Appendix A – Terms of Reference

The Corporation invites Proposals from qualified Consulting Engineering Firms to provide engineering design services for the improvements of Lemay Street, which includes an extension of the road corridor and the design of two roundabouts. The scope of work to be completed by the Consultant includes: detailed design services for the sanitary sewer, watermain, storm sewer, roadway extension and roundabouts, the preparation of specifications and detailed design reports, tendering services, cost estimates, construction administration consultation, post-construction services, public and stakeholder consultation, etc.

1. BACKGROUND

1.1. Project Background

The City's Official Plan and 2006 Critical Infrastructure Review identified the need to extend Lemay St. in order to provide additional east-west capacity throughout the City and improve access to the Municipal Works Yard.

In 2016, a Schedule “C” Municipal Class Environmental Assessment (EA) was completed for the proposed Lemay Street Improvements and Extension. A number of design alternative were proposed, and the preferred option(s) selected includes the straight extension of the road corridor between the two existing sections of Lemay Street and the conversion of two key intersections with arterial roadways into full access roundabouts.

The proposed design satisfies the projects needs through the improvement of traffic flows at major intersections and increasing accessibility to the Municipal Works Yard via the extension of the corridor. It also provides residents of Cornwall with more connectivity in the east-west direction, improves emergency response time and enhances connectivity for active transportation with the addition of cycling lanes and sidewalks.

In 2019, the City applied for funding through the Investing in Canada Infrastructure Program (ICIP) for the Lemay Street Improvements and Extension Project. In the summer of 2019, it was announced that the application submitted by the City had been nominated by the Province for the program pending review and approval by the Federal Government. It is anticipated that the successful applications be announced in the near future.

1.2. Design Considerations

The redevelopment and improvements to Lemay Street has been separated into four key phases. The first two phases of development were completed in 2017 and 2018/2019; the design of the final two phases of redevelopment is included in the scope of this project.

1.2.1. Lemay St. Redevelopment – Phase I

The first phase of development was completed in 2017 and involved the reconstruction of Lemay Street from Sydney Street to St. Michel Avenue. The project involved replacements of the watermain and sanitary sewer, improvements to roadway – including an increase in the overall platform width and upgrades to the pavement structure, as well as the construction of bicycle lanes and sidewalks on both sides of the roadway.

Upgrades to the municipal services (watermain, storm and sanitary sewers) included the replacement of the existing 150mm diameter watermain with a new 200mm main. Additionally, a 300mm sanitary sewer that extends from the west side of the intersection at Sydney Street to St. Michel Ave. and ties into the

Northern Sanitary Trunk Sewer was constructed. The existing storm sewers on Lemay St. were in good condition and did not require replacement at the time of construction. Minor additions to the storm sewer network were included in the scope of the work – a number of catchbasins were installed in order to convert the road corridor from a standard 'rural' cross section with open ditches, to an 'urban' cross section with curbs and catchbasins for diverting surface drainage into the storm sewer system. The storm sewer system on this section of Lemay St. ties directly into the Upper Fly Creek Diversion Storm Sewer, which is located approximately 175m south of Lemay Street.

1.2.2. Lemay St. Redevelopment – Phase II

The second phase of the project was completed in 2018/2019 and involved the extension of Lemay Street from St. Michel Avenue to the East limits of the Municipal Works (MW) Yard.

The construction of the new road corridor included a significant amount of excavation, as the new roadway was being built through a former dump site, which is now a City park (Optimist Park). A significant amount of landfill material and contaminants were encountered and removed throughout the course of construction. Prior to construction, elevations in the area were approximately two metres higher than post-construction. The elevations of the roadway were lowered to in order to tie into both of the other sections of Lemay St., as well as the Municipal Works Yard, which is currently undergoing a multi-year redevelopment. The roadway extension included the construction of a new two-lane roadway, complete with 1.5m bicycle lanes and sidewalks on each side of the roadway.

The municipal services constructed as part of the project included the installation of a 200mm watermain, as well as a 300mm/375mm storm sewer that flows westerly and ties directly into the Upper Fly Creek Diversion Storm Sewer. A 200mm diameter sanitary sewer that extends from St. Michel Ave. for 90m

easterly was also constructed as part of the project. The sanitary sewer was designed to collect any leachate from the former dump site at Optimist Park, located just north of the road corridor.

As part of Phase II works, overhead utilities (Cornwall Electric, Bell, Rogers, Cogeco) were relocated from the former Ontario St. (now the MW Yard) into an underground utility trench that extends along St. Michel Ave from Twelfth St. to Lemay St. Additionally, a new overhead utility pole line was installed along Lemay St. from St. Michel Ave. easterly to the east project limits. As part of the upcoming Phase IV works, the utility pole line will extend easterly through the new Lemay St. corridor and tie into the existing utilities located on the East leg of Lemay St.

1.2.3. Lemay Street Redevelopment – Phase III

The third phase of the Lemay St. redevelopment involves the reconstruction of the road corridor on Thirteenth Street from Sydney St. to Aubin Ave. The scope of work includes roadway improvements, the construction of bicycle lanes, new sidewalks, necessary upgrades and/or improvements to municipal services and the construction of a full access roundabout at the intersection of Lemay St./Thirteenth St. and Sydney St./Reneal St.

The preferred design option selected as part of the 2016 EA included a widening of the road corridor along Thirteenth St. in order to accommodate new bicycle lanes as well as the medians required as a result of the construction of the roundabout. The design option called for the widening and bicycle lane construction to begin at Aubin Ave. and tie into the existing (and future) bicycle lanes on Lemay St. In order to accommodate the proposed widening of the corridor, a number of property acquisitions will be required.

As part of the design process, an evaluation of the intersection at Pitt St. and Thirteenth will be required to determine the extent of improvements required to accommodate the development and improvements of Thirteenth St.

At the time of the 2016 EA, there were no Canadian design guidelines available for the proposed roundabouts. As part of the design process, it will be necessary to evaluate the proposed roundabout designs and verify that the designs are in accordance with the guidelines specified in the Transportation Association of Canada (TAC) Canadian Roundabout Design Guide (2017) and any other applicable updated design standards for roundabouts in Canada.

Currently, there are no municipal services located on the section of Thirteenth St. that extends from Pitt St. easterly for approximately 95m. Properties located within this area are serviced from adjacent streets; as part of the design process, it will be necessary to determine if the construction of municipal services is warranted along this section of the road corridor, and to determine if upgrades to the services located in the remaining portion of the corridor are necessary.

1.2.4. Lemay Street Redevelopment – Phase IV

The fourth and final phase of the project involves the extension of Lemay Street from the East limits of the Municipal Works Yard to the East leg of Lemay Street that extends to McConnell Ave; the project includes the construction of the new road corridor, upgrades to the existing section of the roadway and the construction of a roundabout at the intersection of McConnell Ave. and Lemay St.

The work will include the construction of a new road corridor, complete with municipal services (watermain, storm and sanitary sewers), through undeveloped land. The length of the new corridor is approximately 135m. The parcels of land located both north and south of the proposed road corridor are zoned residential, and a draft plan of subdivision currently exists for the properties. As part of the design process it will be necessary to verify that the design of the municipal services meet future capacity requirements.

