New accessibility with respect to the building type and use, focusing on barrier free accessible issues applicable to sect 3.8
- Accessible entry and associated site works, to achieve accessible entry to office administration and public areas.

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KEY POINTS FOR DISCUSSION IN RELATION TO ARCHITECTURAL & ACCESSIBLE ISSUES:

- Review of Building Egress and Exiting through life safety systems approach and OBC Matrix Part 11 -Renovation
- Review of current and proposed accessibility standards, application to AODA and OBC 2006, as well as new Ontario Building Code 2014.
- More intensive study of current roofing system status, with industry roofing consultant and appropriate measures of rehabilitation/repair
- Insulation strategies and application to desired new occupancies (Office Administration Area) and new heated spaces within the existing envelope.
- New Vehicular access openings, locations and appropriate interior vehicular access routes, drive thru possibilities and vehicle storage.
- Vehicle maintenance bays, locations and organization.
- Integration of new building systems and HVAC, Structural, Fire/Life Safety
- Interior Day lighting strategies through glazed elements- office administration area, vehicular storage areas/repair area, more desirable work environments.

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STRUCTURAL:

Our office has performed a cursory inspection of the architectural, structural, mechanical and electrical systems of Building No.7 at the Northam Industrial Park, Cobourg, Ontario. We have evaluated the condition of these observable systems and made comments with regard to its serviceability and general condition as well as compliance with the Ontario Building Code (OBC) and conformance to the acceptable standards of these building systems.

Currently this building is occupied with two separate tenants, the classification of both are F2 Industrial uses as defined by the Ontario building Code. This single story industrial building is approximately 2960 m2 (31866 ft2). It was constructed in the 1950's by The Department of National Defense as part of the Northam Industrial complex. It is constructed with precast concrete roof slabs, girders and columns with masonry block infill which forms both the exterior and interior demising walls. The building is founded on concrete grade beams and deep foundation piles.

Additional column support has been added to the long span girders at the long span beam haunches. Upon reviewing the buildings structural design it is clear that the beams have been constructed with very little shear reinforcement, judging by today's standards. As well, we noted a shear failure in one of the concrete girders which probably precipitated the additional support at the beam haunches. These additional steel columns are necessary and can not be removed in order to improve the interior open floor plan. As well, further investigation should be undertaken to verify that this work have been carried our under the supervision of an engineer. As these concrete girders are potentially post tensioned structures, this shear failure may have been the result of a failure of the post tensioned tendons which would require further reinforcing of the girder structure themselves which has not been completed.

Aside from this noted structural issue, we have concluded that generally, this building is structurally sound and is in reasonably good condition. It has been well maintained and has no observable deferred maintenance.



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MECHANICAL:

Building mechanical systems have evolved since the original construction of this building. Currently ceiling hung infrared tubes act as the main heating source in the adjacent tenant space, however, asbestos insulated service piping remains abandoned as well. The office area is heated by a medium sized roof top unit which also provides cooling. In the current Public Works area there is no heating source in the vehicular area, whereas the office area is maintained by a small roof top air handling unit. Both tenant spaces are equipped with large exhaust systems in which the current state of repair has yet to be determined.

Existing plumbing systems are minimal in nature and no trench drains, oil interceptors or other fixtures associated with a vehicular storage area are present. These items would need to be added in any retrofit scenario.

Key areas for discussion with respect to the existing and new retrofit strategies with respect to a proposed building occupancy are the following;

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ELECTRICAL:

The main electrical room in the north west corner of the tenant space is fed from an existing overhead service line which runs over from north of the driveway. This line is relatively low (18-20') and based on equipment along this driveway the tenant may want to attach warning signage. The existing pad mounted transformer (347/600V) on the north side of the driveway is shielded from view by overgrown foliage, however, if this roadway is to be used as a main thoroughfare bollards should be installed to protect the transformer. Existing service size is sufficient to service any renovation scenario.

Overhead lighting in the adjacent tenant space is a high bay High Pressure Sodium or Metal Halide type and should be replaced with any of the existing replacement incentive programs currently available. The lighting in the adjacent tenant space office area is also out of date and will require a ballast replacement to convert between the existing T-12 bulbs to the considerable more efficient T-8 lighting.

Key areas for discussion with respect to the existing and new retrofit strategies with respect to a proposed building occupancy are the following;

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ELECTRICAL:

The original sprinkler system remains intact throughout both sections of the building along with standpipe. Several standpipe locations seem suspect and may have been installed at a later time to accommodate for different layouts over the life of the building. The main fire protection valve station is in a caged enclosure very near to a potential vehicular door opening in a renovation scenario, in this case the caged enclosure should be removed in lieu of a room at that time.

The buildings fire alarm system consists of bell audio devices which would most likely require conversion to horns with strobes in most renovation scenarios. There is currently limited man-door access to the building, however, as additional entrances are added the existing fire alarm control panel and associated annuniciator panel may need to be increased to suit the added alarm and pull station devices. Likewise, the existing emergency lighting is minimal to reflect the existing floor plan and additional light heads and battery packs will be required to match any proposed renovation works.

