City of Kingston
Information Report to Council
Report Number 21-221

To:	**Mayor and Members of Council**
From:	**Paige Agnew, Commissioner, Community Services**
Resource Staff:	**Tim Park, Director, Planning Services**
Date of Meeting:	**September 21, 2021**
Subject:	**Former Davis Tannery Lands – Proposed Remediation of the Provincially Significant Wetland**

Council Strategic Plan Alignment:

Theme: Council requests

Goal: See above

Executive Summary:

The former metal smelting and tannery operations and uncontrolled filling have left a legacy of profoundly contaminated soils and groundwater over the majority of the former Davis Tannery lands, which include portions of the Greater Cataraqui Marsh Provincially Significant Wetland.

On August 10, 2021, Council requested staff to provide an information report by the end of Q3 2021, outlining the policy challenges of remediating a contaminated wetland, and providing options and advice for how, if possible, the City could facilitate proposed remediation of the portions of the Provincially Significant Wetland that exist on the former Davis Tannery lands. Council also requested a map showing the ownership of the area abutting the wetland and the shoreline, and costs associated with the City hiring a hydrogeologist or similar scientist and an environmental lawyer.

This report includes a discussion of the policy challenges of remediating the Provincially Significant Wetland as it relates to the *Planning Act* and the *Conservation Authorities Act;* and outlines the potential options to facilitate the remediation of the wetland and the future redevelopment of these lands. An ownership map and an estimate of the costs associated with the City hiring two professionals as noted above, are also included. The report also includes a

discussion of the potential considerations regarding the ability to retain an existing significant Oak tree on the property.

Recommendation:

This report is for information only.

Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

Paige Agnew, Commissioner,
Community Services

ORIGINAL SIGNED BY CHIEF
ADMINISTRATIVE OFFICER

Lanie Hurdle, Chief
Administrative Officer

Consultation with the following Members of the Corporate Management Team:

Peter Huigenbos, Commissioner, Business, Environment & Projects	
Brad Joyce, Commissioner, Corporate Services	Not required
Jim Keech, President & CEO, Utilities Kingston	Not required
Desirée Kennedy, Chief Financial Officer & City Treasurer	Not required
Sheila Kidd, Commissioner, Transportation & Public Works	

Options/Discussion:

Background

On December 27, 2017, applications under the *Planning Act* for Official Plan amendment, zoning by-law amendment and draft plan of subdivision (File Number D35-009-2017) and amendment to the Brownfields Community Improvement Plan (File Number D09-005-2018) were submitted by IBI Group Incorporated on behalf of Jay Patry Enterprises Inc., with respect to the lands located at 2 River Street, 50 Orchard Street and an adjacent unaddressed water lot. The applications propose residential, commercial, environmental protection area and open space uses on the property.

The property located at 2 River Street is the site of the former Davis Tannery. The property has been vacant since the buildings were demolished in the 1980s. The subject lands are located along the western shore of the Great Cataraqui River/Rideau Canal. A portion of the Greater Cataraqui Marsh Provincially Significant Wetland is located on and adjacent to the subject lands (Exhibit A). The lands, including the Provincially Significant Wetland, are heavily contaminated as a result of the past industrial activity and will require significant remediation before they can be redeveloped.

On August 10, 2021, Council passed the following motion related to the proposed remediation of the portion of the Greater Cataraqui Marsh Provincially Significant Wetland that exists on the former Davis Tannery lands:

> **Whereas** historic tanning and smelting operations on the former Davis Tannery lands, municipally known as 2 River Street and 50 Orchard Street, have left high concentrations of heavy metals and other contaminants within the upland and wetland portions of the property that includes a portion of the Greater Cataraqui Marsh Provincially Significant Wetland; and
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> **Whereas** the concentrations of contaminants observed within portions of the wetland present risks to aquatic and terrestrial wildlife and are incompatible with safe parkland use; and
>
> **Whereas** the redevelopment of the former Davis Tannery lands requires environmental remediation of legacy soil and groundwater contamination in accordance with Ontario law; and
>
> **Whereas** on July 13, 2021, Council approved an application for financial assistance for environmental remediation costs through the City's Brownfields Community Improvement Plan for the former Davis Tannery property; and
>
> **Whereas** a remediation of contaminated portions of the former Davis Tannery wetlands could assist in preventing further contamination of Kingston's Inner Harbour and thereby support the Federal government's commitment to clean-up contaminated river sediments within the Inner Harbour; and

Whereas the Provincial Policy Statement and the City's Official Plan do not permit development or site alteration within a Provincially Significant Wetland, which presents a barrier to the proposed remediation work on the former Davis Tannery, and

Whereas the proposed partial clean-up of the wetland may leave contaminants in the wetland which can be expected to continue to flow through the wetland after the remediation work with a risk that contaminants may migrate to the river; and

Whereas the proposal brought by the applicant to Planning Committee on August 5, 2021, envisages the city taking over ownership of several meters of the shoreline buffer and portions of the wetland;

Therefore Be It Resolved That City staff be requested to provide an information report to Council by the end of Q3 2021:

a. outlining the policy challenges of remediating a contaminated wetland, and providing options and advice for how, if possible, the City could facilitate the owner's proposed remediation of the portions of Greater Cataraqui Marsh Provincially Significant Wetland that exist on the former Davis Tannery lands;
b. providing a map that shows the ownership of the areas abutting the wetlands and shoreline to clarify the stakeholders with a direct interest in the remediation work;
c. advising on the costs of the city's hiring a hydrogeologist or similar scientist with expertise in the movement of groundwater, especially through a contaminated area, relating to the site in its current state today and relating to the site as it is developed and then completed as shown in the proposed Phase 1 to Phase 4 plans; and
d. advising on the costs of the city's hiring a lawyer with expertise in the liabilities a municipality might face when taking over the ownership of a wetland and waterfront buffer on a property with a history of contamination.

This report includes a discussion of the policy challenges of remediating the Provincially Significant Wetland as it relates to the *Planning Act* and the *Conservation Authorities Act;* and outlines potential options to facilitate the remediation of the wetland and the future redevelopment of these lands. An ownership map and an estimate of the costs associated with the City hiring two professionals as noted above, are also included.

Timeline of Previous Council and Committee Reports

For background purposes, below is a timeline of various reports presented to Council and Planning Committee with respect to the proposed remediation and redevelopment of the former Davis Tannery lands since the submission of the *Planning Act* applications.

- March 8, 2018 – A Statutory Public Meeting was held regarding the applications for Official Plan amendment, zoning by-law amendment and draft plan of subdivision and amendment to the Brownfields Community Improvement Plan (Report Number PC-18-021).

- November 19, 2019 – An information report was presented to Council with a revised development concept for the subject lands (Report Number 19-295).

- December 17, 2019 – Subject to the owner successfully completing the *Planning Act* approval process, Council supported in principle an enhanced approach to Brownfield funding, and waived the requirement for the owner to obtain a Tree Permit and to provide Community Benefits (Report Number 20-002).

- September 17, 2020 – A Public Meeting and Comprehensive Report regarding the amendment to the Brownfields Community Improvement Plan (D09-005-2018) was presented to Planning Committee (Report Number PC-20-058).

- October 6, 2020 – Council approved the amendment to the Brownfields Community Improvement Plan.

- July 13, 2021 – Council approved Brownfield financial benefits of up to $63,888,235 in eligible costs to the owners of the subject lands in exchange for the remediation and redevelopment of the property; approved a by-law to establish the property as eligible to receive future property tax rebates under the Tax Increment Rebate Grant Program and exemptions from up to 50% of development charges subject to a Brownfield Site Agreement; and authorized the execution of the Agreement (Report Number 21-188).

- August 5, 2021 – A second Statutory Public Meeting was held regarding the applications for Official Plan amendment, zoning by-law amendment and draft plan of subdivision (Report Number PC-21-050).

Policy Challenges of Remediating the Provincially Significant Wetland

As noted previously, the former Davis Tannery lands, including the portion of the Greater Cataraqui Marsh Provincially Significant Wetland located on the lands, are heavily contaminated as a result of the past industrial activity and will require significant remediation before any future redevelopment of the site. Some reports identify the name of this portion of the wetland as the Orchard Street Marsh, although the Province's GeoHub portal refers to this wetland as the Greater Cataraqui Marsh Provincially Significant Wetland.

A letter dated March 10, 2020 from XCG Consulting Limited, submitted in support of the *Planning Act* applications, states that, "The concentrations of contaminants on the property pose risks to humans and ecological receptors such as plants, birds, mammals, and amphibians. With respect to conditions in the wetland, the contaminated sediment in the Orchard Street Marsh poses a risk to aquatic species and other animals that inhabit or frequent the marsh. Furthermore, the marsh sediment has the potential to be released during storm events and wash into the Cataraqui River, resulting in increased risks to aquatic species in the river and to humans who use the river for recreational purposes." This letter is included in Exhibit B of this report. The consultant recommends the placement of capping over top of the existing contaminated sediment as the preferred remedial option for the wetland located at the former Davis Tannery lands as it would be the least disruptive, least costly, and lowest risk way of

encapsulating the contamination and preventing it from being an ongoing contributor of contamination to the less-impacted eastern portion of the wetland and to the Great Cataraqui River. The proposed remedial approach for the remainder of the property includes capping, selective excavation and capping, and full excavation.

The Provincial Policy Statement (PPS) is the primary provincial land use policy document guiding municipal decision-making. Section 1.1.3.3. requires that planning authorities identify appropriate locations and promote opportunities for transit-supportive development, accommodating a significant supply and range of housing options through intensification and redevelopment where this can be accommodated taking into account existing building stock or areas, including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs.

While Section 1.7 of the PPS promotes the redevelopment of brownfield sites, Section 2.1.4 does not permit development and site alteration in a provincially significant wetland. As noted in the City's Official Plan, provincially significant wetlands are determined by the Ministry of Natural Resources and Forestry and their boundaries may only be altered with approval from the Ministry. There is no direction in the PPS or in the City's Official Plan specifically on remediation of a contaminated provincially significant wetland.

Site alteration is defined in the PPS and in the City's Official Plan as activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site. Remediation is not considered to be a land use, but an activity that would meet the definition of "site alteration".

Throughout the planning process, staff, in collaboration with the applicant, have had several meetings with staff from the Ministry of Natural Resources and Forestry (MNRF) and Cataraqui Conservation regarding the adjustment of the Provincially Significant Wetland boundary to allow for the necessary remediation and to facilitate the proposed redevelopment (some key dates being July 5, 2018, October 17, 2018, March 10, 2020, and January 29, 2020). Staff have also had discussions with Ministry of the Environment, Conservation and Parks (MECP) staff, and met with staff from the Ministry of Municipal Affairs and Housing (MMAH) on September 9, 2020 and March 25, 2021.

In a letter dated October 29, 2020, the MNRF expressed its continuous support of "the positive outcomes proposed by this project for the natural environment and the people of Ontario" and its commitment to assisting this project towards success; however, they indicated that they do not have the flexibility to proactively adjust the Provincially Significant Wetland boundary to allow for capping of the contaminated areas (Exhibit D). The MNRF indicated that the area continues to be classified as part of a Provincially Significant Wetland despite the contamination present. The MNRF also indicated that the MNRF's wetland evaluation procedure does not address or accommodate situations where development or site alteration is proposed in a contaminated area that is also part of a Provincially Significant Wetland and that making an exception to this practice could set a precedent.

The *Planning Act* requires that decisions on land use planning matters "be consistent with" the PPS. The redevelopment of the subject lands will require remediation of the Provincially Significant Wetland. As noted above, the boundary of the Provincially Significant Wetland may only be altered with approval from the MNRF. Without the proactive wetland boundary adjustment, the City cannot grant planning approvals for the redevelopment of the subject lands as this contravenes the PPS and the City's Official Plan.

However, under the *Conservation Authorities Act*, site alteration within the wetland could proceed independent of the planning approvals process provided that a permit from Cataraqui Conservation is obtained under *Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses,* passed under Section 28 of the *Conservation Authorities Act*. On the subject property, this regulation applies to the lands within 120 metres of the wetland and within 15 metres of the regulatory floodplain of the Great Cataraqui River (whichever is the greater distance). The purpose of this regulation is to ensure that proposed changes (for example, development and site alteration) to a property are not affected by natural hazards, such as flooding and erosion, and that the changes do not put other properties at greater risk from these hazards. The purpose of the regulation is also to ensure that the hydrologic function of wetlands is protected from interference.

As per Section 2.3 of Cataraqui Conservation's Guidelines for Implementing Ontario Regulation 148/06, to receive permission to interfere with a wetland, it must be demonstrated in an application, to the satisfaction of Cataraqui Conservation, that the interference on the wetland is acceptable in terms of the natural features and hydrologic and ecological functions of the wetland. Also, as noted in Section 9.4.1 of this guideline, in general, development and interference shall not be permitted within wetlands. Cataraqui Conservation staff acknowledge that the permit approval for the proposed remediation of the wetland is integral to the overall feasibility of the development, but have noted that further assessment of hydrologic/hydraulic impacts and the efficacy and overall feasibility of the wetland remediation approach is necessary before staff are at an appropriate comfort level with planning approvals proceeding. Cataraqui Conservation staff have provided the applicant with a list of requirements for permit review and continue to work with the applicant in this regard.

