



Report to: General Committee

Meeting Date: June 20, 2022

SUBJECT: 002-R-22 Consulting Engineering Services for Markham Village – Flood Control Implementation - Phase 1 Storm/ Sanitary Sewers and Cast Iron Watermain Upgrades

PREPARED BY: Prathapan Kumar, Senior Manager, Infrastructure, Ext. 2989
Rob Muir, Manager- Stormwater, Ext. 2357
Flora Chan, Senior Buyer, Ext. 3189

RECOMMENDATION:

- 1) THAT the report entitled “002-R-22 Consulting Engineering Services for Markham Village Flood Control Implementation - Phase 1 Storm/ Sanitary Sewers and Cast Iron Watermain Upgrades” be received;
- 2) AND THAT the detailed design work under contract 002-R-22 Consulting Engineering Services for Markham Village Flood Control Implementation - Phase 1 Storm/ Sanitary Sewers and Cast Iron Watermain Upgrades (inclusive of Phases 1A, 1B, and 1C) be awarded to the highest ranked, second lowest priced Bidder, R.V. Anderson Associates Limited, in the amount of \$1,204,735.62, inclusive of HST;
- 3) AND THAT a 20% contingency in the amount of \$240,947.12, inclusive of HST, be established to cover any additional construction costs and that authorization to approve expenditures of this contingency amount up to the specified limit be in accordance with the Expenditure Control Policy;
- 4) AND THAT the Consulting Engineering Services for detailed design award in the amount of \$1,445,682.75 (\$1,204,735.62 + \$240,947.12) be funded from the capital project 058-6150-22193-005 “Markham Village Flood Control Implementation Phase 1 - Design”;
- 5) AND THAT the remaining budget of \$569,217.25 in capital project 058-6150-22193-005 “Markham Village Flood Control Implementation Phase 1 - Design” will not be required from the Stormwater Fee Reserve;
- 6) AND THAT the contract administration services (inclusive of 10% contingency) be awarded to R.V. Anderson Associates Limited for:
Phase 1A in the amount of \$586,094.66 (\$532,813.32 + \$53,281.33),
Phase 1B in the amount of \$621,153.01 (\$564,684.56+ \$56,468.46), and
Phase 1C in the amount of \$660,382.10 (\$660,347.37 + \$60,034.74), be requested as part of the 2024, 2025, and 2026 Capital budget process, subject to Council approval;
- 7) AND THAT the future Purchase Order for contract administration of Phases 1A, 1B, and 1C be updated to reflect the actual construction time required based on the final design; and

- 8) AND THAT Staff be authorized and directed to do all things necessary to give effect to this resolution.

EXECUTIVE SUMMARY:

Not Applicable

PURPOSE:

The purpose of this report is to obtain Council approval to award for Consulting Engineering Services Markham Village Flood Control Implementation - Phase 1 Storm/ Sanitary Sewers and Cast Iron Watermain Upgrades.

BACKGROUND:

In February 2013, Council approved a 30-year Flood Control Program, which provides funding to improve the level of service of drainage systems, including a 100-year level of service for storm sewer systems. Markham Village and Unionville Area Study was accelerated after the significant flooding that occurred in the summer of 2017. The area was developed prior to 1978, when the City’s storm drainage design standards were increased from a 5-year level of service to 100-year level of service.

As presented to General Committee on April 26, 2020, a range of flood protection approaches were evaluated including sewer size upgrades, storage facilities, and private plumbing protection. The recommended solution is a combination of storm and sanitary sewer upgrades to be completed in the following project clusters that have experienced flooding during extreme rainfall due to limited historical design standards.