The section of Lemay St. located west of McConnell Ave and extends westerly for 230m was constructed in 1991. As part of the design process, it will be necessary to verify that the existing road corridor and municipal services are

adequate or if any modifications or upgrades to the existing services are necessary as a result of the construction of the new road corridor and roundabout. Currently, a 525mm diameter sanitary sewer flows westerly through the existing roadway and ties into the Northern Sanitary Trunk Sewer. A 200mm watermain also extends from the 600mm diameter watermain located on McConnell Ave. to the west limits of the existing roadway. A 900mm storm sewer was also installed when the road was constructed and flows easterly from the west limits of the existing roadway for 135m and ties into a future stormwater management pond (as indicated in drawings) located on private property.

The proposed roundabout design at the intersection of McConnell Ave and Lemay St. includes the construction of a ‘gateway feature’ which will require both northbound and southbound traffic on McConnell to slow down to travel through the roundabout. The 2016 EA stated that the intersection at Lemay St. and McConnell Ave. is an ideal location for the construction of a roundabout given the speed transition zone from 70km/h to 50km/h just north of the intersection.

As part of the design process, a review of the existing municipal services and other buried infrastructure within the future roundabout area will be required. At the intersection at Lemay St. and McConnell Ave. there is a significant amount of buried infrastructure that could potentially be impacted by construction. A pipeline owned by Trans Northern Pipeline (TNPI) currently crosses diagonally through the intersection, and it will be necessary to coordinate with TNPI throughout the design process to determine if TNPI has any design restrictions or requirements. Additionally, a 300mm diameter steel pipeline owned by Enbridge Gas runs along the east side of McConnell Ave. through the intersection. Underground transmission lines owned by Cornwall Electric are also located both in the intersection and throughout the extents of the project area.

1.3. Available Documents

The following drawings and reports are available for review using the link for supporting documents: https://bit.ly/36cb57p

1) Various As-Built Construction Drawings

- 1967 Plan and Profiles, Sanitary Sewer on Twelfth Street, Completed by the City of Cornwall (DRAWING NO. 541_01)
- 1968 Extension on Sydney Street from Twelfth Street to Thirteenth Street, Completed by the City of Cornwall (DRAWING NO. 541_02)
- 1968 Road Widening on Thirteenth Street from Gallinger Avenue to Pitt Street, Completed by the City of Cornwall (DRAWING NO. 592_01)
- 1971 Plan and Profile of Concrete PVT. on Thirteenth Street from Pitt to Sydney, Completed by the City of Cornwall (DRAWING NO. 594_01)
- 1972 Storm Sewer on Lemay Street from Sydney Street to Julie Street, Completed by the City of Cornwall (DRAWING NO. 315_01)
- 1977 Concrete Sidewalk on Sydney Street from Thirteenth Street to N. Prop Line Lot 16-17, Completed by the City of Cornwall (DRAWING NO. 541_03)
- 1978 6in Watermain on Renéal Street from Nelson Street to Thirteenth Street, Completed by the City of Cornwall (DRAWING NO. 454_01)
- 1978 Storm Sewer on Lemay Street from Marc Street to St. Michel Street, Completed by the City of Cornwall (DRAWING NO. 316_01)
- 1981 Concrete Sidewalk on Sydney Street from Fly Creek to Thirteenth Street, Competed by the City of Cornwall (DRAWING NO. 541_04)
- 1981 Concrete Sidewalk on Thirteenth Street, Completed by the City of Cornwall (DRAWING NO. 758_02)
- 1982 Existing 150mm Watermain on Lascelle Avenue and Thirteenth Street, Completed by the City of Cornwall (DRAWING NO. 594_02)
- 1986 Reconstruction on Pitt Street from STA. 2+75 to Thirteenth Street, Completed by the City of Cornwall (DRAWING NO. 830_01)
- 1991 Reconstruction on Pitt Street from Thirteenth Street to 7+75, Completed by the City of Cornwall (DRAWING NO. 848_01)
- 1994, Sanitary and Storm Sewer Construction on Lemay Street and McConnell Avenue, Completed by the City of Cornwall (DRAWING NO. 883_01 TO 883_04)
- 2007 Optimist Park Sub-Drain, Completed by the City of Cornwall (DRAWING NO. P10_08)

- 2010 Watermain Construction on Lemay Street from St. Michel to Ontario Street, Completed by the City of Cornwall (DRAWING NO. 316_02)
- 2013 Watermain Relining on Renéal Street from Thirteenth Street to Sunnyside Avenue, Completed by the City of Cornwall (DRAWING NO. 454_02)
- 2017 Reconstruction on Lemay Street from Sydney Street to St. Michel, Completed by the City of Cornwall (DRAWING NO. 316_04 TO 316_05)
- 2018 Watermain Relining on Aubin Avenue and Jobin Avenue, Completed by the City of Cornwall (DRAWING NO. 126_07)
- 2018 Construction of Lemay Street from St Michel Avenue to the East Limits of the Municipal Works Yard, completed by the City of Cornwall (DRAWING NO. 18-T12 Issued for Construction)

2) Various Issued for Construction Drawings

- 2019 Municipal Works Yard Phase I Redevelopment and Salt Storage Facility Construction, Completed by WSP Canada Inc. (DRAWING NO. 19-T40 Issued for Construction)

3) Various Council Reports and By-Laws

- 2018 By-Law to amend the Traffic & Parking By-Law 069-1989, Schedule XII, Designated Traffic Lanes, Lemay Street from Sydney Street to St. Michel Avenue, prepared by the City of Cornwall (Document By-Law 2018-060)

4) Existing Site Plans

- 1991Cornwall Non-profit Housing, 550 Lemay Street, Prepared by M.S. Thompson & Associates Ltd. (DRAWING NO. LEMAYST550-1991-1B)
- 1995 Splash N` Go, 1300 Pitt Street, Prepared by R. Pregent (DRAWING NO. PITTST1300-1995-1B)
- 1999 LifeLabs Medical Laboratory Services, 30 Thirteenth Street, Prepared by the Thompson Rosemount Group (DRAWING NO. THIRTEENTHST30-1995-1B)
- 2004 LifeLabs Medical Laboratory Services, 30 Thirteenth Street, Prepared by the Thompson Rosemount Group (DRAWING NO. THIRTEENTHST30-1995-1B)
- 2010 Splash N` Go, 1300 Pitt Street, Prepared by HSP Engineering (DRAWING NO. PITTST1300-2010-1B)

5) Geotechnical Information

- 1976 Preliminary Subsurface Investigation Proposed Commercial Development, prepared by Golder Associates (Document No. BH_038)
- 2004 Site #6, Lemay Street Subsurface Investigation, prepared by St. Lawrence Testing (Document No. BH_163)
- 2017 Lemay Street Reconstruction, Geotechnical Subsurface Investigation, prepared by St. Lawrence Testing (Document No. BH_272)
- 2017 Cornwall Municipal Works Noise Wall, Geotechnical Subsurface Investigation, prepared by St. Lawrence Testing (Document No. BH_281)

6) Reports and Studies of Existing and Proposed Developments

- 1991 Non-profit Housing Site West of McConnell Ave. – South of Lemay, Storm Water Management Report, prepared by M.S. Thompson & Associates Ltd. (Document No. 1015_01)
- 2015 Phase 1 Environmental Site Assessment Proposed Lemay Street Extension and Municipal Work Yard Reconfiguration, prepared by LRL Associates Ltd. (Document No. 1101_01
- 2016 Redevelopment & Design of the Municipal Works Yard, prepared by Aecom (Document No. 1059_01)
- 2016 Municipal Class Environmental Assessment for the Proposed Improvement and Extension of Lemay, prepared by Aecom (Document No. 1060_01 & 1060_02)
- 2018 City of Cornwall Municipal Works Yard, Noise Impact Study, prepared by WSP (Document No. 1256_01)

2. ENGINEERING DESIGN SERVICES

The successful Proponent shall complete the following tasks related to the design of the Extension and Improvements to Lemay Street, including two roundabouts at arterial roadways within the City.