Potential Options to Facilitate Remediation of the Wetland

Staff have identified the following options outlined below in no particular order to facilitate the proposed remediation of the Provincially Significant Wetland. As noted in Report Number 21-188, environmental remediation of the property will need to be in accordance with a site-specific risk assessment that must be completed by a qualified person and approved by the Ministry of the Environment, Conservation and Parks (MECP).

Option 1 – Minister's Zoning Order

In the absence of the proactive wetland boundary adjustment by the MNRF and in consideration of the policy challenges identified above, a Minister's Zoning Order (MZO) is a tool that could be requested to facilitate the remediation of the wetland and the redevelopment of the former Davis Tannery lands. As noted previously, the remediation of a Provincially Significant Wetland is not

contemplated in planning policy. Although the outcome of the remediation of the contaminated wetland and the proposed redevelopment of the subject lands would help to achieve a number of City-wide public interest goals including the remediation of a significant brownfield property, improved environmental health of the wetland, creation of additional housing units, provision of additional public amenity and waterfront access, City Council cannot grant planning approval for the redevelopment of the former Tannery property without the enacting by-laws being in contravention of the Provincial Policy Statement and the City's Official Plan.

Section 47 of the *Planning Act* gives the Minister of Municipal Affairs and Housing the authority to control the use of any land in the province by issuing a zoning order. MZOs can be used to protect a provincial interest or to help overcome potential barriers or delays to critical projects. Amendments made to Section 47 of the *Planning Act* through *Bill 197, the COVID-19 Economic Recovery Act, 2020*, provide more powers to the Minister's authority to zone property across the Province, except for lands within the Greenbelt Area. It is noted that the City of Kingston does not fall within the Greenbelt Area. The enhanced authority allows the Minister to use inclusionary zoning and agreements to require affordable housing; remove municipal Site Plan Control authority; require agreements between the municipality and development proponent (or landowner) concerning site plan matters; and amend an enhanced zoning order without giving public notice.

Through Bill 257, *Supporting Broadband and Infrastructure Expansion Act, 2021*, the Province further amended the *Planning Act* so that an MZO does not need to be consistent with the PPS, provided that the subject lands are located outside of the Greenbelt Area.

Additionally, through *Bill 229, Protect, Support and Recover from COVID-19 Act (Budget Measures), 2020,* the Province amended the *Conservation Authorities Act*, which included new regulations related to MZOs. Section 28.0.1 of the *Conservation Authorities Act*, as amended, applies to a development project that has been authorized by an MZO under the *Planning Act*, within an area regulated under Section 28(1) of the *Conservation Authorities Act*, outside of the Greenbelt Area. The provisions of Section 28.0.1 require a conservation authority to issue a permit where an MZO has been issued. The conservation authority may only impose conditions on the permit, including conditions to mitigate the following: any effects the development project is likely to have on the control of flooding, erosion, dynamic beaches or pollution or the conservation of land; any conditions or circumstances created by the development project that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property; or any other matters that may be prescribed by regulation.

The MZO process is unique from other land use planning approvals outlined within the *Planning Act* in that there is no formal public notification, consultation, or public right of appeal. The Minister is not required to give notice or hold a public hearing prior to making an order but is required to provide notice within 30 days of making an MZO with the notice being provided in a manner determined by the Minister. Applications can be made to amend or revoke an MZO and the Minister may refer the applications to the Ontario Land Tribunal (OLT) for a recommendation on whether the MZO should be amended or revoked. The Minister is not compelled to amend or revoke any order or implement the recommendations from the OLT.

The Minister of Municipal Affairs and Housing has ultimate authority over the content of an MZO. If there is a conflict between an MZO and a municipal by-law, the MZO prevails. The municipal by-law remains in effect in all other respects.

An MZO cannot be used to amend the Official Plan, however it can implement the zoning framework to allow for the redevelopment of the property for residential, commercial, environmental protection area and open space uses. As noted previously, an MZO does not need to be consistent with the PPS. Implementing a zoning framework on the property through an MZO would allow for the remediation to occur.

While an MZO approach is a departure from the normal planning process, such an approach may be well-suited in response to the unique challenges of this site and in response to an opportunity for comprehensive remediation of the site given the severity and extent of the contamination. Should Council wish to proceed with this option, the typical process would be to make a request to the Honourable Minister Steve Clark, Minister of Municipal Affairs and Housing, through the passage of a Council motion, for an MZO to allow for the redevelopment and remediation of the former Davis Tannery lands. The planning applications for the subject lands are currently under technical review. A second Public Meeting was held on August 5, 2021.

Should Council want to proceed with an MZO, staff's recommendation would be that upon the conclusion of the technical review and public consultation process Planning Services staff be directed by Council to prepare a draft by-law for the proposed zoning by-law amendment, taking into consideration the public feedback received, and this draft by-law be forwarded to the Minister as part of the request for the MZO. The draft by-law would include the performance standards for the built form of the proposed development. This approach would ensure that Council has an opportunity to review the draft by-law before it is provided to the Minister. The owner of the subject lands will still be required to obtain draft plan of subdivision approval and site plan control approval from the City prior to commencing any development on the lands. Site plan applications can be 'bumped up' to Planning Committee for review through a resolution of Council.

However as noted above, the Minister has ultimate authority over the content of an MZO and also has complete discretion over whether to proceed with issuing an MZO.

Option 2 – Remediation outside of the planning process

The other option could be that the owner proceeds with the proposed remediation of the subject lands, including the wetland, outside of the planning process. This would require the owner to obtain a permit from Cataraqui Conservation under *Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*: As noted previously, Cataraqui Conservation staff have provided the applicant with a list of requirements for permit review. It is likely that the applicant will need to seek approval for the remediation work from Cataraqui Conservation's Board as part of a permit hearing – a process enabled by Section 28 of the *Conservation Authorities Act*. If and when a permit is approved and the remediation work completed, the owner could then request that the MNRF adjust the boundary

of the Provincially Significant Wetland. Adjustment of the Provincially Significant Wetland boundary could enable the applicant to obtain planning approvals for the portion of their lands that would have been formerly within the wetland and associated buffer areas.

However, given the high financial risk and uncertainty as planning approvals would not yet have been granted, it is unlikely that the owner would choose this approach.

Option 3 – Leaving the wetland as is

The letter from XCG Consulting Limited identifies a “do nothing” approach that would involve leaving the wetland area as is, and not undertaking any form of remediation in this area (Exhibit B). The letter notes that the exposed contaminated sediments pose a hazard to ecological receptors that come into contact with them, and also represent a risk to areas downgradient, including the Great Cataraqui River, due to their potential to be released during storm events and wash downstream. The letter indicates that continuing migration of the wetland contamination to the Great Cataraqui River is expected to contribute to the ongoing worsening of sediment quality conditions in the river, and as such, the “do nothing” approach is not recommended by XCG Consulting Limited.

This approach would require the owner to revise the development concept from that presented at the August 5, 2021 Planning Committee meeting. The revisions would require relocation of the proposed road network to the north and the Phase 3 and Phase 4 buildings. The revisions may impact the design and location of other buildings and proposed open space areas as well (Exhibit E). Remediation of the remainder of the site (outside the Provincially Significant Wetland) would still be necessary, which is likely to include a substantial portion of the eastern shore along the Great Cataraqui River.

The Regulation of Environmental Remediation in Ontario

The remediation of contaminated land in Ontario is regulated by the *Environmental Protection Act* (EPA) and more specifically by *Ontario Regulation 153/04*, Records of Site Condition (the Brownfields Reg.). Any proposed change in land use from a less sensitive (i.e., commercial or industrial) to a more sensitive (i.e., residential or parkland) use must be supported by a Record of Site Condition (RSC). An RSC is a document completed by a Qualified Person (typically a Professional Engineer) that certifies the environmental condition of a property is suitable for the proposed more sensitive use. In the case of contaminated lands, RSCs can only be completed once remediation of contaminants has been completed so that unacceptable risks to human health and the environment are no longer present.

In Ontario, remediation of soil and groundwater contamination can be accomplished in one of two ways:

- Generic Approach - A property may be remediated by removing contaminated soils or groundwater to an extent required that the quality of the remaining lands and groundwater comply with the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (the Standards). The Standards

provide acceptable concentrations for numerous contaminants and are developed to be highly conservative so that they may be used broadly at many types of contaminated sites. In generic remediation projects, soil and groundwater are typically excavated or pumped away and removed from the property to a licensed waste disposal facility. Contaminated soils and groundwater might also be treated on site using a treatment system that has received an Environmental Compliance Approval (ECA) from the MECP.

Phase 1 and 2 of the Tannery project (southeast and southwest quadrants) are the least contaminated portions of the property and are proposed to be remediated using a generic approach.

- Risk Assessment – In situations where the complete removal of all soil or groundwater contamination is impractical or impossible, proponents may develop their own property-specific remediation standards based on site-specific characteristics. These standards can be used as clean-up targets or to develop risk management measures to reduce risks to acceptable levels. Risk assessments must be conducted by Qualified Persons with expertise in risk assessment (QPRA) using a risk assessment model that has been developed and approved by the Province of Ontario. All risk assessments must be reviewed and approved by the MECP before an RSC can be completed. In situations where risk assessment identifies the need for engineering controls to reduce risk, the specifics of those controls are placed into a Certificate of Property Use (CPU) that is issued by the MECP and must be placed on the title record of the property. Engineering controls associated with risk assessment depend on the types of contaminants present and the type of new development proposed, and can include items such as:

    - Capping over contaminated soils or shorelines to prevent exposure to people, wildlife or plants,
    - Ventilation or pressurization of indoor spaces to prevent accumulation of vapours,
    - Pumping and/or ongoing treatment of contaminated groundwater to prevent its movement to the environment,
    - Long-term monitoring of environmental conditions to ensure expected performance of engineering controls.

  In many cases, a property may be remediated by a combination of contaminant removal and risk assessment. Phases 3 and 4 of the Tannery redevelopment propose using a combination approach. The undeveloped wetland portion at the north end of the Tannery property is proposed for remediation using risk assessment and engineering controls (capping).

  Early in the process of conducting a risk assessment, the QPRA initiates the MECP's review of the remediation proposed remediation plan and risk assessment by preparing information on the site and how people would be exposed to contaminants, based on the results of the environmental site assessments, and other investigations that may have been conducted. This information is submitted as a Pre-Submission Form (PSF) and reviewed by the MECP. This review allows the MECP to comment on the scope and approach of the risk assessment, the make up of the risk assessment team, and the need

to consult with local stakeholders who are affected. In turn, it helps the property owner to decide the best way to proceed with completing the risk assessment. The MECP's review of the PSF also allows the MECP to advise the applicant on the likely steps and timelines required for completion of the review and acceptance of the proposed remediation and risk assessment. The QPRA undertakes any additional site investigation and proceeds with the risk assessment in accordance with the regulation and the approach set out by the MECP. As stages of remediation and risk assessment are completed, they are submitted to the MECP for ongoing review and refinement.

The QPRA for the Tannery property (XCG Consulting Limited) has made preliminary inquiries to the MECP to determine if certain engineering control would be acceptable as risk management measures with atypical environments such as wetlands. However, the project is not yet at the stage where a Pre-Submission Form has been submitted and so MECP review of the risk assessment component of the remediation plan has not yet started.

The MECP's review of a full risk assessment is not a trivial exercise, requiring review and input by the MECP's local engineer as well as their Standards Development Branch and may take between 4 to 18 months to complete. Once the MECP has reviewed and accepted a proponent's remediation and risk management plans they cannot typically be changed unless needed because of changed site conditions.

An RSC would not be accepted by the MECP unless the remediated property can be shown to pose no unacceptable risk to the people, animals and plants that will occupy it as well as to the natural and human environment that surrounds it. Once the MECP's review and acceptance of the remediation and risk assessment have been completed, an RSC can be produced and any ongoing requirements for installation of engineering controls (contaminant removals, caps, ventilation, barriers, or conducting environmental monitoring, providing notifications or implementing other site controls) are prescribed within a Certificate of Property Use (CPU) that becomes legally binding on the property owner and is placed on title to the property.

Third Party Review of Tannery Remediation Plans and Hydrogeology

As part of the review of the proponent's application for brownfield funding, the City undertook an internal technical review of their preliminary remediation plan and cost estimates to ensure that costs were not inflated in an attempt to justify higher levels of brownfield funding than might be warranted. The proponent was also required to fund a third-party peer review of their approach and cost estimates. The review concluded that the remediation approach was consistent with best practice for remediation of contaminated sites in Ontario and that the cost estimates provided were likely lower than could be expected during implementation. Components of the proponent's preliminary remediation plans have also been reviewed by the MECP before being submitted to the City as part of the brownfield application. MECP reviewers provided several cautions, directions and clarifications but generally concurred with the feasibility of the proposed remediation models for the terrestrial and wetland portions of the property. This initial consultation with the MECP was not the MECP's comprehensive review of remediation plans and risk assessments that will be required later in the process and is described below.