Project Clusters:

Area		Current Implementation Schedule
Phase 1A:	<u>Markham Village:</u>	2024 - 2025
Phase 1B:	Church St./ Parkway Ave/ Wooten Way North, Sir Lancelot Dr	2025 - 2026
Phase 1C:		2026 - 2027
Phase 2:	<u>Markham Village:</u> Ramona Blvd., Daniel Court, Fincham Road	2027 - 2028
Phase 3:	<u>Markham Village/ Unionville:</u> Main St, East Drive, Pomander Road, Gainsville Avenue, Fred Varley Drive, Friar Tuck Road, Pomander Road	2028 - 2030
Phase 4:	<u>Markham Village:</u> Milne Lane, Rouge Street, Major Buttons Drive/ Squire Bakers Lane, John Dexter Place, Senator Reesor’s Drive	2030 - 2032

The recommended solutions are complimented by the continuation of the City’s Private Plumbing Protection Program that will continue to be available throughout the study area and that is the preferred approach to protect isolated areas.

The total estimated program cost for storm sewer upgrades is \$106.1 Million. The Citywide Flood Control Program is a 30 year program with an estimated cost of \$234M - \$288M (2014 dollars). This cost estimate is in line with the Council approved 2019 storm water fee rate update. The cost of sanitary sewer upgrades and cast-iron watermain replacement are in addition to these costs, and will be funded through the Water and Wastewater Lifecycle Reserves.

The scope of work under this award includes engineering services and all other sub-consultant services related to upgrading the existing storm and sanitary sewers in Markham Village Area as part of the Markham Village Flood Control Implementation Program.

The scope of work includes, but not limited to the following:

- Background Review and Data Collection
- Archaeological Assessment Review
- Hydrologic and Hydraulic Model Updates
- Sanitary Sewer Assessment
- Downspout Disconnection Survey
- Foundation Connection Survey Including CCTV Inspections of Storm and Sanitary Laterals
- Topographic Survey
- Sub Surface Utility Engineering Survey
- Geotechnical Investigation
- Tree Assessment
- Preliminary Design and Cost Estimates
- Detailed Design and Cost Estimates
- Preparation of Tender Documents

Additionally, after construction award, the consultant will provide contract administration and construction inspection services during the implementation of the project anticipated to be spread over a period of three (3) years and post construction and warranty period inspection services. The consultant will retain specialist consultants to provide their services for arborist, biologist, fluvial or any other specialty consultant that may be needed during the construction phase.

Bid Information:

Advertised	ETN (Electronic Tendering Network)
Bids closed on	May 10, 2022
Number picking up the Bid document	9
Number responding to the Bid	3

Proposal Evaluation:

The Evaluation Team was comprised of staff from the Environmental Services Department and facilitated by staff from the Procurement Department. Due to the complexity of the project, staff wanted to ensure that bidders had the necessary qualifications and experience to carry out the work and as such, the City released this RFP utilizing a two-stage process.

Stage One (1) – Technical Evaluation:

Under Stage 1 – Technical Evaluation, Bidders were assessed against pre-determined criteria as outlined in the RFP; Experience/Past Performance of the Company 15%, Similar Five (5) Projects completed within the last 5 Years 10%, Qualifications and Related Experience of the Project Manager and Project Team 20%, Project Delivery 25% totaling 70%.

Stage Two (2) – Price Evaluation:

Based on the Stage 1 evaluation, Bidders who received a minimum of 75% or 52.5 points out of 70 proceeded to Stage 2 - Price Evaluation. The price proposal provided by the Bidders is evaluated out of 30 points, based on the criteria outlined in the RFP.

Bidder	Total Score (100 points)
R.V. Anderson Associates Limited	93.8

The bid prices ranged from \$2,419,547.52 to \$3,150,503.00, inclusive of HST Impact.

R.V. Anderson Associates Limited, the highest ranked and 2nd lowest bidder, demonstrated a good understanding of the project, had an experienced and qualified project team and illustrated a comprehensive plan and methodology for the project.