2.1. Review of Existing Information

- Review all available existing drawings, reports, etc. related to the project and project area included in the link to supporting documents and summarized in Section 1.3 – *Available Documents.*

- Confirm all dimensions, condition grades, materials, equipment, elevations, etc. as described in As-Built Drawings, Service Location Sheets, reports, etc. to ensure all information used in the design is correct. The Corporation of the City of Cornwall is not responsible for any errors or omissions in the information provided to the successful Proponent. The successful Proponent is responsible for the verification of all existing documentation and shall take responsibility for all existing information.
- Carry out additional field inspections and subsurface investigations as required to assess existing conditions and to supplement the available information.
- Prior to commencing the design, the successful Proponent shall complete a pre-construction photo survey for record purposes which shall include but not be limited to: roadways, sidewalks, driveways, retaining walls, handrails, vegetation, trees, entrances, steps, porches, foundations, buildings, dwellings, pumping stations, equipment, etc. Photos shall be taken during a time that weather will not impact the photos. The pre-construction photo survey shall accurately indicate the condition of all pre-existing features. The pre-construction photo survey shall be provided to the Corporation upon completion for record purposes.
- Review the Environmental Assessment for the Extension and Upgrades of Lemay Street completed by Aecom in 2016.
- Review existing and proposed Site Plans, Servicing Plans, Servicing Reports, etc., for the properties within the project area and incorporate into the design as required.
- Review the scope of work of all current and/or future City of Cornwall capital works projects and identify possible impacts on the project.

2.2. Topographic Survey

- The Corporation has completed a topographic survey for the Extension and Improvements to Lemay Street. The deliverables to be provided to the Proponent include:
    - Topographic Survey
    - Colour Aerial Photos
    - Title Reports
- The Proponent shall coordinate any additional survey work required with the Corporation. City staff will complete any additional incidental survey work required and provide to the Proponent. The Proponent shall be responsible for coordinating additional survey work on private property to be completed by City staff.
- The Proponent shall review the provided topographic survey and ensure that all necessary information has been included.
- The Proponent shall be responsible for coordinating with utility companies (Cornwall Electric, Bell, Cogeco, Rogers, Union Gas, etc.) to confirm the location of all utility plants. Additionally, the Proponent shall coordinate with City staff in conjunction with the utility companies in order to obtain survey information for utility owned buried infrastructure. The Proponent shall be responsible for adding the existing utilities to all relevant design drawings.
- The survey will be provided to the successful Proponent in the NAD83 coordinate system in an AutoCad format, consisting of points.
- The Proponent shall prepare the base plans using the survey information provided by the City; however, the Proponent shall be responsible for verifying the accuracy of the information provided.

2.3. Property Acquisition Coordination

- As per the 2016 EA, a number of property acquisitions will be required as part of the improvements and extension of Lemay St. The City will retain an Ontario Land Surveyor (OLS) for the purpose of completing legal boundary surveys and preparing any corresponding legal reference plans required for any property acquisitions within the project area.
- A draft sketch indicating potential property acquisition locations/extents has been prepared by the City; the sketch is intended for reference purposes only. It is the responsibility of the Proponent to determine the exact amount of additional right-of-way required at each property.
- The Proponent shall prepare Land Acquisition Plans for each property parcel indicating the property acquisition requirements. Plans shall include the following details:
    - Property description and owner information
    - Municipal address
    - ‘Before’ and ‘After’ property lines (including total property area and area of property being acquired)
    - Easements
    - Location of buildings and notable landscaping features
    - A copy of the plan overlaid with orthoimagery
- The Proponent shall coordinate with the City and OLS throughout the property acquisition process, and provide recommendations as required.
- The Proponent shall review and verify that the draft Reference Plans provided by the OLS meet the requirements specified in the Land Acquisition Plans prepared by the Proponent. Should any variations occur, based on site-specific conditions (as determined by the OLS), the

Proponent shall coordinate with the OLS to determine the revised extents and adjust the detailed design drawings as required.

- The Proponent will be required to prepare various site plan modification drawings as required in order to provide property owners with the amount of parking equivalent to that they have lost due to property acquisitions.

2.4. Geotechnical Services

2.4.1. Geotechnical Investigation of Project Area

- Review the existing geotechnical reports and borehole logs provided by the City along the Lemay Street Corridor. All available geotechnical reports and borehole logs are included as part of the RFP documents, refer to Section 1.3 – *Available Documents,* for additional information.
- Complete a geotechnical investigation for the Improvements and Extension of Lemay Street, taking into consideration the geotechnical work previously completed along the corridor. Additionally, the Geotechnical Consultant must be registered with the Ministry of Transportation of Ontario (MTO) Vendors Registry as a Consultant under the Foundations Engineering, Geotechnical - Low Complexity category.
- The Proponent shall develop a geotechnical investigation program to supplement the existing information provided by the City. The geotechnical services shall be provided in accordance with the Canadian Highway Bridge Design Code (CHBDC) and the “Guideline for Professional Engineers Providing Geotechnical Engineering Services” published by the Professional Engineers of Ontario (PEO).
- The Proponent and/or geotechnical Sub-Proponent shall recommend the location, quantity and depth of additional boreholes, pavement cores, rock cores, granular samples, etc. required to properly characterize the nature of existing fill materials, classify existing soils, determine the

nature/strength of the sub-grade soils for stable open cutting and supported excavation purposes and methods, trenchless technologies, as well as groundwater conditions for the proposed roadway extension and improvements.