Copies of the current preliminary remediation plans for the terrestrial areas and the wetland portions are attached as Exhibits B and C. As described above, because of the risk assessment involved, these remediation plans will change and become more detailed once Pre-Submission Forms have been completed by the QPRA for the Tannery project and submitted to the MECP for their detailed review and comment.

During discussions at Planning Committee and Council, several concerns about the feasibility of the proposed remediation were articulated and are summarized within the following questions:

1. Could remediation create new pathways for contaminated groundwater and surface water to impact adjacent wetland and river environments?
2. Is there a risk that contamination from other brownfield sites could re-contaminate the remediated tannery lands?
3. Will the proposed soil cap over the contaminated portions of wetland be able to permanently immobilize contaminants buried beneath it?
4. What are the risks to the environment if the proponent starts but does not complete the proposed remediation?
5. Will the disruption created by remediation cause more harm than good to wildlife that use the wetland and shoreline areas of the Tannery?
6. Will the proposed remediation of the wetland provide effective source control to prevent recontamination of the inner harbour if it is cleaned-up as proposed by the Federal Government?

Because of the risk assessment components within the Tannery's proposed remediation approach, the QPRA's design and the MECP's review of the remediation plans and risk assessments will need to consider the questions posed above.

Cataraqui Conservation is a regulatory and commenting body that reviews certain technical components of development applications made to the City of Kingston. However, a detailed review of remediation planning and hydrogeology is not within the scope of their expertise. Cataraqui Conservation has already communicated to the applicant that, as part of the applicable permit review process under *Ontario Regulation 148/06*, the MECP or another independent third-party peer review will be needed to determine if the proposed wetland cap would be effective.

Remediation plans that seek to produce Records of Site Condition (RSC) via risk assessment methods are reviewed and approved by the MECP and so they are not typically subject to detailed review by the municipality. The MECP is the ultimate authority on the acceptability of remediation and risk assessment in Ontario and so, any third-party review of the applicant's remediation plan must be conducted before the MECP's review process is complete. Review comments provided by a third-party reviewer can be made available to the proponent who must then determine whether any recommended changes to the remediation plan or risk assessment would be acceptable to the MECP and whether the proponent's QPRA is willing to assume professional liability for the recommended changes.

Because of the professional accountability of the QPRA to a successful RSC and the oversight and revisions that will be provided by the MECP as part of their comprehensive review and approval, a third-party review of the Tannery's remediation and risk assessment plans may not be essential to confirming that the proponent's remediation plans are going to be effective. However, third-party review may add some value once plans for both the Tannery and the Federal Government's proposal for clean-up of Inner Harbour sediments become more advanced and the peer review can be focussed on the potential impact of the MECP-approved tannery remediation on the proposed Kingston Inner Harbour clean-up in terms of source control.

Based on the typical rates for professional environmental engineers (QPRA) that are qualified to undertake a review of a large and complex remediation such as is proposed for the former Tannery property, staff estimate that a budget of up to $50,000 would be required to undertake a third-party review for the purpose of addressing the question noted above and advising the City further on the compatibility of the two remediation campaigns with each other. Ten to twelve weeks is likely required to complete a review once a third-party reviewer has been retained and remediation plans are suitably advanced to begin the review.

Cost Estimate – Environmental Lawyer

Owners of contaminated property may be exposed to various forms of environmental liability, including regulatory liability, which may include orders and/or prosecutorial proceedings by regulatory bodies, such as the MECP, and civil liability, which may include negligence claims, breach of statute claims, and nuisance claims arising from contaminant migration. Legal Services staff are able to provide a legal opinion which opines generally on environmental liability and risk mitigation techniques, including the use of contractual indemnities to allocate risk and liability. However, a detailed legal opinion which analyzes the technical reports for this particular property and provides specific advice regarding environmental risk and liability based on those reports would require an environmental law expert. Legal Services staff obtained a fee estimate from an environmental law firm for a detailed environmental liability opinion. The fee estimate provided was in the range of $10,000 to $15,000, plus disbursements, depending on the specified scope of the report and the number of environmental reports related to the property.

Existing Oak Tree and the Current Remediation and Redevelopment Proposal

The tree inventory conducted on the subject property identified a large Oak that is estimated to be approximately 200 years old. Staff have been receiving questions on whether the tree could be preserved within the context of the current remediation and redevelopment proposal. To address this, the following information needs to be considered:

- The tree in question is in the southeast quadrant of the Tannery property in what is identified as Phase 1. The tree canopy, and therefore its critical root zone, is large (greater than 20 metres in diameter) and sits within the proposed footprint for the building that is proposed in Phase 1 (Exhibit E).

- Given the tree's size and location, preservation would require a significant redesign and relocation of the Phase 1 building and the proposed surrounding road and park amenities. This may require redesign of adjacent buildings as well.

- The tree is over mature and would be more sensitive to construction injury than a younger tree. To preserve the integrity of the root system and minimize the disturbance to it, any works within the dripline would likely need to be performed by hand.

- Complete preservation of the critical root zone (area within the dripline) with no disturbance (grade change or otherwise) would likely be the preferred method with this particular tree, based on species, age, and current condition. Typical remediation techniques involving mass removal of soil or addition of soil covers would not likely be tolerated within the critical root zone.

- Remediation of contaminated soil conditions within the critical root zone area of the tree may not be possible so that a Record of Site Condition (RSC) could be accepted by the Ministry of the Environment, Conservation and Parks (MECP). Without an RSC the preserved land area around the tree would not be permitted for use as residential or parkland space and may need to be fenced off to prevent such uses.

Prior to a pursuit of any preservation requirement for the tree, consultation with the owner and their environmental engineer and the MECP should be made to determine if additional considerations are present and to determine if preservation is feasible. The environmental engineer is the Qualified Person (QPRA) for the project and the MECP would have accountability for ensuring that environmental remediation is carried out properly and with success. Given the constraints identified above, preservation may not be feasible with the current development proposal.

Ownership of the Areas abutting the Wetland and Shoreline

A map showing the ownership of the areas abutting the wetland and the shoreline is included in Exhibit F. As shown on this map, the property located to the north of the former Davis Tannery lands is owned by the City. The bed of the Great Cataraqui River is Crown land (Parks Canada and Transport Canada). The map is conceptual and the ownership boundaries may not be exact.

Existing Policy/By-Law:

Planning Act

Conservation Authorities Act

Environmental Protection Act and *Ontario Regulation 153/04*

Provincial Policy Statement, 2020

City of Kingston Official Plan

Zoning By-Law Number 8499

Notice Provisions:

None

Accessibility Considerations:

None

Financial Considerations:

Staff estimate that a budget of up to $50,000 would be required to retain a qualified professional to undertake a third-party review of the proposed remediation plans and hydrogeology. The cost of retaining an environmental law expert for a detailed environmental liability opinion is estimated to be in the range of $10,000 to $15,000, plus disbursements.

Contacts:

Paul MacLatchy, Environment Director, 613-546-4291 extension 1226

Sukriti Agarwal, Manager, Policy Planning, 613-546-4291 extension 3217

Other City of Kingston Staff Consulted:

Jenna Morley, Director, Legal Services & City Solicitor

Eugene Connors, Forestry Technologist, Public Works Services

Brodie Richmond, Manager Environmental Operations and Programs

Exhibits Attached:

Exhibit A Map showing the Subject Lands and the Provincially Significant Wetland

Exhibit B Letter dated March 10, 2020 from XCG Consulting Limited

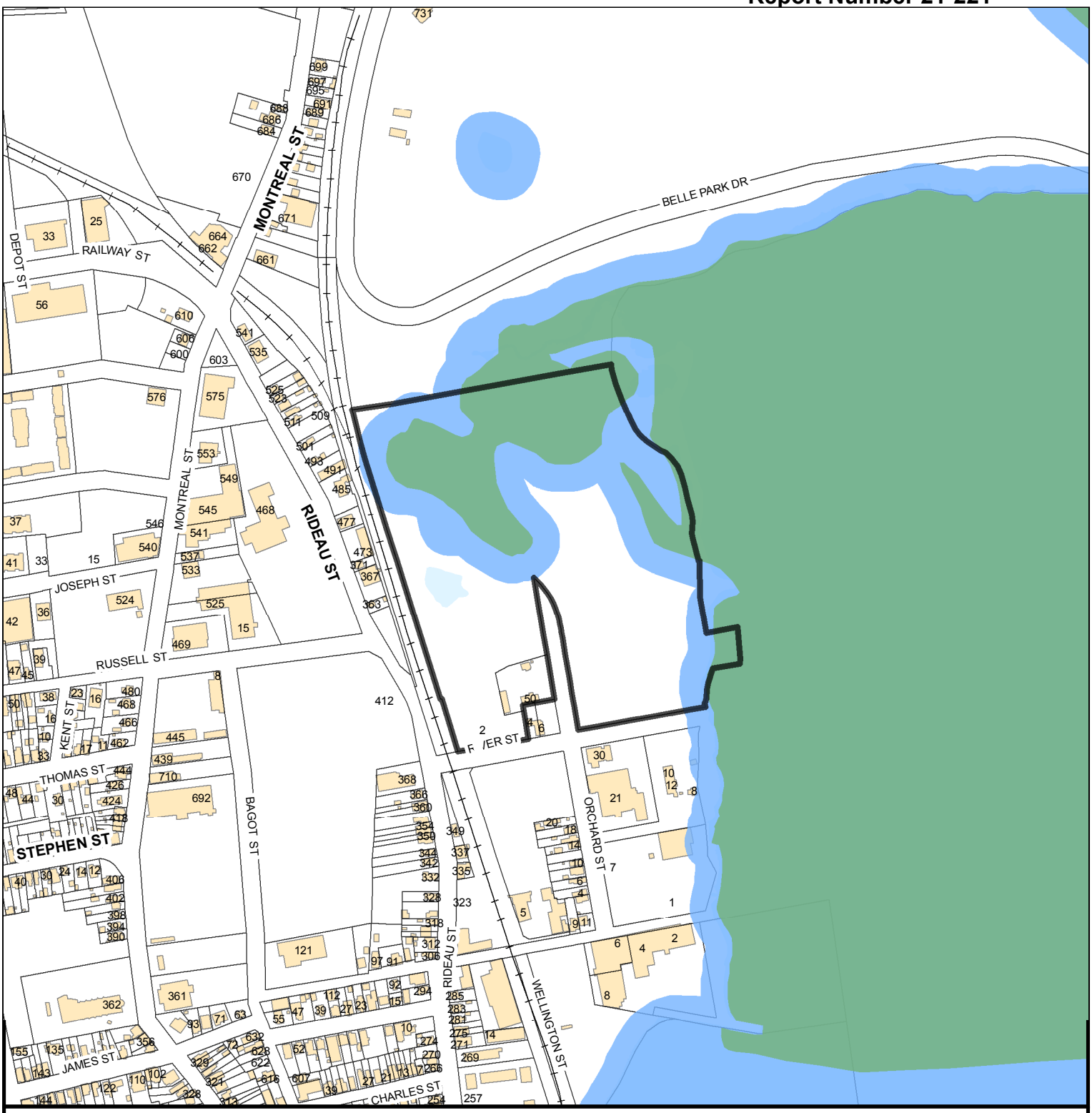
Exhibit C Letter dated March 15, 2019 from XCG Consulting Limited

Exhibit D Letter dated October 29, 2020 from the Ministry of Natural Resources and Forestry

Exhibit E Phasing Plan for the Proposed Redevelopment

Exhibit F Ownership Map

Exhibit A
Report Number 21-221



KINGSTON

OFFICIAL PLAN, Schedule 7-A, Existing Natural Heritage Area "A"

Applicant: IBI Group Inc.
Owner: Jay Patry Enterprises Inc.
File Number: D35-009-2017
Address: 2 River Street & 50 Orchard Street

0 30 60 90 120
Metres
1:6,000

LEGEND

N

- Subject Property
- PROVINCIALLY SIGNIFICANT WETLAND
- RIPARIAN CORRIDOR

XCG CONSULTING LIMITED
T 613 542 5888 F 613 542 0844 | kingston@xcg.com
4 Cataraqui Street, Woolen Mill, East Wing, Suite 100, Kingston, Ontario, Canada K7K 1Z7

March 10, 2020 **XCG File No. 1-1420-14-03**

Mr. Jay Patry **Sent via Email: jay@patryinc.com**
Patry Enterprises Inc.
265 Ontario Street, Suite 12
Kingston, Ontario K7K 2X5

Re: Wetland Remediation Plan at Former Davis Tannery Property in Kingston, Ontario

Dear Mr. Patry:

1. INTRODUCTION

XCG Consulting Limited (XCG) is in the process of completing a review and evaluation of possible remedial approaches for the wetland located across the northern part of the former Davis Tannery Property in Kingston, Ontario ("subject property" or "subject site").

At this stage of the review and evaluation process, the option of placing a fill cap over the most contaminated areas of the wetland has been identified as the preferred option. The purpose of this letter is to provide a description of this option, and to explain the rationale for selecting this as the preferred option.