Project Schedule:

Phases	Estimated Construction Period	Anticipated Commencement	Anticipated Substantial Completion
Phase 1A	35 weeks	May 2024	August 2025
Phase 1B	35 weeks	May 2025	August 2026
Phase 1C	35 weeks	May 2026	August 2027

FINANCIAL CONSIDERATIONS**Consulting Engineering Design Services for Phase 1:**

The following table summarizes the financial considerations:

Phase 1	Budget Available for Phase 1 Design (A)	\$ 2,014,900.00	058-6150-22193-005 " Markham Village Flood Control Implementation Phase 1 - Design"
	Less: Design Award for Phase 1 (B)	\$ 1,204,735.62	Award to R.V. Anderson Associates Ltd. (incl. of HST impact)
	Less: Design Contingency (20%) (C)	\$ 240,947.12	
	Total Cost of Phase 1 Design (D) = (B) + (C)	\$ 1,445,682.75	
	Budget Remaining (E) = (A) - (D)	\$ 569,217.25	*

*The remaining budget of \$569,217.25 will not be required from the Stormwater Fee Reserve.

Non-standard contingency:

The standard project contingency for this type of project is 10%. A 20% contingency is requested for the following reasons:

- The Markham Village Flood Control Phase 1 improvement works represent the largest and deepest infrastructure works in the study area. In order to mitigate disruptions during construction, the design in this phase may include the evaluation of alternative installation methods (e.g. tunneling) that can affect design requirements and the proposed design.
- Given the depth and size of works, the probability for utilities conflicts is higher and may result in additional modelling and design refinements to accommodate utilities.
- The length of storm sewer upgrades may increase relative to the estimated lengths in the planning study due to model refinement and detailed design considerations.
- Additional modelling of the receiving system at Mount Joy Creek may be required from approval agencies.
- Design and approval requirements may be subject to new design criteria as a result of the Ministry of the Environment and Parks’s new Consolidated Linear Environmental Compliance Approval (CLI ECA) requirements, to be confirmed during the City’s application for a CLI ECA.

Future Contract Administration Services for Phases 1A, 1B, and 1C:

The Purchase Order will not be issued until 2024, 2025, and 2026, subject to Council approval of the respective year’s capital budgets. Under this award, Staff are able to lock in pricing for the contract administration and contract inspection required in these years.

Phase		Storm	Phase
1A	2024 Budget	N/A	Subject to Council approval of the 2024 Capital budget
	Contract Administration (F)	\$ 532,813.32	
	CA Contingency (10%) (G)	\$ 53,281.33	
	Total Cost of Phase 3A (H) = (F) + (G)	\$ 586,094.66	
1B	2025 Budget	N/A	Subject to Council approval of the 2025 Capital budget
	Contract Administration (I)	\$ 564,384.56	
	CA Contingency (10%) (J)	\$ 56,468.46	
	Total Cost of Phase 3B (K) = (I) + (J)	\$ 621,153.01	
1C	2026 Budget	N/A	Subject to Council approval of the 2026 Capital budget
	Contract Administration (L)	\$ 600,347.37	
	CA Contingency (10%) (M)	\$ 60,034.74	
	Total Cost of Phase 3B (N) = (L) + (M)	\$ 660,382.10	

Total Cost of Phases 1A, 1B, and 1C (R) = (H + K + N)	\$ 1,867,629.77	
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The cost estimate for Phases 1A, 1B, and 1C are based on an estimated construction period of 35 weeks. The construction period may change subject to detailed design and therefore the purchase order for Phases 1A, 1B, and 1C may need to be adjusted.

HUMAN RESOURCES CONSIDERATIONS

Not Applicable.

OPERATING BUDGET AND LIFE CYCLE IMPACT

The constructed stormwater and waterworks infrastructure is estimated to last 100 and 90 years, respectively. As such, there is no incremental life cycle impact over the next 25 years. There is no incremental operating budget impact.

ALIGNMENT WITH STRATEGIC PRIORITIES:

The proposed flood remediation program is in line with City’s goal to provide better quality services to the public and is consistent with the Building Markham’s Future Together strategic priority on the “Growth Management” and “Environment” as it considers sustainability on the built environment.

BUSINESS UNITS CONSULTED AND AFFECTED:

Finance department has been consulted and their comments have been incorporated.

RECOMMENDED BY:

Eddy Wu
Director, Environmental Services

Morgan Jones
Commissioner, Community Services

ATTACHMENTS:

Attachment A – Markham Village Flood Control Implementation – Phase 1 Area

Attachment B – Markham Village & Unionville Phasing Plan