- The Proponent and/or geotechnical Sub-Proponent shall assume a minimum of fifteen boreholes at a depth of six metres along the proposed roadway extension and improvement areas. The Proponent shall provide a unit rate ($/metre) for the additional boreholes that are deemed necessary by the successful Proponent, the geotechnical sub-Proponent and the Corporation.
- The geotechnical field investigation shall include the following at a minimum:
    - Obtain clearance from the Corporation prior to conducting any drilling;
    - Secure all necessary permits and access agreements in order to conduct drilling;
    - Obtain clearances for all underground utilities and services from the relevant agencies prior to drilling including the MTO, TNPI and Raisin Region Conservation Authority (RRCA);
    - Direct the drilling, sampling and testing work on site, but not limited to, using drilling equipment suitable for mandatory performing Standard Penetration Testing (SPT) and equipped to test the undrained shear strength of cohesive soils where encountered and other testing as recommended by the Proponent;
    - Carry out work in a safe manner in accordance with the Occupational Health and Safety Act (OHSA) and with the Ontario Traffic Manual for Temporary Conditions, Book 7, Field Edition of the

Ministry of Transportation Ontario (MTO) using appropriate signs, devices and traffic control persons as required for the applicable layouts;

- Backfill boreholes and asphalt cores thoroughly in several lifts and ensure adequate compaction is performed in order to prevent settlement. Within paved areas, seal borehole and asphalt cores with asphalt to match existing thickness;
- Measure and record the water bearing zone(s) and the static groundwater levels which are to be included in each borehole log;
- Survey the locations and ground elevations of all boreholes, asphalt cores, test pits, etc., using benchmarks available on-site;
- Notify the Corporation of findings which may indicate areas of potential soil or groundwater contamination.

- The borehole logs, soil profiles and laboratory testing shall include the following mandatory information:

  Identification, location, ground elevation, type of boring and/or coring;

  - Date of Work;
  - Details of asphalt cores and soils – location and type of samples;
  - N values from SPT at changes of strata and at 0.6 metre maximum intervals in any case;
  - Groundwater levels (as measured in temporary flexible standpipes or observes within the borehole);
  - Moisture content, grain size distribution, Atterberg limits testing to adequately characterize roadway granular base and subbase and subgrade soils;
  - Shear strength values for cohesive strata;

- Artesian conditions if encountered;
- Rock Profile – if auger refusal is encountered within the requested borehole depth, then coring must be carried out to prove bedrock or boulder (minimum sample 1.5 metres of cored bedrock);
- The Proponent and/or sub-Proponent should also augment the investigation and/or testing subject to other information that is recommended.

2.4.2. Geotechnical Investigation Report

- The Proponent and/or geotechnical Sub-Proponent shall complete a Comprehensive Geotechnical Investigation Report for the proposed Lemay Street Extension and Improvements. The geotechnical report shall include the borehole and asphalt core logs showing groundwater levels, SPT numbers, mandatory laboratory test results and other results as required, borehole/asphalt core location plans and/or borehole/core location tables as well as geotechnical engineering, design and construction recommendations as described herein.
- The Comprehensive Geotechnical Investigation Report shall include:
  - General site and subgrade preparation;
  - Materials (soil parameters, reusability, compaction requirements, etc.);
  - Excavations (side slopes, stability, shoring, tunnelling, protection, blasting, etc.);
  - Groundwater presence and static levels;
  - Sewer trench bedding, cover and backfill;
  - Pavement structure and/or pavement reinstatement design;

- Municipal Infrastructure (Sewer, Watermain) installation design parameters including bearing capacities, earth pressures, etc.
- Stability and settlement of sewers, roadways, etc.
- Construction staging/phasing;
- Construction considerations (subgrade protection, dewatering methods, etc.);

- The geotechnical report shall include a review of different alternatives for the construction of the roadway in poor geotechnical conditions, taking into consideration the overall project cost.
- The geotechnical report shall include the existing borehole logs, geotechnical information, etc. from previous projects. The Proponent shall use the information and recommendations provided in these reports as the Proponent deems appropriate.
- The Proponent shall be responsible for securing all required approvals from the TNPI, RRCA and the City, as required, in order to complete the boreholes. The Corporation will pay any necessary application/permit fees directly.

2.4.3. Permit to Take Water

- The Proponent/sub-Proponent shall assume that a Permit to Take Water (PTTW) will be required. The successful Proponent shall include the required geotechnical and hydrogeological services necessary to determine the need for a PTTW according to the Ontario Water Resources Act (OWRA) Section 34 and Ontario Regulation 387/04 – *Water Taking and Transfer.*

2.4.4. Phase II Environmental Site Assessment

- The Proponent shall complete a Phase II Environmental Assessment for the proposed road network extension from the East Limits of the Municipal Works Yard to the East section of Lemay St. in accordance with all applicable guidelines in order to determine whether contaminants and/or designated substances are present. There is the potential for contamination in the future road corridor due to the proximity of the former dump/landfill at Optimist Park and the Municipal Works Yard.
- An additional Phase II Environmental Assessment shall be completed at the intersection of Pitt Street and Thirteenth Street. The potential for contamination exists at the intersection due to the former gas station that was located on the northwest corner of Pitt St. and Thirteenth St.
- The Proponent shall review existing as-built information and reports to identify all past and present uses of the site.
- Prepare a detailed report outlining the results of the Environmental Assessment.
- If applicable, determine the extent of contamination and prepare a Removal and Disposal (R&D) Plan to be included in the contract documents.
- The R&D Plan shall be complete with drawings identifying the anticipated extents of contamination and site-specific instructions for decontamination and reuse as per O. Reg. 406/19 – *On-Site and Excess Soil Management.*

2.4.5. Geotechnical Investigation Breakdown of Costs

- The Proponent/sub-Proponent shall provide a breakdown of costs for the geotechnical services as per the Fee Schedule shown below:

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL PRICE
1	Review of Existing Geotechnical Information Provided by the City	1	LS	$_____	$_____
2	Coordination with Stakeholders (TNPI, CN, City, RRCA, etc.)	1	LS	$_____	$_____
3	Boreholes Along Road Corridor	15	EA	$_____	$_____
4	Comprehensive Geotechnical Investigation Report for Lemay Street Extension and Improvements	1	LS	$_____	$_____
5	Coordinate and Secure All Required Approvals from TNPI, RRCA and City	1	LS	$_____	$_____
6	Permit to Take Water (PTTW)	1	EA	$_____	$_____
7	Rock Coring	10	VM	$_____	$_____
8	Phase II Environmental Assessment – New Road Corridor	1	LS	$_____	$_____
9	Phase II Environmental Assessment – Pitt St. & Thirteenth St. Intersection	1	LS	$_____	$_____

**The table above is for information purposes only. Proponents are to include unit pricing and total pricing as part of the cost breakdown*

- Borehole items shall include utility locates, borehole drilling, traffic control, coordination, disbursements, etc. Geotechnical Proponent shall be compensated based on the actual number of boreholes installed.
- The Comprehensive Geotechnical Investigation Report items shall include sample collection, laboratory testing, analysis, coordination, professional fees, disbursements, etc. The geotechnical Proponent shall be compensated based on the actual number of report(s) completed.

- The Permit to Take Water (PTTW) item shall include all geotechnical work, hydrogeological work, coordination, professional fees, disbursements, etc. needed in order to secure PTTW approval as required. Proponent shall be compensated based upon the actual number of permits approved.
- The Rock Coring item shall include rock coring, sample collection, laboratory testing, analysis, coordination, laboratory testing, analysis, coordination, disbursements, etc. The geotechnical Proponent shall be compensated based upon the vertical metre of actual rock coring completed.
- The Phase II Environmental Site Assessment item shall include all geotechnical work, hydrogeological work, laboratory testing fees, coordination, professional fees, disbursements, etc. needed in order to complete the Phase II EA as required. Proponent shall be compensated based upon the actual number of environmental assessments completed.
- The Proponent shall not include any costs in the geotechnical Fee Schedule provided above. The costs associated with project management, coordination, analysis, review, QA/QC, etc. shall be included in the Proponent's overall Fee Schedule/Work Plan.