It is XCG's understanding that this letter is needed for discussion purposes during upcoming meetings with Kingston City Council, City of Kingston staff, Cataraqui Region Conservation Authority (CRCA), the Ministry of the Environment, Conservation and Parks (MECP), the Ministry of Natural Resources and Forestry (MNRF), and the general public.

2. BACKGROUND INFORMATION

The Former Davis Tannery property is a 9-hectare site on the shore of the Cataraqui River that was historically used as a lead smelter from the 1890s to 1916 and as a leather tannery from 1903 to 1973. Since the tannery closure, most of the buildings have been demolished and the site is overgrown with vegetation. Household waste continues to be scattered throughout the property by transient users and there is evidence of copper wire insulation burning.

Multiple investigations from the 1970s to the present assessed contamination in soil, groundwater, and wetland sediments in the Orchard Street Marsh, a Provincially Significant Wetland (PSW) in the north portion of the site.

Contamination was identified across the entire property as follows:

- Soil: metals, volatile organic compounds (VOCs), petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), acid/base/neutral compounds (ABNs), chlorophenols (CPs), polychlorinated biphenyls (PCBs), dioxins and furans (D/F), sodium adsorption ration (SAR), and pH;
- Groundwater: metals, VOCs, PAHs, and chloride; and
- Sediment: metals, PAHs, and PCBs.

The concentrations of contaminants on the property pose risks to humans and ecological receptors such as plants, birds, mammals, and amphibians. With respect to conditions in the wetland, the contaminated sediment in the Orchard Street Marsh poses a risk to aquatic species and other animals that inhabit or frequent the marsh. Furthermore, the marsh sediment has the potential to be released during storm events and wash into the Cataraqui River, resulting in increased risks to aquatic species in the river and to humans who use the river for recreational purposes.

The concentrations of surface sediments, including chromium, lead, mercury, and PAHs, located within Kingston Inner Harbour are illustrated in the figures prepared by Environmental Sciences Group (The Royal Military College of Canada) in Attachment A. The sediment quality impacts in the area of the Cataraqui River immediately to the east of the wetland on the former Davis Tannery Property are believed to primarily be the result of years of migration of contaminated sediments from the wetland into the river.

For comparative purposes, the concentrations of sediments within the wetland on the subject property, including chromium, lead, mercury, and benzo(a)pyrene, are illustrated in the figures prepared by XCG in Attachment B. As shown on the figures, the highest contaminant concentrations are located within the western and central parts of the wetland. Based on observations made by Ecological Services, the biodiversity in these areas is extremely limited due to the inability of many plants and animals to tolerate the toxicity of the sediment. As concentrations drop off toward the eastern part of the wetland, biodiversity increases. Ecological Services identified an ecological transition zone, the location of which is shown on Figure 1, in which the quality and biodiversity in the wetland improves as one moves from the western boundary to the eastern boundary of the transition zone.

3. WETLAND REMEDIATION OPTIONS EVALUATION

During XCG's review and evaluation of possible remedial approaches for the wetland, several options were considered. These are discussed below.

Option 1: Do Nothing

The "Do Nothing" approach would involve leaving the wetland area as-is, and not undertaking any form of remediation in this area.

As outlined above, the shallow sediments in the wetland have been impacted by a number of contaminants, including metals, PAHs, and PCBs. The most concentrated type of contamination is heavy metals, including chromium, lead and mercury. Many chromium concentrations in the shallow sediment are thousands of time higher than the MECP Table 1 sediment quality standard of 26 µg/g. As mentioned above, based on observations made by Ecological Services, the biodiversity in these areas is extremely limited. Many common wetland species, including plants, reptiles, amphibians, and aquatic organisms, are unable to survive in these conditions. The exposed contaminated sediments pose a hazard not only to ecological receptors that come into contact with them, but also represent a risk to areas down-gradient, including the Cataraqui River, due to their potential to be released during storm events and wash downstream. Studies completed by the Environmental Sciences Group (ESG) at the Royal Military College (RMC) have found contaminants in the sediment of the Cataraqui River directly down-gradient of the wetland on the former Davis Tannery property, but not at concentrations as high as those found in many areas of the wetland on the property. Continuing

migration of the wetland contamination to the Cataraqui River is expected to contribute to the ongoing worsening of sediment quality conditions in the river.

For the above reasons, the "do nothing" approach is not considered to be an acceptable option.

Option 2: In-Situ Remediation

In-Situ remediation refers to a remedial method that is completed while leaving the contaminated medium, in this case the sediment, in place.

As mentioned above, the most concentrated type of contamination that is present in the wetland sediments is heavy metals, including chromium, lead and mercury. Metals contamination cannot be addressed using an in-situ approach, such as injecting a chemical oxidant, biological agent, or nutrient into the sediment. Metals are elemental and therefore cannot be chemically broken down or degraded in the same way as other contaminants that are composed of larger organic molecules that can be consumed by bacteria or chemically oxidized.

The injection of agents such as surfactants into the sediment could potentially result in the release of heavy metal contaminants into the wetland water overlying the sediment and/or into the water in the pore space of the sediment. This would not be desirable because of the increased risk to aquatic organisms and humans who could be exposed to the water in the wetland and/or in the Cataraqui River into which the wetland water discharges.

Consequently, in-situ treatment methods are not a feasible approach for remediation of the contaminated sediments in the wetland.

Option 3: Ex-Situ Remediation

Ex-Situ remediation refers to a remedial method that involves removing the contaminated medium, treating or processing it, and either placing it back in its original location or transferring it to a new location.

A number of ex-situ remedial methods are technically feasible. As an example, the contaminated sediment could be excavated or dredged out, dewatered using portable treatment equipment such as a filter press with a treatment train for the extracted water, stabilized with a cement-containing amendment to render the dewatered sediment non-leachate toxic, and then disposed of off-site at a landfill licensed to receive non-hazardous waste soil. However, the metal contamination in the sediment has been found in past studies to extend to depths of four metres or more below the surface of the sediment. Based on a contaminated sediment zone in the wetland of several hectares, the volume of contaminated material needing to be excavated for ex-situ remediation would be on the order of 100,000 cubic metres or more. Unit costs of dredging, treating, and disposing of this contaminated medium would be expected to fall into the range of about $160 to $240 per cubic metre, resulting in a total cost falling into the range of approximately $16 million to $24 million to complete the ex-situ remediation of the wetland sediment. This is a prohibitively high cost.

In addition to the prohibitive cost of ex-situ remediation, the work would be highly disruptive to the natural environment and would be taking place in an area closely connected to the Cataraqui River. The excavation/dredging would involve disturbance and exposure of large volumes of highly contaminated sediments that could be accidentally be released to the river through a number of possible mechanisms (e.g. storm events, equipment failure, human error, etc.).

For the above reasons, ex-situ remediation of the sediment is neither economically feasible nor desirable due to being excessively disruptive, risky and energy-intensive.

Option 4: Placement of Capping

The placement of capping material within the wetland would occur over areas of contamination determined to have greater concentrations than those currently present within the Cataraqui River to the immediate east of the site. As illustrated in Figure 1 attached, the capped area covers the western and central parts of the wetland and includes most of the ecological transition zone but does not cover the eastern-most part of the wetland where improved quality and biodiversity have been observed, and where sediment contaminant concentrations are generally not higher than the concentrations found immediately to the east in the river. The development of a detailed design for the cap is still in progress.

Placement of capping material over top of the existing contaminated sediment is the least disruptive, least costly, and lowest risk way of encapsulating the contamination and preventing it from being an ongoing contributor of contamination to the less-impacted eastern portion of the wetland and to the Cataraqui River. Placement of caps over contaminated zones, including, for example, closed landfills, is a common and widely accepted practice and allows for these areas to be re-purposed as public parks and/or green space.

For the reasons outlined above, and based on comparison to the other remedial options considered, Option 4: Placement of Capping is considered to be the preferred remedial option for the wetland located at the former Davis Tannery Property.

4. REMEDIATION OPTIONS FOR REMAINDER OF PROPERTY

For reference, the proposed remedial approaches for the entire former Davis Tannery Property are shown on Figure 2, attached. Figure 2 outlines the proposed remedial approaches including capping, selective excavation and capping, and full excavation. Additionally, the proposed building outlines are included for comparison purposes.

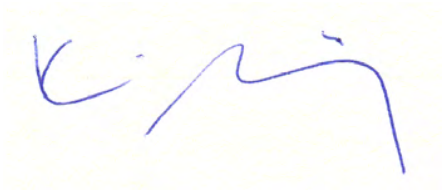
The proposed remedial approach shown on Figure 2 for each area of the site is based on the current understanding of site conditions obtained from the available information. The remedial approach for each area is subject to change based on new information that may come to light, and based on the findings of risk assessments that are planned for several areas of the site.

5. CLOSURE

We trust this report meets your current requirements. If you have any questions or comments related to this report, please contact the undersigned.

Yours very truly,

XCG CONSULTING LIMITED



Kevin Shipley, M.A.Sc., P.Eng., EP(CEA), EP, QP$_{RA}$
Partner

Attachments: Figures
Attachment A - Concentrations of Surface Sediments Inner Harbour Figures
Attachment B - Concentrations of Sediments Wetland Figures

FIGURES

Exhibit B
Report Number 21-221

NOTE:
THE PROPOSED REMEDIAL APPROACH SHOWN FOR EACH AREA OF THE SITE IS BASED ON THE CURRENT UNDERSTANDING OF SITE CONDITIONS OBTAINED FROM THE AVAILABLE INFORMATION. THE REMEDIAL APPROACH FOR EACH AREA IS SUBJECT TO CHANGE BASED ON NEW INFORMATION THAT MAY COME TO LIGHT, AND BASED ON THE FINDINGS OF RISK ASSESSMENTS THAT ARE PLANNED FOR SEVERAL AREAS OF THE SITE.

FORMER GOLF COURSE
ECOLOGICAL TRANSITION ZONE
CITY OF KINGSTON OWNED PARCEL
KINGSCOURT STORM SEWER OUTLET
GREAT CATARAQUI RIVER
RESIDENTIAL
COMMERCIAL (AUTO SALES & LEASING)
COMMERCIAL (RIDEAU STREET CARWASH)
RIDEAU STREET
INDUSTRIAL / VACANT
COMMERCIAL (FORMER AUTO SHOP)
RESIDENTIAL
RUSSELL STREET
FORMER TANNERY
FORMER SMELTER

- FORMER DAVIS TANNERY BOUNDARY
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- STRUCTURE
- FORMER STRUCTURE
- FORMER RAILWAY
- MARSH AREA
- SENSITIVE AREA (FORMER DAVIS TANNERY)
- APPROXIMATE TEST PIT LOCATION (1994, DCS)
- APPROXIMATE MONITORING WELL LOCATION (2006, CRA)
- APPROXIMATE BOREHOLE LOCATION (2006, CRA)
- APPROXIMATE TEST PIT LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SURFACE WATER SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2007-2009, ESG)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (2007-2009, ESG)
- APPROXIMATE MONITORING WELL LOCATION (2007, ESG, GPS)
- APPROXIMATE MONITORING WELL LOCATION (2003, MALROZ, OLD REPORTS)
- MONITORING WELL LOCATION (SEPT. 2018, XCG)
- TEST PIT LOCATION (SEPT. 2018, XCG)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (NOV. 2018, XCG)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (NOV. 2018, XCG)
- PROPOSED ESTIMATED CAPPED AREA
- PROPOSED NEW PROVINCIALLY SIGNIFICANT WETLAND LIMITS

0 50 100m

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

WETLAND REMEDIATION PLAN
PROPOSED WETLAND CAPPING

ORCHARD STREET MARSH
KINGSTON, ONTARIO

XCG
Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
NOV. 2019	1-1420-14-03	1

SHEET: L114201403001FIG01.pdf
FILE: L114201403001.dwg

Exhibit B
Report Number 21-221

KINGSCOURT STORM SEWER OUTLET

ECOLOGICAL TRANSITION ZONE

GREAT CATARAQUI RIVER

RESIDENTIAL

COMMERCIAL (AUTO SALES & LEASING)

RIDEAU STREET

COMMERCIAL (RIDEAU STREET CARWASH)

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

FORMER SMELTER

FORMER TANNERY

RUSSELL STREET

BAGOT STREET

CANTON FIELDS / PARK

RIVER STREET

ORCHARD ST.

VACANT (FORMER INDUSTRIAL)

PUMPING STATION

SENSIENT COLOURS CANADA

COMMERCIAL

RESIDENTIAL

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

LEGEND:

- PHASE TWO PROPERTY BOUNDARIES
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- MARSH AREA
- PROPOSED STRUCTURE
- PROPOSED DRIVEWAY
- SENSITIVE AREA
- PROPOSED ESTIMATED WETLAND CAPPED AREA
- PROPOSED NEW PROVINCIALLY SIGNIFICANT WETLAND LIMITS
- CAPPING
- SELECTIVE EXCAVATION AND CAPPING
- FULL EXCAVATION

NOTE:
THE PROPOSED REMEDIAL APPROACH SHOWN FOR EACH AREA OF THE SITE IS BASED ON THE CURRENT UNDERSTANDING OF SITE CONDITIONS OBTAINED FROM THE AVAILABLE INFORMATION. THE REMEDIAL APPROACH FOR EACH AREA IS SUBJECT TO CHANGE BASED ON NEW INFORMATION THAT MAY COME TO LIGHT, AND BASED ON THE FINDINGS OF RISK ASSESSMENTS THAT ARE PLANNED FOR SEVERAL AREAS OF THE SITE.

