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Date November 1, 2022 **Report No.** 2022-670

To Brian Hutchings
Chief Administrative Officer

From Inderjit Hans, P. Eng., PMP
General Manager, Public Works Commission

1.0 Type of Report

Restricted Acts after Nomination Day [X]

This report is being presented under the following applicable section(s) of **City of Brantford By-law 97-2022, being a By-law to Delegate Authority to the Chief Administrative Officer for Restricted Acts During “Lame Duck”**:

- () a) The hiring or dismissal of any employee of the Municipality that is not an officer of the Municipality as per The Municipal Act, 2001.
- (X) b) The making of any expenditures or incurring any other liability which exceeds \$50,000 that has not already received budgeted approval for.
- () c) The disposition of any real or personal property of the municipality which has a value exceeding \$50,000 at the time of disposal.

2.0 Topic **Appendix E PW-ENG Orchard Park Remediation Funding**

3.0 Recommendation

- A. THAT funds totaling \$216,000 for construction of the Orchard Park Remediation in 2022 be provided from the Capital Funding Envelope

Reserve Funds RF 0556 to address storm water ponding and health & safety issues related to icing on pedestrian walkways.

4.0 Background

Orchard Park is located at 25-29 Brisbane Boulevard. A new playground area was constructed in 2019, and contains a swing play area, a sand play area, a nature area, a junior play area, and a senior play area. These areas consist of different playground equipment and surface features.

A clear stone infiltration gallery was constructed to collect water from the playground areas, conveyed by a sub-drain system within the subsurface materials of the playground areas. Following construction of the playground areas, it was identified that, after rainfall events the playground areas would retain water for periods of up to two (2) days. This water would pond within the swing play area, and the sand play area. This would proceed to cause surface ponding on the multi-use paths.

A sub-drain relief pipe and swale were constructed in 2020 on the northwest side of the swing set playground area to allow ponding water within the playground areas to outlet towards Brisbane Boulevard, where it would flow over the sidewalk, and be captured by catch basins tied into the existing storm sewers. This created a health & safety concern during freeze-thaw periods, as sheet flow over the sidewalk along Brisbane Boulevard would freeze, causing a sheet of ice to form. The sheet of ice resulted in a slipping hazard for pedestrians utilizing the sidewalk. Ponding within the Orchard Park playground areas continued following the installation of the sub-drain relief pipe.

During the official park opening on June 04, 2022, which was delayed due to Covid-19, concerns were raised by residents regarding the ongoing ponding issues, and build-up of ice on the Brisbane Boulevard sidewalk. Photos of the on-going issues can be seen in the figures below.

Figure 1: Internal Trail Ponding



Figure 2: Sand Play Area Ponding



Figure 3: Swing Play Area Ponding



Figure 4: Brisbane Boulevard Sidewalk Ponding



At this point, City Staff were directed to review the concerns, identify the problem and explore solutions. City Staff completed internal reviews of the and identified a preferred solution.

5.0 Analysis

Based on the original design drawings for the new playground areas, the existing subsoil conditions and the storm water runoff generated, City Staff have identified that the existing infiltration gallery is not functioning at a capacity high enough to prevent extended ponding following rain events. The proposed solution is a permanent storm sewer connection to the existing storm sewer network on Brisbane Boulevard to provide adequate drainage to Orchard Park's new playground areas, and to reduce sheet flow crossing the sidewalk at Brisbane Boulevard. This permanent connection will allow for storm sewers and catch basins to extend throughout Orchard Park. These storm sewers and catch basins will connect to the existing sub-drains in the playground areas and collect surface water from Orchard Park. The collected water shall outlet to the existing storm sewer on Brisbane Boulevard, and shall be conveyed through the municipal storm sewer system.

A design constraint identified with the proposed solution is storm sewer capacity on Brisbane Boulevard. While all proposed storm sewers within Orchard Park are capable of transmitting peak design flows, the existing storm sewer on

Brisbane Boulevard is surcharged in the existing condition. During major storm events, occurring with a 2-year design frequency, the storm sewers within Orchard Park will back-flow, and will be unable to transmit any collected water from the sub-drains or playground areas to the municipal storm system until the peak flow has ended. This may result in temporary ponding within Orchard Park. Once the peak flow has passed, the Brisbane Boulevard storm sewers will no longer be surcharged, and the Orchard Park storm sewers can release flows to the Brisbane Boulevard storm sewer. Excess water on the surface, and within the playground areas will be released to the municipal storm sewer system, removing any temporary ponding that would occur. The temporary ponding would be removed at a rate that far exceeds the current conditions.

The proposed storm sewers within Orchard Park shall be below frost depth, which will allow them to continue to transmit water during freeze-thaw periods, provided inlets to the system are not blocked by ice and snow build-up. This will reduce sheet flows across the sidewalk at Brisbane Boulevard, addressing health & safety concerns due to the formation of a sheet of ice on the sidewalk.