2.5. Utility Coordination

- Identify each of the utility companies located within the project area.
- Coordinate with all relevant utility companies (Cornwall Electric, Bell, Cogeco, Rogers, Union Gas, Trans Northern Pipeline, etc.).
- Collect all available Utility Plant As-Built Drawings from the relevant utility companies.
- Confirm location of all utility plants and prepare a Composite Utility Plan (CUP). Both existing utilities and any proposed relocations must be shown on all relevant design drawings.

- All communications with utility companies shall be carefully documented throughout the design phase and included in the Final Design Report; all documentation/correspondence compiled throughout the construction phase must be submitted to the City with the Post-Construction document package.
- Conduct Utility Coordination Meetings, with utility companies as needed, at the City of Cornwall's Infrastructure & Municipal Works office, located at 1225 Ontario Street, Cornwall, Ontario, K6H 4E1. Additionally, coordinate any required field visits necessary in order to ensure that proposed utility relocations meet the requirements of all utility companies involved.
- The Proponent shall coordinate with each of the respective utility companies to determine the extent of utility daylighting required to provide an accurate representation of the type/location/elevations of buried infrastructure within the corridor. City staff will complete the daylighting under the supervision of the Proponent and respective utility company.
- Complete QA/QC review of As-Built information, design information, etc. provided by the utility companies. Complete any necessary field review/verification as required.
- Identify any utility conflicts within the proposed work area and coordinate any required utility relocation with each respective utility company. If required, complete the design of any required utility relocations, temporary or permanent supports, etc.
- The Proponent shall act as Lead Coordinator for the extension of the utility corridor through the new roadway extension. The Proponent shall ensure that the proposed relocations and/or extension of the network meet the requirements/needs of each of the respective utility companies.

- The Proponent is responsible for including any utility requirements in the detailed design drawings and tender specifications.
- Continually consult with utility companies throughout the design process to ensure that each of the utilities have a thorough understanding of the project scope and that the proposed design meets utility company minimum standards/clearances for both overhead transmission lines and buried infrastructure.
- Provide the City with a detailed schedule for completion of the utility companies portion of the work, including scheduling and phasing for each utility companies work. Where required, provide a timeline for the completion of utility works within the construction schedule and coordinate with each of the respective utility companies to verify the accuracy of proposed timelines.
- Verify that utility relocations do not conflict with any proposed future development.
- Act as liaison between the various utility companies, as needed, to ensure that the proposed relocations meet the requirements/needs of each of the respective utility companies.
- Review cost estimates submitted by utility companies for any relocations, temporary supports, servicing, etc.; verify that proposed relocation solutions are the most economically feasible option available.
- Continually coordinate and monitor all work to be completed by utility companies for the duration of the project to ensure all utility work is completed on schedule.
- The Corporation will not consider delays to the Proponent's schedule due to the utility companies. The Proponent shall coordinate and secure any

necessary information, approvals, etc. from the utility companies such that the design and construction phases of the project remain on schedule.

2.6. Traffic Control & Traffic Impacts

- Coordinate the traffic control required to complete the required field measurements, inspections, geotechnical investigation and utility daylighting in accordance with OTM Book 7. The cost associated with traffic control for this work is to be included in this item. Coordinate all traffic control with the City of Cornwall's Traffic Section.
- Prepare traffic control and proposed detour and construction phasing drawings and specifications as required for the project.
- The Proponent shall complete a Traffic Impact Study (TIS) for the proposed roundabouts and road network expansion/extension. The TIS shall take into consideration active transportation, including pedestrians and cyclists at both roundabouts.
    - The TIS shall include the following components:
        - Project Description
        - Study Area
        - Time Period for Analysis
        - Existing Conditions
        - Background, Site Generated and Total Traffic Demand
        - Evaluation of Impacts of Site Generated Traffic
        - Improvement Alternatives and Mitigation Measures
        - Recommendations

- The TIS shall review the proposed roundabout and road network design(s) and provide any further recommendations to be incorporated into the design.
- A TIS shall be prepared for the construction stage for both Phase III and Phase IV of development. The TIS shall include a review of the various traffic control/staging components of the project, the impacts of proposed detour routes and an evaluation of the various alternatives in order to minimize disruption to traffic on Lemay St., Sydney St., McConnell Ave, etc.
- The TIS shall be completed by a qualified and experienced Transportation Engineer, licensed in the Province of Ontario.
- The TIS shall be included as an Appendix in the final design report.
- Coordinate with the City of Cornwall Traffic Department in the development of the TIS.

- Prepare a “Final” Traffic Control Report based on the recommendations presented in the preliminary report.
- Review upcoming City capital projects and account for any traffic related impacts in the Traffic Control Reports.

2.7. Design Services

- Complete the detailed design for the Improvements and Extension of Lemay St. as described herein.

2.7.1. General Design Services

- Prepare detailed design drawings and construction specifications for the proposed road network extension and improvements.
- Prepare and update construction cost estimates as the design progresses.

- Detailed Design Drawings shall be submitted to the City of Cornwall for review at the following stages:
    - 30% Design (PDF, CAD)
    - 60% Design (PDF, CAD)
    - 90% Design (PDF, CAD)
    - Issued for Tender (PDF, CAD)
    - Issued for Construction (PDF, CAD)
    - As-Built (PDF, CAD)
- Specifications shall be submitted to the City of Cornwall for review at the following stages:
    - 60% Design (PDF, Word)
    - 90% Design (PDF, Word)
    - Issued for Tender (PDF, Word)
    - Issued for Construction (PDF, Word)
- Cost estimates shall be provided to the City of Cornwall for review at the following stages:
    - 30% Design (PDF, Excel)
    - 60% Design (PDF, Excel)
    - 90% Design (PDF, Excel)
    - Issued for Tender (PDF, Excel)
    - Issued for Construction (PDF, Excel)
- Construction specifications shall be completed in City of Cornwall/OPS standard templates.

- The City shall be responsible for the printing of all “Issued for Tender” and “Issued for Construction” drawing sets and contract specifications.
- All “Draft” and “Final” submission described herein shall be reviewed by City staff.
- All drawings, specifications, reports, memorandums, etc. must be signed and stamped by a Professional Engineer licensed in the Province of Ontario.
- Specifications shall be prepared based on OPS and City of Cornwall standards. The Proponent shall complete the Form of Tender (Schedule of Unit Prices) to be included in the tender document. The tender shall be prepared as an OPS unit rate contract.
- Tender specifications shall comply with the City’s Purchasing Policy.
- All design drawings shall be prepared in accordance with the City of Cornwall, MECP, OPS, and RRCA standards.
- The Proponent shall prepare Construction Phasing and Sequencing Drawings as necessary.
- All design drawings shall include property limits, easements, sanitary sewers, storm sewers, forcemain, watermain, roadway, ditches, sidewalks, driveways, culverts, utilities both above and below ground, dwellings, structures, entrances, pavement markings, traffic signs, trees/vegetations, etc.
- The Proponent shall prepare an Erosion and Sediment Control Plan drawings as required.
- The Proponent shall prepare a Composite Utility Plan (CUP) and any necessary utility relocation plans.