0 50 100m

PROPOSED REMEDIAL APPROACH FOR FULL SITE

FORMER DAVIS TANNERY
RIVER STREET
KINGSTON, ONTARIO

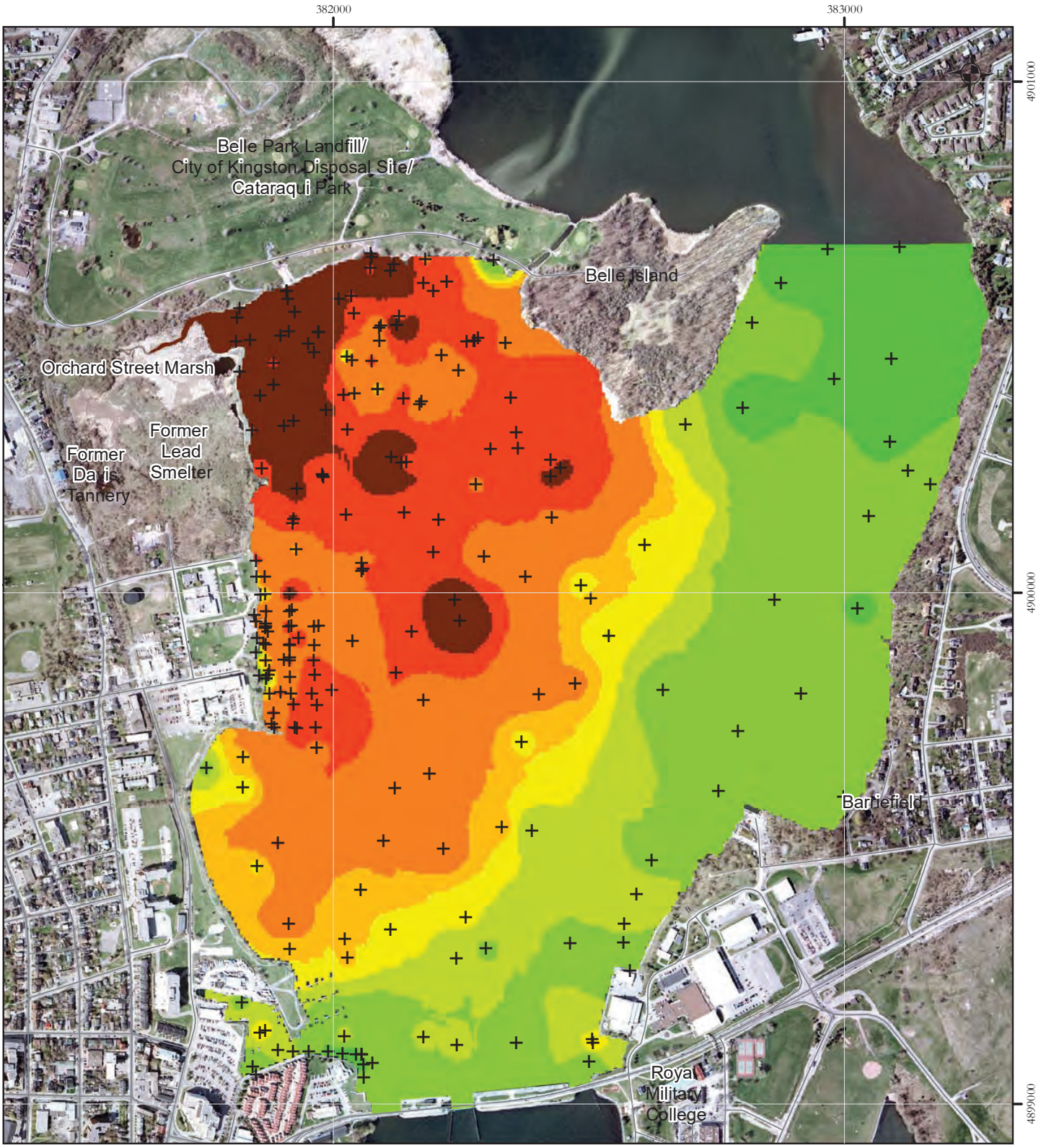
XCG
Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
DEC. 2019	1-1420-14-02	2

SHEET: L114201402002FIG02.pdf
FILE: L114201403001.dwg

ATTACHMENT A
CONCENTRATIONS OF SURFACE SEDIMENTS
INNER HARBOUR FIGURES

Exhibit B
Report Number 21-221



Legend

+ KIH Cr Sample

Roads

Chromium Concentrations

- < 37.7ppm (< ISQG)
- 37.7-90ppm (< PEL)
- 90-180ppm (< 2PEL)
- 180-270ppm (< 3PEL)
- 270-360ppm (< 4PEL)
- 360-450ppm (< 5PEL)
- 450-900ppm (< 10PEL)
- 900-1350ppm (< 15 PEL)
- 1350 - 25000ppm

Title: Map II-6: Cr Concentrations of Surface Sediments in Kingston Inner Harbour

Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn Forces
Kingston, Ontario K7L 7B4

Data Resources
Government of Canada
Environmental Sciences Group

Projection
Universal Transverse Mercator (UTM) - Zone 18

Datum
North American Datum 1983 (NAD83)

Date: November 2013

200 100 0 200 Meters

Map II-6

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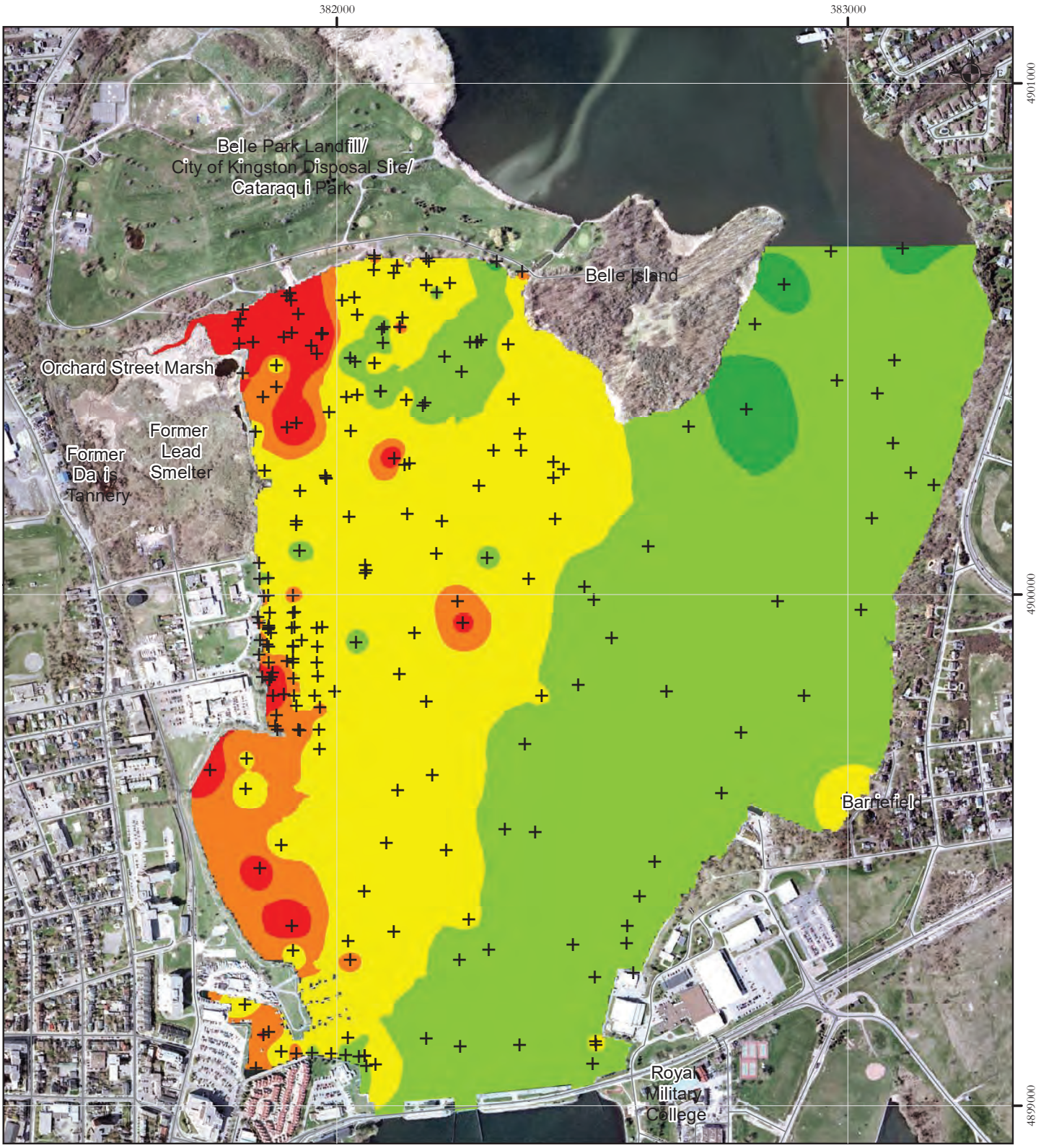
Exhibit B
Report Number 21-221



Legend

- KIH Pb Sample
- Roads

Lead Concentrations

- <35 ppm
- 35-91.3 ppm (< PEL)
- 91.3-183 ppm (< 2xPEL)
- 183-274 ppm (< 3xPEL)
- 274-365 ppm (< 4xPEL)

Title: Map II-7: Pb Concentrations of Surface Sediments in Kingston Inner Harbour

Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn Forces
Kingston, Ontario K7L 7B4

Data Resources
Government of Canada
Environmental Sciences Group

Projection
Universal Transverse Mercator (UTM) - Zone 18

Datum
North American Datum 1983 (NAD83)

Date: November 2013

200 100 0 200 Meters

Map II-7

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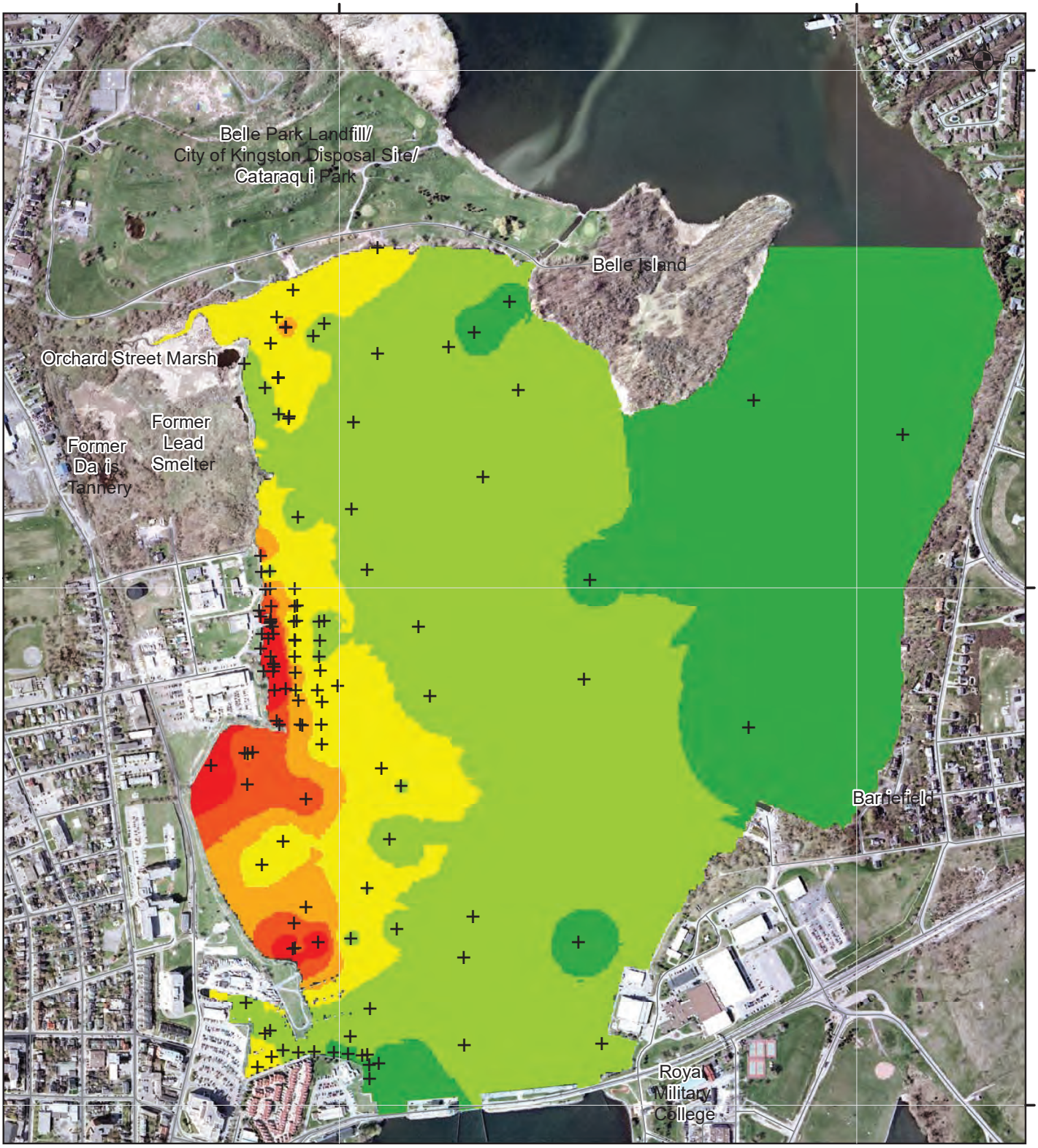
Exhibit B
Report Number 21-221