6.0 Financial Implications

This project has been fully designed internally by City Staff and due to the urgency in correcting the ongoing ponding safety issues in advance of another freeze-thaw period, a late-season Request for Quotation (RFQ) was completed and circulated. Despite receiving six (6) plan takers, only one (1) bid was received. The low bid was for \$163,131.46. A cost estimate for the work was completed prior to releasing the RFQ. The estimate was completed using 2019-2022 unit rates from tendered Parks and Road Reconstruction projects. The cost estimate approximated the construction cost at \$97,470.49, excluding City expenses during construction.

Differences between the estimated cost and bid received can be attributed to recent inflation in construction market and shortage of labour force, the time of year the project was tendered, the quick dead-line to complete the work before the construction season ends, and the receipt of only one (1) bid rather than multiple bids. It should be noted that staff will be actively monitoring construction costs and negotiating reduced pricing during the course of construction. All remaining funds following completion of construction will be returned to the reserve account.

A pre-award summary was completed based on the received bid price of \$163,131.46. Approximately \$53,000 in additional funding, above the bid price, is being requested to complete the project. This additional funding is to account

for a standard 10% contingency, staff time, construction material testing, tax and potential utility work, coordination, disbursements and asphaltic concrete (A.C.) adjustment. The costs were calculated based on the tendered construction duration of twenty (20) working days, full-time inspection, typical testing and charges during reconstruction projects. Figure 5 details the approximate breakdown of the funding required above the bid price of \$163,131.46.

Figure 5: Funding Required Above Construction Costs

Contingency (10%)	\$16,313.15
Construction Inspection	\$18,000
Contract Administration	\$5,000
Utility Work, Relocation, Coordination	\$2,000
Material & Compaction Testing	\$5,000
Disbursements (Notices, Mailing, Advertisements, etc.)	\$1,792.76
A.C. Adjustment	\$1,500
Tax (2% of Bid Price)	\$3,262.63
Total Additional Costs	\$52,868.54

Costs to accommodate staff time within a construction project are typically 10% for internal design, inspection, and contract administration. As project size and costs are reduced, staff costs adversely increase. Due to the relatively smaller construction cost of this project, design, construction inspection, and contract administration costs will require a larger percentage than the typical 10%. The estimated costs associated with Construction Inspection and Contract Administration (CI & CA) are 14% of the bid price based on twenty (20) working days required to complete the works.

With this remediation project being separate from the original capital budget, costs associated with the project have not been accounted for. Staff recommend funding for the proposed remediation to Orchard Park totaling \$216,000.00 to be funded from the City's Capital Envelope Reserve Funds to proceed with construction in 2022.

Figure 6: Project Costs and Funding

RFQ Construction Cost	\$163,131.46
Additional Funding Above Construction Costs	\$52,868.54
Funding Required from Capital Funding Envelope Reserve (RF 0556)	\$216,000.00

Finance staff have confirmed availability of the required funds within the Reserve.

7.0 Conclusion

It is recommended, that additional funding be secured from the City's Reserve Funds, awarding the project to the low bidder, and completing the work within the 2022 construction season so that the ponding and drainage issues within Orchard Park will be addressed. Additionally, the remediation will correct the health & safety concern on the sidewalk along Brisbane Boulevard during freeze-thaw periods prior to any such events that occur over the winter. City Staff have begun negotiating the low-bid prices received and savings resulting from the negotiation of bid prices would be returned to the Reserve Funds following the project's completion.

By completing the proposed construction, concerns brought forward by residents during the official park opening on June 04, 2022 will be resolved.

Alternatively, the City has the option to not award the project, revise the quotation documents over the winter months, and retender the project in the spring. Orchard Park's playground areas would remain unusable following rainfall events, and the sidewalk would remain a health & safety concern for the freeze-thaw periods in the coming winter. The City may also be liable for lost profits of the successful low-bidder from the current Request for Quotation process. Ideally, lower bid costs would be received in the spring of 2023, and construction would occur in the summer of 2023 to address the ponding and sidewalk concerns. City Staff do not recommend this option due to the ongoing health & safety concerns, the erratic rise in construction costs and implementation of the new Excess Soil Regulations starting in January 2023 potentially resulting in higher bid prices received in the following construction season, liabilities regarding lost profits of the low-bidder in the current RFQ process, and additional City Staff time required to revise, and resubmit the documents under the Request for Quotation process.

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Attachments (if applicable)

Orchard Park Site Servicing Plan.pdf

Copy to:

In adopting this report, is a by-law or agreement required? If so, it should be referenced in the recommendation section.

By-law required ☐ yes ☒ no

Agreement(s) or other documents to be signed by Mayor and/or City Clerk ☐ yes ☒ no

Is the necessary by-law or agreement being sent concurrently to Council? ☐ yes ☒ no