- Incorporate Street Lighting and Traffic Signal Upgrades/Plan provided by the City into the design drawings and contract specifications.
- Review all available drawings, specifications, reports, etc. pertaining to the project. The Proponent shall conduct site visits as required to confirm accuracy of the information provided. Any costs associated with redesign work as a result of a failure to review available documents or conduct necessary site visits will not be paid by the Corporation.
- The Proponent shall continually monitor and effectively control project costs to ensure the project remains within budget.

2.7.2. Quality Assurance and Quality Control (QA/QC)

- The Proponent shall conduct a QA/QC review of all “Draft” and “Final” submissions as described herein to ensure high quality services are provided. The Proponent shall be fully responsible for the QA/QC of all project deliverables including any Sub-Proponents.
- The QA/QC of all project deliverables shall be completed by a Senior Engineer with extensive experience on projects of a similar scope and who is not directly involved in the detailed design phase of the project.
- The Proponent shall include a detailed description of the QA/QC process to be conducted in accordance with the terms of the RFP.
- A QA/QC review shall be conducted for all “Draft” and “Final” drawings, specifications, reports, memorandums, etc. At a minimum, QA/QC reviews shall be conducted at the following stages: 60%, 90%, 100%, Issued for Tender and Issued for Construction.
- The Corporation reserves the right to audit the Proponent’s QA/QC practices. The Corporation may request clarification and/or request additional information from the Proponent to ensure adherence to the QA/QC requirements described herein.

- The Proponent shall maintain a detailed log where all QA/QC comments are documented. The Proponent shall provide a copy of the logs with each submission to the City.
- The Proponent shall be responsible to coordinate, review, QA/QC, etc. any work completed by a sub-Proponent. The Proponent shall be responsible to complete QA/QC reviews of all work produced by any sub-Proponent(s).

2.7.3. Coordination

- Coordinate the work of all sub-Proponents, including the geotechnical investigation. Determine the scope of the geotechnical investigation as further described herein. The scope of the geotechnical investigation shall be determined in consultation with the City and any other stakeholders.
- The Proponent shall review current and upcoming City Capital projects to determine any potential impacts on the proposed project. Any associated impacts shall be addressed in the contract documents.
- Continually coordinate with the geotechnical Sub-Proponent during the design process to ensure the design meets the recommendations provided in the geotechnical report(s).
- Continually coordinate with utility companies throughout the design process to ensure that the design meets the requirements and minimum standards of each of the respective utility companies. Refer to Appendix ‘A’, Section 2.5 – *Utility Coordination* for additional requirements.
- Identify any required property acquisitions or easement agreements. Coordinate any required property acquisitions and easement agreements with City staff. Provide drawings of property limits for the Corporation to secure. Refer to Appendix ‘A’, Section 2.3 – *Property Acquisition Coordination* for additional requirements.

- The Proponent shall coordinate with any required property owners or their representative in order to coordinate the location(s) of proposed/future services to each property parcel. The Proponent shall review each service request with the City and provide commentary. The Proponent and the City will determine if the service request is warranted.

2.7.4. Road Network Design

- Complete a comprehensive review of the preferred design option(s) indicated in the 2016 EA.
- The Proponent is responsible for optimizing the alignment and determining the best fit of the road corridor improvements, extension, and intersection within the right-of-way and revise the alignment as required.
- The road corridor improvements/extension shall be designed to meet the minimum standards of a 'Collector Roadway' as specified in the City of Cornwall Subdivision Manual.
- Identify any required upgrades to the intersection of Pitt St. and Thirteenth St. and prepare the associated detailed design drawings.
- Complete a review of adjacent properties and confirm the preferred location of proposed entrances and servicing requirements. Include entrance locations and future servicing locations on drawings.
- Include all necessary geotechnical requirements/recommendations for the design of the road network improvements, extension and roundabouts in the Geotechnical Investigation Report. No extra fees will be paid by the Corporation for geotechnical conditions/impacts.
- Complete a detailed review of the existing underground infrastructure (including a review of current alignments, future plans and upgrades, estimated remaining service life, etc.) and provide recommendations for any necessary modifications/upgrades during construction. The Proponent

shall consider how the current project will impact future accessibility and maintenance to existing buried municipal infrastructure along Lemay St./Thirteenth St.

- Prepare detailed pavement marking and signage drawings for the road corridor and roundabouts. Coordinate with the City's Traffic Department to determine any additional pavement marking/signage requirements.

2.7.5. Roundabout Design

- The Proponent shall complete a review of the roundabout designs proposed in the 2016 EA and verify that the design(s) meet the standards specified in the Transportation Association of Canada (TAC) *Roundabout Design Guide*, which was not available at the time the EA was prepared. The Proponent is responsible for assessing whether the preferred design options selected are the best design solutions for each of the respective roundabouts and provide recommendations as required.
- Evaluate the performance of the entire road corridor when verifying the appropriate number of entry lanes to each of the roundabout(s).
- Prepare a Traffic Operational Analysis (TOA) for each of the roundabouts in conjunction with the Traffic Impact Study specified in Section 2.6 – *Traffic Control and Traffic Impacts.* The TOA shall be completed in accordance with the process/requirements specified in Chapter 4 – Traffic Operational Analysis of the TAC *Canadian Roundabout Design Guide*.
- Evaluate the need for truck aprons to allow space for the over-tracking of heavy (oversize, overweight) truck traffic within each of the roundabouts.
- Evaluate the need for a right-turn bypass lane at the McConnell Ave. and Lemay Street Roundabout.

- Review existing bus routes and the location/proximity of bus stops to the future roundabouts. Include the relocation of any bus stops in the detailed design drawings, if required.
- Optimize the location of the roundabout(s) within the right-of-way; the proposed location/alignment was selected to minimize impacts to surrounding properties. The final location/alignment of the roundabout shall be determined by the Proponent.

2.7.6. Water Network Design

- Prepare Detailed Design Drawings for the proposed watermain(s) and associated appurtenances as further described herein. The design drawings shall include plan and profile drawings, details, OPSD's, etc.
- Establish and confirm the design criteria and parameters.
- Using the City's existing water model, complete the necessary hydraulic analysis for the design of the watermain(s) proposed watermain extension and expansion.
- Conduct a serviceability review of each parcel of land to ensure that it can be serviced by the existing or proposed watermain(s). Discussion/recommendations regarding the serviceability of each private property shall be included in the Final Design Report. The design of the water network(s) shall take into consideration future development and servicing requirements.
- Review the location and properties of the existing watermain(s) and associated appurtenances (hydrants, valves, services, etc.) within the corridor and determine the need for any additional appurtenance and/or the relocation of any sections of the existing watermain(s).
- The watermain design shall include all necessary geotechnical requirements and recommendations specified in the Geotechnical

Investigation Report. No extra fees will be paid by the Corporation for geotechnical conditions/impacts.