Legend

+ KIH Hg Sample

Roads

Mercury Concentration

- < 0.17ppm (ISQG)
- 0.17-0.49ppm (PEL)
- 0.49-0.97ppm (2xPEL)
- 0.97-1.45ppm (3xPEL)
- 1.45-1.95ppm (4xPEL)
- >1.95ppm (>4xPEL)

Title: Map II-11: Hg Concentrations of Surface Sediments in Kingston Inner Harbour

Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn Forces
Kingston, Ontario K7L 7B4

Date: November 2013

Meters
200 100 0 200

Data Resources
Government of Canada
Environmental Sciences Group

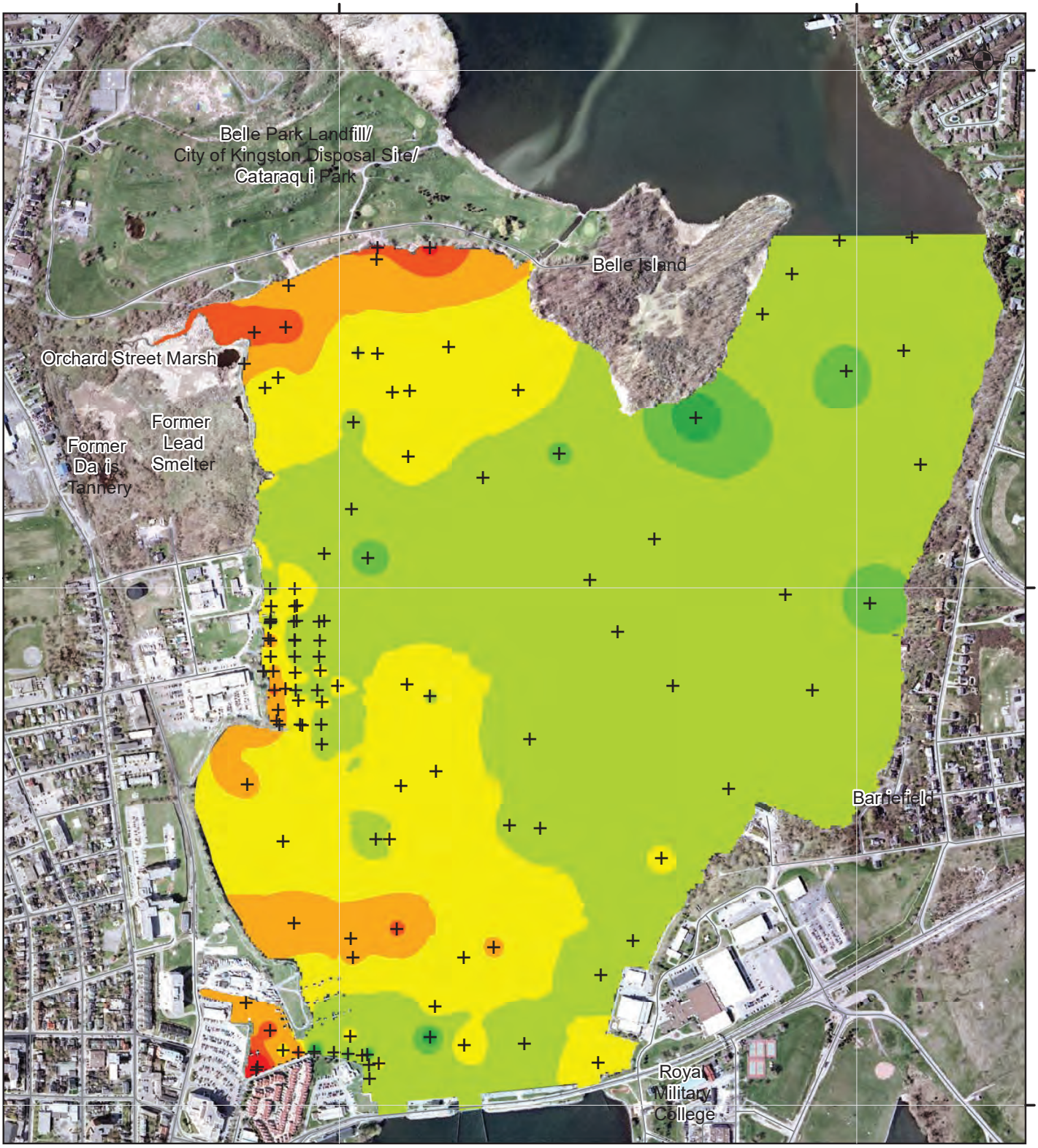
Projection
Universal Transverse Mercator (UTM) - Zone 18

Datum
North American Datum 1983 (NAD83)

Map II-11

J:\Projects\Inner Harbour\Inner Harbour-2013\MXD\Final Report\KIH_11_Hg_Nov_2013.mxd

Exhibit B
Report Number 21-221



Legend

- KIH PAH Sample
- Roads

Polycyclic Aromatic Hydrocarbon Concentrations

- 0-500 ppb
- 500-1000 ppb
- 1000-4000 ppb (LEL)
- 4000-10000 ppb
- 10000-25000 ppb
- 25000-50000 ppb
- 50000-175000 ppb

Title: Map II-14: PAH Concentrations of Surface Sediments in Kingston Inner Harbour

Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn Forces
Kingston, Ontario K7L 7B4

Date: November 2013

Meters
200 100 0 200

Data Resources
Government of Canada
Environmental Sciences Group

Projection
Universal Transverse Mercator (UTM) - Zone 18

Datum
North American Datum 1983 (NAD83)

Map II-14

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ATTACHMENT B

CONCENTRATIONS OF SEDIMENTS WETLAND FIGURES

Exhibit B
Report Number 21-221

APPROXIMATE CHROMIUM LEVELS (µg/g)

- < 37.7 ppm
- 37.7 - 90 ppm
- 90 - 180 ppm
- 180 - 270 ppm
- 270 - 360 ppm
- 360 - 450 ppm
- 450 - 900 ppm
- 900 - 1350 ppm
- 1350 - 25000 ppm
- 25000 - 104000 ppm

MECP 2011 TABLE 1 SEDIMENT GUIDELINES STANDARD FOR CHROMIUM: **26 µg/g**

INTERIM SEDIMENT QUALITY GUIDELINES (ISQG) STANDARD FOR CHROMIUM: **37.3 ppm**

FORMER GOLF COURSE

ECOLOGICAL TRANSITION ZONE

CITY OF KINGSTON OWNED PARCEL

KINGSCOURT STORM SEWER OUTLET

RESIDENTIAL

COMMERCIAL (AUTO SALES & LEASING)

COMMERCIAL (RIDEAU STREET CARWASH)

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

RIDEAU STREET

RUSSELL STREET

FORMER TANNERY

FORMER SMELTER

GREAT CATARAQUI RIVER

- FORMER DAVIS TANNERY BOUNDARY
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- STRUCTURE
- FORMER STRUCTURE
- FORMER RAILWAY
- MARSH AREA
- SENSITIVE AREA (FORMER DAVIS TANNERY)
- APPROXIMATE TEST PIT LOCATION (1994 - DCS, 2006 - CRA, SEPT. 2018 - XCG)
- APPROXIMATE MONITORING WELL LOCATION (2006 - CRA, 2007 - ESG/GPS, 2003 - MALROZ, SEPT. 2018 - XCG)
- APPROXIMATE BOREHOLE LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2006 - CRA, 2007-2009 - ESG, NOV. 2018 - XCG)
- APPROXIMATE SURFACE WATER SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (2007-2009 - ESG, NOV. 2018 - XCG)
- *104,000* CHROMIUM CONCENTRATION (µg/g)

0 50 100m

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

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CONCENTRATION CONTOURS CHROMIUM IN SEDIMENT

ORCHARD STREET MARSH

KINGSTON, ONTARIO

XCG Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
NOV. 2019	1-1420-14-03	B1

Exhibit B
Report Number 21-221

APPROXIMATE LEAD LEVELS (µg/g)

- < 35 ppm
- 35 - 91.3 ppm
- 91.3 - 183 ppm
- 183 - 274 ppm
- 274 - 365 ppm
- 365 - 2480 ppm

MECP 2011 TABLE 1 SEDIMENT GUIDELINES STANDARD FOR LEAD: 31 **µg/g**

INTERIM SEDIMENT QUALITY GUIDELINES (ISQG) STANDARD FOR LEAD: 35 **ppm**

FORMER GOLF COURSE

ECOLOGICAL TRANSITION ZONE

CITY OF KINGSTON OWNED PARCEL

KINGSCOURT STORM SEWER OUTLET

RESIDENTIAL

COMMERCIAL (AUTO SALES & LEASING)

COMMERCIAL (RIDEAU STREET CARWASH)

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

RIDEAU STREET

RUSSELL STREET

FORMER TANNERY

FORMER SMELTER

GREAT CATARAQUI RIVER

- FORMER DAVIS TANNERY BOUNDARY
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- STRUCTURE
- FORMER STRUCTURE
- FORMER RAILWAY
- MARSH AREA
- SENSITIVE AREA (FORMER DAVIS TANNERY)
- APPROXIMATE TEST PIT LOCATION (1994 - DCS, 2006 - CRA, SEPT. 2018 - XCG)
- APPROXIMATE MONITORING WELL LOCATION (2006 - CRA, 2007 - ESG/GPS, 2003 - MALROZ, SEPT. 2018 - XCG)
- APPROXIMATE BOREHOLE LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2006 - CRA, 2007-2009 - ESG, NOV. 2018 - XCG)
- APPROXIMATE SURFACE WATER SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (2007-2009 - ESG, NOV. 2018 - XCG)
- *2,480* LEAD CONCENTRATION (µg/g)

0 50 100m

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

CONCENTRATION CONTOURS LEAD IN SEDIMENT

ORCHARD STREET MARSH

KINGSTON, ONTARIO

XCG Environmental Engineers & Scientists

SHEET: L114201403001AttB2.pdf
FILE: L114201403001AttB.dwg

DATE	JOB NO.	FIGURE NO.
NOV. 2019	1-1420-14-03	B2

Exhibit B
Report Number 21-221

APPROXIMATE MERCURY LEVELS (µg/g)

- < 0.17 ppm
- 0.17 - 0.49 ppm
- 0.49 - 0.97 ppm
- 0.97 - 1.45 ppm
- 1.45 - 1.95 ppm
- > 1.95 ppm

MECP 2011 TABLE 1 SEDIMENT GUIDELINES STANDARD FOR MERCURY: **0.2 µg/g**

INTERIM SEDIMENT QUALITY GUIDELINES (ISQG) STANDARD FOR MERCURY: **0.17 ppm**

FORMER GOLF COURSE

ECOLOGICAL TRANSITION ZONE

CITY OF KINGSTON OWNED PARCEL

KINGSCOURT STORM SEWER OUTLET

RESIDENTIAL

COMMERCIAL (AUTO SALES & LEASING)

COMMERCIAL (RIDEAU STREET CARWASH)

RIDEAU STREET

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

RUSSELL STREET

FORMER SMELTER

FORMER TANNERY

GREAT CATARAQUI RIVER

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

- FORMER DAVIS TANNERY BOUNDARY
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- STRUCTURE
- FORMER STRUCTURE
- FORMER RAILWAY
- MARSH AREA
- SENSITIVE AREA (FORMER DAVIS TANNERY)
- APPROXIMATE TEST PIT LOCATION (1994 - DCS, 2006 - CRA, SEPT. 2018 - XCG)
- APPROXIMATE MONITORING WELL LOCATION (2006 - CRA, 2007 - ESG/GPS, 2003 - MALROZ, SEPT. 2018 - XCG)
- APPROXIMATE BOREHOLE LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2006 - CRA, 2007-2009 - ESG, NOV. 2018 - XCG)
- APPROXIMATE SURFACE WATER SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (2007-2009 - ESG, NOV. 2018 - XCG)
- *1.17* MERCURY CONCENTRATION (µg/g)

N

0 50 100m

CONCENTRATION CONTOURS MERCURY IN SEDIMENT

ORCHARD STREET MARSH

KINGSTON, ONTARIO

XCG Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
NOV. 2019	1-1420-14-03	B3