Key areas for discussion with respect to the existing and new retrofit strategies with respect to a proposed building occupancy are the following;

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PROJECT VISION

For the Town of Cobourg Work's Garage Assessment and Needs project we believe by developing open communication and design strategies through the IDP (Integrated Design Process) with the Town of Cobourg Public Works Department will allow us to achieve a comprehensive preliminary design solution. Through the integration of workshops and design meetings with you, we can collectively develop a complete spatial strategy for the Roads and Parks department at Unit#7, in Northam Industrial Park Cobourg.

In spatial planning with respect to the public works facility, the site is as important, as the function of the building. Preliminary we have developed a set of key principles to which the site at Unit#7 should/ could function with the integration of the Parks and Roads Public Works Departments;





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VEHICULAR CIRCULATION .

- SITE SAFETY .
- FUNCTIONAL EFFICIENCEY .
- INTRERIOR WASHDOWN/MAINTENANCE . AREAS
- EXTERIOR STORAGE FACILITIES .
- SUPPLIES/ PICK UP

KEY -SITE STRATEGIES



SITE STRATEGIES STUDY-LEGEND



CIRCULATION ROUTES ADMIN/PUBLIC PARKING PARKS OUTDOOR STRORAGE ROADS OUTDOOR STRORAGE

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PROJECT VISION-SITE





PROJECT VISION-SITE







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PROJECT VISION-

PROJECT VISION- SPATIAL PLANNING

PROGRAMMATIC SPATIAL BREAKDOWN



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PROJECT VISION-SPATIAL PLANNING By developing a needs criteria and spatial inventory our design team will work with Town of Cobourg Public works to develop a wholistic building/spatial programming strategy. By encompassing all key site strategies as well as functional Work's department process(s) and circulation within the current operations facility, one can dedicate areas and spatial programming toward a list of importance, and dedicate their spatial configurations in coordination with other programs.

INTERIOR WASHBAY . MODERN ADMINSTRATION FACILITIES

> . VEHICLE STORAGE

WORKER SAFETY

- . FUNCTIONAL EFFICIENCY
- . SPATIAL EFFICENCY OF DEPARTMENTS

KEY SPATIAL PLANNING STRATEGIES

INTEGRATED VEHICULAR MAINTENANCE

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PROJECT VISION- SPATIAL PLANNING-SCHEME 2



PROJECT VISION-CONCLUSION

We trust that by working with the Town of Cobourg Public Works and developing an integrated vision of Site-Building-Functional Programming, we can develop a string design solution for the RE-Use of Unit#7 at the Northam Industrial Park. By integrating spatial, functional and sustainable objectives, will comprehensively increase the usability of the spatial study and building, thus putting the project above a basic utilitarian needs. With this comprehensive planning the Town of Cobourg will also develop a more functional, aesthetic and pleasing working environment for it's staff, residents and additional stakeholders to experience.

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PROJECT COSTING SUMMARY

The following costing summary provides unit cost applied to the prospective design project, within the desired scope of the project at this time. Please note that these units are provided as an order of magnitude and have not been determined as an accurate costing to reflect a finalized design concept.

The overall costing of the prospective design for the renovation of Building No. 7 at the Northam Industrial Park for the Town of Cobourg Public Works is \$3,611,873.28 inclusive of all site alteration costs within our knowledge and scope of the desired design at this stage. In general we can conclude that this amount with an inclusive 15% contingency is reasonable for this scale and type of project. Comparatively to construct at new and similar type of use building is approximately \$261.95 per square foot. Overall this would result in a project cost of \$9,430,200.00 not inclusive of any site alteration costs, based upon Hanscomb Construction Cost Data.

Therefore we feel the town should further pursue this option and develop a more detailed schematic design, and thus detailed costing toward the project.

Preliminary Costing - Town of Cobourg Public Works-Building No. 7 Northam Indsutrial Park

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PROJECT VISION- CONCEPTUAL AXONOMETRIC

PROJECT VISION- CONCEPTUAL FRONT PERSPECTIVE

The following costing summary provides unit cost applied to the prospective design project, within the desired scope of the project at this time. Please note that these units are provided as an order of magnitude and have not been determined as an accurate costing to reflect a finalized design concept.

The overall costing of the prospective design for the renovation of Building No. 7 at the Northam Industrial Park for the Town of Cobourg Public Works is \$3,611,873.28 inclusive of all site alteration costs within our knowledge and scope of the desired design at this stage. In general we can conclude that this amount with an inclusive 15% contingency is reasonable for this scale and type of project. Comparatively to construct at new and similar type of use building is approximately \$261.95 per square foot. Overall this would result in a project cost of \$9,430,200.00 not inclusive of any site alteration costs, based upon Hanscomb Construction Cost Data.

Therefore we feel the town should further pursue this option and develop a more detailed schematic design, and thus detailed costing toward the project.

Overall we feel the Town of Cobourg should pursue the re-use of the Building No.7 at the Northam Industrial Park for their intended use, as the existing building will suit their functional needs to re-locate a consolidated public works and parks department facility. However, in addition to this recommendation we feel that further investigation be taken toward the structural issues regarding the existing condition of the building (see structural section), before proceeding, to determine the overall structural integrity of the issues that have been raised.

NS

Since

Nicholas B. Swerdfeger, OAA MRAIC

David D. Biddle, P.Eng

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