- Review the results of the Phase II Environmental Assessment in conjunction with the design/construction specification of the watermain extension. Assess the need for any site-specific construction measures (i.e. clay seal).

2.7.7. Storm Sewer Design

- Prepare Detailed Design Drawings for the proposed storm sewer as further described herein. The design drawings shall include plan and profile drawings, details, OPSD's, etc. The design drawings shall include any necessary modifications to the existing storm sewers as required.
- Establish and confirm the design criteria and parameters.
- Establish the overall storm sewer catchment area of the proposed system in coordination with City staff.
- Prepare design sheets for the proposed storm sewer extension; complete the necessary hydraulic analysis for the design of the storm sewer.
- The design of the storm sewer shall take into consideration the servicing and serviceability of the ultimate catchment area.
- The Proponent shall conduct a serviceability review of each parcel of land to ensure that it can be serviced by the proposed sewer(s). Discussion and recommendations regarding the serviceability of each private property shall be included in the Final Design Report.
- Review the location and properties of the existing storm sewers within the corridor and assess the need for upgrades/modifications as part of the project scope.

- The Proponent shall provide recommendations for dewatering in consultation with the geotechnical Sub-Proponent. Prepare any necessary Dewatering Plans and associated specifications.

2.7.8. Sanitary Sewer Design

- Prepare Detailed Design Drawings for the proposed gravity sanitary sewer. The design drawings shall include plan and profile drawings, grading plans, details, OPSD's, etc. The design drawings shall include any necessary modifications to the existing sanitary sewer as required.
- The Proponent shall review existing and/or proposed Site Plans, Servicing Plans, etc., as necessary for servicing properties.
- Establish and confirm the design criteria and parameters.
- Establish the overall sanitary sewer catchment area of the proposed system in coordination with City staff.
- Complete sanitary sewer design sheets for the proposed sanitary sewer extension. Complete the necessary hydraulic analysis for the design of the sanitary sewer.
- The design of the sanitary sewer shall take into consideration the servicing and serviceability of the ultimate catchment area.
- The Proponent shall conduct a serviceability review of each parcel of land to ensure that it can be serviced by the proposed sanitary sewer extension. Discussion and recommendations regarding the serviceability of each private property shall be included in the Final Design Report.
- Review the location and properties of the existing sanitary sewers within the corridor and assess the need for upgrades/modifications as part of the project scope.

- The sanitary sewer design shall include all necessary geotechnical requirements/recommendations the Geotechnical Investigation Report. No extra fees will be paid by the Corporation for geotechnical conditions/impacts.

2.7.9. Landscaping

- Prepare a detailed Landscaping Plan for the Improvements and Extension of Lemay St; plans shall include a detailed landscape design, restoration requirements, tree planting, etc.
- As part of the design process, the Proponent shall prepare two (2) landscaping design options for each phase of development, complete with cost estimates. The options shall be included in the Design Report.
- Following the selection of the preferred landscaping design option, the Proponent shall prepare a detailed Landscaping Plan for the road corridor and each of the proposed roundabouts. The landscaping features must be shown in the 3D rendering of the roundabouts.
- The Landscaping Plan for the roundabouts must include ‘high’, ‘low’ and ‘exterior’ landscaping zones, as recommended in the TAC *Canadian Roundabout Design Guideline.*
- As Lemay Street is a highly visible corridor, the detailed Landscaping Plan for the project area shall include streetscaping features to improve the overall aesthetic of the corridor.
- The Proponent shall consult with the City’s Parks and Landscaping Department regarding species selection and preferred options for tree and shrubbery selection.
- Consult with the RRCA regarding landscaping naturalization and incorporate any recommended features into the landscaping design.

- The landscaping plan shall consider alternatives to sod, where possible, in order to minimize maintenance costs in summer months and maintain a natural environment within the right-of-way.
- Complete a Tree Inventory for any trees which could be impacted by the proposed construction; the Proponent shall preserve as many trees as possible. All trees removed shall be replaced in accordance with the City's Tree Planting Policy.
- The detailed design drawings shall clearly identify which trees are to be removed, protected, replaced, remain, etc.

2.7.10. Street Lighting, Traffic Signals and Pedestrian Crossings

- The City will prepare the street lighting design for the corridor and roundabouts, as well as any necessary upgrades to the traffic signals at the intersection of Pitt St. and Thirteenth St. The Proponent is responsible for submitting base plans to the City in order to prepare the detailed design drawings for the street lighting plans and traffic signal upgrades.
- The Proponent shall coordinate with the Traffic Department to ensure that the street lighting design for the roundabouts meets the minimum standards and best practices specified in the TAC *Canadian Roundabout Design Guidelines* and other applicable design standards.
- The Proponent shall complete a detailed review of the street lighting design and traffic signal plan provided by the City.
- The Proponent shall incorporate the drawings and contract specifications for street lighting design(s) and traffic signal upgrades prepared by the City into the tender documents.
- The Proponent shall prepare the pedestrian crossing Plans for each of the roundabouts, complete with any signalization requirements (i.e. flashing beacons, etc.).

2.7.11. Design Reports

- The Proponent shall complete a Comprehensive Final Design Report for the Improvements and Extension of Lemay Street. The design report shall be continually updated throughout the entirety of the design phase of the project and submitted periodically to the Corporation for review and commentary. The Design Report shall be finalized at the end of the design phase of the project.
- The Comprehensive Final Design Report shall include at a minimum the following information:
    - Design Criteria and Rationale
    - Watermain Design/Model
    - Storm Sewer Catchment Area
    - Storm Sewer Design Sheets
    - Sanitary Sewer Catchment Area
    - Sanitary Sewer Design Sheets
    - Road Network Design
    - Traffic Impact Study
    - Traffic Model
    - Geotechnical Considerations
    - Construction Methodologies in Poor Geotechnical Conditions
    - Roundabout Design Criteria
    - Landscape Design Alternatives
- The Comprehensive Final Design Report shall include itemized construction cost estimates using estimated quantities and unit rates. The cost estimate shall be continually updated as the design progresses.

- The design report shall also include discussion/recommendations on the proposed construction schedules.
- The design report shall include detailed discussion of construction phasing, staging, sequencing, etc. and provide commentary on different alternatives.
- The design report shall include traffic modelling of the proposed roundabouts and road network expansion/extension.
- The design report shall include the Traffic Impact Study and a Traffic Operational Analysis for each of the roundabouts.
- The design report shall be signed and stamped by a Professional Engineer licensed in the Province of Ontario.
- The Proponent may also elect to prepare Technical Memoranda as the design progresses to be compiled into the Final Design Report at the conclusion of the design phase of the project.
- The design report shall include a detailed review of the ultimate design catchment area of the proposed sanitary and storm system.
- The Proponent shall include a review of the serviceability of each parcel of land along the Lemay Street Corridor.
- All versions of the Design Report(s) shall be submitted to the City in “Draft” for review by City staff. The Proponent shall incorporate all City comments into subsequent versions of the report. All reports shall be submitted to the City in PDF as well as three hard copies are to be delivered to the City’s Engineering office. All costs and/or disbursements associated with printing reports are to be included in the Proponent’s fee.