SHEET: L114201403001AttB3.pdf
FILE: L114201403001AttB.dwg

Exhibit B
Report Number 21-221

APPROXIMATE CHROMIUM LEVELS (µg/g)

- < 0.5 ppm
- 0.5 - 1 ppm
- 1 - 4 ppm
- 4 - 10 ppm
- 10 - 25 ppm
- 25 - 50 ppm
- 50 - 175 ppm

MECP 2011 TABLE 1 SEDIMENT GUIDELINES STANDARD FOR BENZO(A)PYRENE: **0.37 µg/g**

INTERIM SEDIMENT QUALITY GUIDELINES (ISQG) STANDARD FOR TOTAL PAHs **NO STANDARD**

FORMER GOLF COURSE

ECOLOGICAL TRANSITION ZONE

CITY OF KINGSTON OWNED PARCEL

KINGSCOURT STORM SEWER OUTLET

RESIDENTIAL

COMMERCIAL (AUTO SALES & LEASING)

COMMERCIAL (RIDEAU STREET CARWASH)

RIDEAU STREET

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

RUSSELL STREET

FORMER TANNERY

FORMER SMELTER

GREAT CATARAQUI RIVER

- FORMER DAVIS TANNERY BOUNDARY
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- STRUCTURE
- FORMER STRUCTURE
- FORMER RAILWAY
- MARSH AREA
- SENSITIVE AREA (FORMER DAVIS TANNERY)
- APPROXIMATE TEST PIT LOCATION (1994 - DCS, 2006 - CRA, SEPT. 2018 - XCG)
- APPROXIMATE MONITORING WELL LOCATION (2006 - CRA, 2007 - ESG/GPS, 2003 - MALROZ, SEPT. 2018 - XCG)
- APPROXIMATE BOREHOLE LOCATION (2006, CRA)
- APPROXIMATE SEDIMENT SAMPLING LOCATION (2006 - CRA, 2007-2009 - ESG, NOV. 2018 - XCG)
- APPROXIMATE SURFACE WATER SAMPLING LOCATION (2006, CRA)
- APPROXIMATE SURFACE SOIL SAMPLING LOCATION (2007-2009 - ESG, NOV. 2018 - XCG)
- 64.5 CHROMIUM CONCENTRATION (µg/g)

0 50 100m

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

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FILE: L114201403001AttB.dwg

CONCENTRATION CONTOURS PAHs IN SEDIMENT

ORCHARD STREET MARSH

KINGSTON, ONTARIO

XCG Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
NOV. 2019	1-1420-14-03	B4

XCG CONSULTING LIMITED
T 613 542 5888 F 613 542 0844 | kingston@xcg.com
4 Cataraqui Street, Woolen Mill, East Wing, Suite 100, Kingston, Ontario, Canada K7K 1Z7

March 15, 2019 **XCG File No.: 1-1420-14-02**

Mr. Bob Putzlocher
Kingston District Engineer
Ministry of the Environment, Conservation, and Parks
1259 Gardiners Road
Kingston, ON K7P 3J6

Re: Proposed Environmental Approach, Former Davis Tannery, River Street, Kingston, Ontario

Dear Mr. Putzlocher:

XCG Consulting Limited (XCG) has prepared this letter to document the proposed environmental approach for the assessment and remediation of the Former Davis Tannery property located on River Street in Kingston, Ontario (the subject site). The purpose of this document is to inform the Ministry of the Environment, Conservation and Parks (MECP)[1] of the proposed approach as part of the pre-consultation process and to solicit feedback from the MECP in order to obtain concurrence with the proposed approach.

1. BACKGROUND

The former Davis Tannery site is located along the Cataraqui River on River Street in Kingston, Ontario as shown on Figure 1. The site has a long industrial history as a lead smelter and a tannery. Both industrial activities affected the soil and groundwater quality at the site. The Orchard Street Marsh, a provincially significant wetland (PSW), is in the northern part of the site. The historical tannery effluents discharged into the wetland and degraded sediment quality. Historically, fill was placed across the site, including fill in the southern portion of the wetland and fill capping the site. The property has been vacant since 1973 and the historical tannery and smelter buildings have been demolished. The site is now heavily vegetated with trees, shrubs, and grass. There are four buildings on the portion of the subject site that has the municipal address of 2 River Street. The northeast corner of the subject site and the northern portion of the Cataraqui River shoreline is currently owned by federal agencies (Transport Canada and possibly Parks Canada). These lands are proposed to be acquired by the same property owner as the rest of the Davis Tannery site.

Multiple historical environmental investigations were completed at the subject site over the last several decades. XCG prepared a Phase Two Environmental Site Assessment (ESA) report that incorporated historical findings with the most recent investigations conducted in 2018. The findings are documented in the report "Phase Two Environmental Site Assessment, Former Davis Tannery, River Street, Kingston, Ontario," dated February 19, 2019.

[1] Previously also known as the Ministry of the Environment (MOE), the Ministry of the Environment and Energy (MOEE), and the Ministry of the Environment and Climate Change (MOECC). Currently known as the Ministry of the Environment, Conservation and Parks (MECP).

The main environmental features of the subject property are as follows:

- Subject property is adjacent to the Cataraqui River;
- A small water lot within the Cataraqui River is part of the subject property;
- The subject property contains a portion of Orchard Street Marsh, a PSW;
- Some areas of the subject site have shallow soil conditions as defined in Ontario Regulation (O. Reg.) 153/04 (as amended); and
- Three areas of the site received a Certificate of Approval (C of A) for waste disposal in 1984. It is unclear if the wastes were actually placed in the approved locations. However, waste and fill are present in multiple locations on the subject property.

There are soil, groundwater, and sediment contaminants of concern (COCs). The contaminants of concern include metals, hydride-forming metals, mercury, boron (hot water soluble), volatile organic compounds (VOCs), petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), acid/base/neutral compounds (ABNs), chlorophenols (CPs), polychlorinated biphenyls (PCBs), dioxins and furans (D/F), sodium adsorption ratio (SAR), and pH in soil; metals, hydride-forming metals, VOCs, PAHs, and chloride in groundwater; and metals, hydride-forming metals, mercury, PAHs, and PCBs in sediment.

The Former Davis Tannery property is proposed to be redeveloped for a mixed commercial and residential use in four principal development phases.

2. ENVIRONMENTAL APPROACH

The subject site has been divided into multiple areas for the purposes of re-development as shown on Figure 1:

1) Phase 1 Development Parcel – area to be redeveloped for a mixed residential/commercial building (SE parcel).
2) Phase 2 Development Parcel – area to be redeveloped for a mixed residential/commercial building (NE parcel).
3) Phase 3 Development Parcel – area to be redeveloped for a mixed residential/commercial building (SW parcel).
4) Phase 4 Development Parcel – area to be redeveloped for a mixed residential/commercial building (NW parcel).
5) Plaza Park – area located between Phase 1 and 2 Development Parcels that is to be redeveloped as parkland.
6) Waterfront Park – shoreline area within 30 metres of the Cataraqui River that is to be redeveloped as parkland.
7) Water Lot – water lot within the Cataraqui River adjacent to the southern portion of the river shoreline that is to be redeveloped for a mixed community and residential use.
8) Roads – areas between Phase 3 and 4 parcels, between Phases 2 and 4, and along the north boundary of the Phase 2 and 4 parcels, that are to be constructed as roads (community use) and handed over to the City of Kingston as municipal roads.

9) Non-Developed Parcel – areas north of the north-most road and west of the waterfront park.

The proposed environmental approach for each area is described in the corresponding sections below. The areas have been arranged in an order roughly corresponding to the chronological order of assessment and remediation. Some parcels will be assessed con-currently or will have overlapping timelines.

As described in Sections 2.5, 2.6, and 2.8 below, a portion of the Orchard Street Marsh is proposed to be filled. As a result, the PSW boundaries will be re-assessed by the MNRF after the filling is completed. The applicable site condition standards (SCSs) for each parcel will be selected based on the future wetland boundaries and proposed property use as per O. Reg. 153/04 (as amended). The exception is the Sensitive Area which will be assessed based on the current wetland boundaries in order to determine the acceptable quality of soil to be placed in the wetland as fill (see Section 2.5 for detailed discussion).

2.1 Phase 1 Development Parcel

This mixed residential/commercial parcel is located at the southeast corner of the subject property further than 30 metres away from the Cataraqui River. Because of the land use change to a more sensitive use, a record of site condition (RSC) is required.

The proposed remedial approach is full excavation of the on-site soil. The soil will be screened to segregate construction and other debris from the soil. Leachate toxic hazardous soil, if any, will be identified and stabilized on-site to render it non-hazardous. The excavated soil, depending on its contaminant concentrations, will then be either disposed off-site or stock-piled in another area of the subject site for future on-site re-use. The soil for re-use will be managed under a Soil Management Plan to keep track of the soil source area, soil quality, and temporary storage location.

Upon completion of the soil remediation, confirmatory samples will be taken from the walls of the excavation. It is assumed that excavation will be advanced to bedrock, and, therefore, no floor samples will be required. There is no groundwater contamination in the Phase 1 Development Parcel. A remediation report will be prepared and a RSC for this parcel will subsequently be filed. This parcel is expected to be developed first.

2.2 Plaza Park

Plaza park is a parkland parcel located north of the Phase 1 Development Parcel further than 30 metres away from the Cataraqui River. Because of the land use change to a more sensitive use, a RSC is required.

The proposed environmental approach is a combination of a Tier 3 Risk Assessment (RA) and a partial remediation. The RA process will establish property specific standards (PSSs) for soil and groundwater COCs. The on-site soil will be excavated, screened, and segregated. The soil that meets the RA-developed PSSs will remain on-site and will be re-placed within the Plaza Park parcel. The remaining soil will be disposed off-site. If required, stabilization of any leachate toxic hazardous soil will be conducted on-site prior to off-site disposal as non-hazardous waste soil. It is possible that groundwater treatment may be required as part of the remedial efforts.

The RSC will be filed on the basis of the RA and a remediation report. It is expected that the Plaza Park RSC will be in place by the time the Phase 1 Development Parcel is occupied.

2.3 Waterfront Park

The Waterfront Park consists of lands within 30 metres of the Cataraqui River along the entire on-site portion of the shoreline. These lands are expected to be eventually transferred to the City of Kingston as parkland. Because of the land use change to a more sensitive use, a RSC is required.

The proposed environmental approach is a Tier 3 RA. This would allow for minimal disturbance of the shoreline buffer area. It is expected that risk management measures such as capping and/or shoreline protection will be required to mitigate both direct contact with soil contaminants by human and ecological receptors, and potential erosion of the contaminated soil along the shoreline into the Cataraqui River. It is assumed that groundwater COCs will be risk assessed and that no groundwater remediation will be required.

The RSC will be filed on the basis of the risk assessment. It is expected that Waterfront Park RSC will be in place by the time the Phase 1 Development Parcel is occupied.

2.4 Water Lot

The Water Lot is a rectangular water parcel within the Cataraqui River along the southern portion of the shoreline. The proposed development in the Water Lot includes construction of a boat house with several residential units. Therefore, the proposed property use is mixed community/residential. Because of the land use change to a more sensitive use, a RSC is required.

The Water Lot will be assessed alongside the Waterfront Park under the same RA submission. The RSC will be filed on the basis of the risk assessment.

2.5 Non-Developed Parcel

The Non-Developed Parcel is located in the north of the subject site north of Road A within the Sensitive Area. The main feature of this parcel is the Orchard Street Marsh that is designated as PSW. The current PSW boundary does not correlate well with the existing wetland boundaries observed on the site by Ecological Services, possibly due to the large scale of the maps that were originally used to digitize the boundaries.

The existing wetland boundaries also extend into the Phase 4 Development Parcel and the 30-metre buffer around the wetland extends into the Phase 2 Development Parcel. The existing wetland area plus a 30-metre buffer is shown in orange on Figure 1—the “Sensitive Area”.

While no formal land use change is proposed for the Non-Developed area, it is possible that a RSC will be filed in the future for the Non-Developed Parcel.

The historical tannery effluent discharged into the wetland. As a result, the sediment in the wetland is severely impacted. The ecological assessment also confirmed that certain areas of the wetland are degraded with almost no chance for natural recovery. Based on the ecological assessment of the wetland and levels of sediment contamination, it is proposed to fill in a portion or all of the western wetland cell and southern end of the eastern wetland cell. A Wetland Remedial Plan will assess the sediment and sub-sediment soil quality across the

Orchard Street Marsh. The Wetland Remedial Plan will take into account the ecological assessment of the wetland biodiversity and health. The exact extents of the recommended fill areas will be defined in order to minimize risks to ecological receptors and preserve as much of the viable wetland ecosystem as possible.

Subsequently, a Tier 3 RA will be conducted on the Sensitive Area (orange area on Figure 1) that contains the actual wetland and a 30-metre buffer around it. The RA will establish the acceptable level of COCs in the fill material. These criteria will guide soil segregation at other Parcels on the subject site so that less impacted soil may be used as wetland fill.

It is assumed that after the Wetland Remedial Plan is prepared and the Tier 3 RA is approved by MECP, the Cataraqui River Conservation Authority (CRCA) will issue a permit to allow the fill of the defined wetland areas. The Ministry of Natural Resources and Forestry (MNRF) will then re-assess the boundaries of the Provincially Significant Wetland after the infill is complete. The boundary adjustment will reflect the infilled areas. In the areas currently designated as PSW but with no observable wetland present based on on-site observations, the PSW boundary will also be adjusted to reflect the actual wetland boundary. Once this is complete, it is XCG's assumption that the new PSW boundary plus a 30-metre buffer will no longer encroach on either the Phase 2 or Phase 4 Development Parcels.

2.6 Phase 2 Development Parcel

This mixed residential/commercial parcel is located north of the Plaza Park further than 30 metres away from the Cataraqui River. Because of the land use change to a more sensitive use, a RSC is required. It is assumed that the PSW boundary adjustment, as discussed in Section 5, will result in the MOE Table 3 SCSs being applicable across the entire Phase 2 Development Parcel.

The proposed environmental approach is a combination of a Tier 3 RA and a partial remediation. The RA process will establish PSS for soil and groundwater COCs. The on-site soil will be partially excavated, screened, and segregated. The soil that meets the RA-developed PSS values will remain on-site and will be re-used within the parcel. It is possible that some soil will be stock-piled in another area of the subject site for future on-site re-use outside of the Phase 2 Development Parcel. The soil for re-use will be managed under a Soil Management Plan to keep track of soil source area, soil quality, and temporary storage location. The remaining soil will be disposed off-site. If required, stabilization of any leachate toxic hazardous soil will be conducted on-site prior to off-site disposal as non-hazardous waste soil. It is possible that groundwater treatment may be required as part of the remedial efforts.

It is planned that the Tier 3 RA for this parcel will overlap the area of land that was the subject of the Tier 3 RA for the Non-Developed Parcel (see Section 5) - i.e. the orange "Sensitive Area" on Figure 1. The timing of the Tier 3 RA for the Phase 2 Development Parcel will be one or more years after the completion of the filling/capping of the wetland area that currently extends onto this parcel. It will be appropriate at that time for a new RA to be completed that takes into account the changed condition of the land, with the objective of supporting the filing of a RSC for the whole of the Phase 2 Development Parcel.

The RSC will be filed on the basis of the RA and remediation report.

2.7 Roads

There are several proposed roads on the subject site. Orchard Street is proposed to bisect the site north to south separating Phases 1 and 2 on the east side and Phases 3 and 4 on the west side of the street. The southern portion of Orchard Street between Phases 1 and 3 belongs to the City of Kingston and, therefore, it is not included in this proposed approach discussion.

The road between Phase 3 and 4 parcels is designated as Road B, and the road along the north side of Phases 4 and 2 is designated as Road A. See Figure 1 for the Road A and B locations.

Roads A, B, and northern portion of Orchard Street are expected to eventually be transferred to the City of Kingston. The land use for the roads is classified as community. Because the land use will not be changing to a more sensitive use type, filing of a RSC is not required. Based on the discussions with the City of Kingston, a Screening Level Risk Assessment (SLRA) is an adequate assessment tool for the roads to be accepted by the City.

The proposed environmental approach is a combination of an SLRA and a partial remediation. The SLRA process will establish PSS for soil and groundwater COCs. The on-site soil will be excavated, screened, and segregated. The soil that meets the SLRA-developed PSS values may be re-used in the road allowances. The remaining soil will be disposed off-site. If required, stabilization of any leachate toxic hazardous soil will be conducted on-site prior to off-site disposal as non-hazardous waste soil. It is possible that groundwater treatment may be required as part of the remedial efforts. It is expected the roads will be developed in stages based on the requirements of the individual residential/commercial development parcels.

2.8 Phase 3 Development Parcel

This mixed residential/commercial parcel is located at the southwest corner of the subject property. Because of the land use change to a more sensitive use, a RSC is required.

The proposed remedial approach is full excavation of the on-site soil similar to the Phase 1 Development Parcel approach. The soil will be screened to segregate construction and other type debris from the soil. Leachate toxic hazardous soil, if any will be identified, will be stabilized on-site to render it non-hazardous. The excavated soil will then be either disposed off-site or stock-piled in another area of the subject site for future on-site re-use. The soil for re-use will be managed under a Soil Management Plan to keep track of soil source area, soil quality, and temporary storage location.

Upon completion of the soil remediation, the confirmatory samples will be taken from the walls of the excavation. It is assumed that excavation will be advanced to bedrock, and, therefore, no floor samples will be required. It is possible that groundwater treatment may be required as part of the remedial efforts. The remediation report will be prepared in order to file the RSC.

2.9 Phase 4 Development Parcel

This mixed residential/commercial parcel is located north of Phase 3 Development Parcel. Because of the land use change to a more sensitive use, a RSC is required.

It is assumed that PSW boundary adjustment, as discussed in Section 5, will result in the MOE Table 3 SCSs applicable across the entire Phase 4 Development Parcel.

The proposed environmental approach is a combination of a Tier 3 RA and a partial remediation. The RA process will establish PSS for soil and groundwater COCs. The on-site soil will be partially excavated, screened, and segregated. The soil that meets the RA-developed PSS values will remain on-site and will be re-used within the parcel. It is possible that some soil will be stock-piled in another area of the subject site for future on-site re-use. The soil for re-use will be managed under a Soil Management Plan to keep track of soil source area, soil quality, and temporary storage location. The remaining soil will be disposed off-site. If required, stabilization of any leachate toxic hazardous soil will be conducted on-site prior to off-site disposal as non-hazardous waste soil. It is possible that groundwater treatment may be required as part of the remedial efforts.

It is planned that the Tier 3 RA for this parcel will overlap the area of land that was the subject of the Tier 3 RA for the Non-Developed Parcel (see Section 5) - i.e. the orange "Sensitive Area" on Figure 1. The timing of the Tier 3 RA for the Phase 4 Development Parcel will be several years after the completion of the filling/capping of the wetland area that currently extends onto this parcel. It will be appropriate at that time for a new RA to be completed that takes into account the changed condition of the land, with the objective of supporting the filing of a RSC for the whole of the Phase 4 Development Parcel.

The RSC will be filed on the basis of the RA and remediation report.

In summary, the subject property is divided into nine parcels. Records of Site Condition are proposed to be obtained for six of these parcels.

3. CLOSURE

I trust this letter meets your current requirements. If you should have any questions or comments related to this report, please contact the undersigned.

Yours very truly,

XCG CONSULTING LIMITED

Natalia Baranova, P.Eng.
Project Engineer

Attachments: Figure 1 – Proposed Development Areas

FIGURE

Exhibit C
Report Number 21-221

GOLF COURSE

NON-DEVELOPED PARCEL

FEDERALLY OWNED PARCEL

ROAD A (TO BE TRANSFERRED TO THE CITY OF KINGSTON)

ROADS (TO BE TRANSFERRED TO THE CITY OF KINGSTON)

PARKING GARAGE

PHASE 2 DEVELOPMENT PARCEL

PARKING GARAGE

PHASE 4 DEVELOPMENT PARCEL

PLAZA PARK

ROAD B (TO BE TRANSFERRED TO THE CITY OF KINGSTON)

PHASE 3 DEVELOPMENT PARCEL

WATERFRONT PARK

WATER LOT

PARKING GARAGE

ROAD, OWNED BY THE CITY OF KINGSTON

PHASE 1 DEVELOPMENT PARCEL

PARKING GARAGE

COMMERCIAL (AUTO SALES & LEASING)

RIDEAU STREET

COMMERCIAL (RIDEAU STREET CARWASH)

INDUSTRIAL / VACANT

COMMERCIAL (FORMER AUTO SHOP)

RESIDENTIAL

RUSSELL STREET

BAGOT STREET

CANTON FIELDS / PARK

RIVER STREET

ORCHARD ST.

VACANT (FORMER INDUSTRIAL)

PUMPING STATION

SENSIENT COLOURS CANADA

COMMERCIAL

RESIDENTIAL

LEGEND:

- PHASE TWO PROPERTY BOUNDARIES
- PROPERTY BOUNDARIES
- SHORELINE
- WATERCOURSE
- WATER
- EXISTING STRUCTURE
- MARSH AREA
- PROVINCIALLY SIGNIFICANT WETLAND
- PROPOSED STRUCTURE
- PROPOSED DRIVEWAY
- SENSITIVE AREA
- PROPOSED DEVELOPMENT AREAS

0 50 100m

DRAWING REFERENCE: Figure based on reports by DCS (1994), City of Kingston (2005), CRA (2006), Inspec-Sol (2006), ESG (2013), CRA (2013), 2018 survey (Leslie Higginson Surveying) and XCG field notes.
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

SHEET: L114201402002FIG01.pdf
FILE: L114201402002.dwg

PROPOSED DEVELOPMENT AREAS

FORMER DAVIS TANNERY
RIVER STREET
KINGSTON, ONTARIO

XCG Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
MAR. 2019	1-1420-14-02	1

Ministry of Natural Resources and Forestry

Peterborough District Office

300 Water Street
1st Floor, South Tower
Peterborough, ON K9J 3C7
Tel.: 705-755-2001
Fax.: 705-755-3125

Ministère des Natural Resources Richesses naturelles et des Forêts

Le bureau du district de Peterborough

300, rue Water
1er étage, tour sud
Peterborough, ON K9J 3C7
Tél. : 705-755-2001
Téléc. : 705-755-3125

Ontario

October 29, 2020

Mark Touw MCIP RPP
IBI GROUP
tel 613 531 4440 ext 63301
mob 613 217 9925

RE: Davis Tannary Project Wetland Boundary

Mark,

I am taking this opportunity to write this letter to combine the information communicated to you by emails dated July 10 and July 16, 2020.

After extensive discussions within the Ministry of Natural Resources and Forestry (MNRF), we have come to the conclusion that MNRF does not have the flexibility to proactively adjust the Greater Cataraqui Marsh wetland boundary to allow for capping of contaminated areas as proposed for the Davis Tannery site. The reason for this conclusion is that the area proposed to be capped contains wetland vegetation, soils and hydrology characteristic of a wetland. This area continues to be classified as part of a Provincially Significant Wetland despite the contamination present.

The question considered in this situation was to explore the justification for proactively adjusting the wetland boundary because MNRF's wetland evaluation procedure (the Ontario Wetland Evaluation System—OWES) does not address or accommodate for situations where development or site alteration is proposed in a contaminated area which is also part of a Provincially Significant Wetland. Making an exception to this practice could set a precedent which is difficult to deal with where areas with lesser contamination could also be targeted for development.

As you are aware these discussions have taken some time and have been further complicated by the pandemic. A thorough review of MNRF policies, procedures and past operational decisions took place during this consideration. While I am sure this decision is not what this project was hoping for, the MNRF has fulfilled the commitment to consider a proactive boundary adjustment to assist in addressing the contamination at this site. I am committed to advocating for new procedures to be developed to address situations where there are proposals to address significant contamination in wetlands in the future within MNRF.

The MNRF wishes to confirm support for any plan that is supported by the CA and the municipality along with any other relevant agencies regarding the remediation of contamination.

Further, the review and support of valid wetland evaluations remains the role of MNRF in this project and we are willing to review any wetland evaluations at any phase when requested to assist this project to unfold to reduce or eliminate contamination resulting in healthy wetlands for people and the area's natural heritage.

The MNRF continues to support the positive outcomes proposed by this project for the natural environment and the people of Ontario and is committed to assisting this project towards success.

Sincerely,

Andy Baxter

Andy Baxter
Operations Supervisor
Peterborough District

Appendix D
Architectural Plans, Elevations and Perspectives

GROUND FLOOR

SUMMARY
1400 to 1500 UNITS PROPOSED

PARKING -TARGET 1 PARKING SPACE PER UNIT
-ELECTRIC VEHICLE SPACES & BICYCLE PARKING

COMMERCIAL AND FLEX AREAS

COMMERCIAL GFA	58,700 ft² (5,450 m²)
FLEX GFA	76,900 ft² (7,150 m²)

LANDSCAPE AREAS

PUBLIC WATERFRONT PARK	3.56 acre (14,400 m²)
CENTRAL PLAZA PARK	0.91 acre (3,700 m²)

PHASE NUMBER	NUMBER OF STOREYS	HEIGHT (m)	BUILDING AREA (m²)	GROSS AREA (m²)
PHASE 1	6 & 8 STOREYS	21.50 & 28.50	10,300	64,300
PHASE 2	6 & 8 STOREYS	21.50 & 28.50	11,350	70,650
PHASE 3	6 STOREYS	21.50	8,350	49,900
PHASE 4	6 STOREYS	21.50	10,800	64,850

IBI
IBI GROUP
101-410 Albert St
Waterloo ON N2L 3V3 Canada
tel 519-585-2255
ibigroup.com

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TRUE NORTH

DAVIS TANNERY LANDS
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2019-11-14

KINGSTON
Planning Services

CITY OF KINGSTON

Address: 2 River Street & 50 Orchard Street

Privately Owned
City Owned
Provincially Significant Wetland