2.8. Tendering Services

- Provide tender documents and construction specifications using City of Cornwall format which would include all necessary sections such as Information to Tenderers, General Conditions, Supplementary General Conditions, Special Provisions and Standard Detail Drawings.
- Complete a pre-tender construction estimate and submit to the City a minimum of four (4) weeks in advance of tender issuance.
- The tender period shall be four to six weeks.
- Provide support to City staff during the tendering period. Prepare and answer all tender requests for clarification. Prepare Clarifications and Addenda using the City of Cornwall format.
- Ensure the tender documents are complete. A QA/QC review of all tender documents shall be completed prior to tendering. The Proponent shall be responsible to conduct comprehensive QA/QC reviews of any Sub-Proponent tender document.
- Review contractor/supplier requests for alternate equipment and products.
- Assist the City in evaluating the tender submissions and preparing award recommendations.
- Assist the City in contacting contractor references. Participate in interviews with contractor references with City staff.
- Upon tender award, prepare Final Contract Documents including all addenda, updated drawings and specifications for contract execution. The Proponent shall prepare four hard copies and an electronic version in PDF of the Final Contract Documents to be executed.

2.9. Permits and Approvals

- Coordinate and undertake all work associated with securing the necessary approvals, including but not limited to:
    - Ministry of the Environment, Conservation and Parks (MECP)
    - Ministry of Natural Resources (MNR)
    - Raisin Region Conservation Authority (RRCA)
    - Ministry of Labour (MOL)
    - Ministry of Transportation (MTO)
    - Electrical Safety Authority (ESA)
    - Technical Standards and Safety Authority (TSSA)
    - City of Cornwall Right-of-Way
    - Trans Northern Pipeline (TNPI)
    - All applicable utility companies (Cornwall Electric, Bell, Cogeco, Rogers, Union Gas, etc)
- Obtain the following permits and approvals:
    - MECP Permit to Take Water
    - MECP Sewage Environmental Compliance Approval
    - TNPI Crossing Permit
    - RRCA Permits and Approvals as required
    - City of Cornwall Site Plan Control Approval
    - City of Cornwall Right-of-Way/Road-Cut Permit
    - ESA Approvals
    - TSSA Approvals

- The Proponent shall be responsible to prepare a list of the required permits/approvals. The list shall include a log documenting the status of all approvals. The Proponent shall assess and determine/confirm the required approvals/permits. Any approvals/permits not listed above shall be included in the Proponent's fee. The Corporation will not consider additional fees from the Proponent related to required approvals/permits not listed above.
- Assess the utility impacts and requirements for the proposed project. Coordinate with each utility company and secure all necessary approvals/permits. Incorporate all utility requirements and comments into the detailed design as required. The coordination with each utility company shall occur as soon as reasonably possible to avoid any design and/or construction delays.
- The Proponent shall acquire all necessary approvals from each of the respective utility companies. The Proponent shall coordinate any required TSSA and ESA approvals.
- Apply and obtain approvals/permits from MECP, RRCA, City of Cornwall, ESA, etc. any other Federal, Provincial, Municipal regulatory authorities.
- The Proponent shall coordinate and liaise with all relevant authorities, prepare all necessary forms and applications, submit any necessary supporting documentation, etc.
- The Corporation shall pay all approval/permit fees directly.
- The Proponent and/or geotechnical sub-Proponent shall be required to obtain ROW Control permits form the City's Infrastructure Department for all geotechnical drilling work to be conducted on the ROW. Additionally, traffic control approvals from the City's Transportation Department will be required for any drilling work that will require traffic control.

- The Proponent and/or geotechnical sub-Proponent shall be responsible to secure any necessary approvals/permits from the MTO for geotechnical work within each respective corridor.
- The Proponent shall pre-consult with all relevant approval agencies as required to ensure the project is not delayed.
- As the numerous approvals/permits are a significant risk to the overall project schedule, the Proponent shall provide a detailed plan to mitigate approval/permit issues as a component of the proposal.
- All construction administration related permits/approvals shall be included in the construction administration component of the RFP.

2.10. Landowner and Public Consultation

- The successful Proponent shall plan and present at two Public Information Centres for the general public for the project. The Public Information Centres will be held at the City of Cornwall Infrastructure & Municipal Works boardroom located at 1225 Ontario Street, Cornwall, Ontario, K6H 4E1.
- The successful Proponent shall plan and present at two public meetings for the landowners contributing to the project. The landowner public meetings will be held at the City of Cornwall Infrastructure & Municipal Works boardroom located at 1225 Ontario Street, Cornwall, Ontario, K6H 4E1.
- The Proponent shall prepare all necessary presentation materials for each public meeting.
- The Proponent shall liaise and coordinate with each landowner and/or the landowner's representative throughout the detailed design process as required.

- Prepare 3D renderings for each of the two (2) proposed roundabouts, complete with site and landscaping works for presentation at public meetings. The 3-D rendering should show the roundabouts relevant to existing buildings, roads, vegetation, etc.
- Prepare all necessary public notices using the City of Cornwall template and circulate to the public and the landowners.
- Prepare various types of documents (brochures, video clips, drawings, social media posts and information pages for the City website) to be distributed to various stakeholders and the public for educational purposes.
- The landowner and public consultation for construction is included in the construction component of the RFP.
- The Proponent shall prepare and continually update a log for tracking comments/concerns from the landowners contributing to the project. The list shall be updated and reviewed at each coordination meeting.
- All communication with landowners shall be carefully documented. The Proponent shall communicate to the landowners and/or the landowner's representative in writing via email, memo, etc. Any conversation with landowners and/or landowner's representative shall be documented and circulated to the Corporation and landowner.

2.11. Coordination Meetings

- Coordinate with City of Cornwall staff throughout the design phase of the project. The Proponent shall assume monthly coordination meetings with City staff during the design phase. All meetings will occur at the City of Cornwall's Infrastructure & Municipal Works boardroom located at 1225 Ontario St., Cornwall, Ontario, K6H 4E1.
- The Proponent shall assume each coordination meeting will be four hours long.

- The Proponent shall prepare and circulate all meeting materials a minimum of three days in advance of the meeting.
- The Proponent shall arrange to have all key team members at each coordination meeting.
- The Project Director and Project Manager shall attend each coordination meeting.

3. CONSTRUCTION ADMINISTRATION

The City will act as the Contract Administrator for the duration of the construction phase of the project. The successful Proponent shall assist the Corporation throughout construction by providing supplementary Construction Administration and Inspection Services in order to ensure that the intent of the design is met. If the City does not have the resources available to act as Contract Administrator at the time of construction, the City may request that the Proponent provide full-time Construction Administration and Inspection Services.

The successful Proponent shall provide the following supplementary construction administration services related to the Improvements and Extension of Lemay St., as deemed necessary by the Corporation.

3.1. Construction Administration

The Proponent shall coordinate with the City/CA in order to provide the following construction administration services, as deemed necessary by the Corporation:

- Support City Staff with the completion of the Construction Administration/Management of the project in accordance with the drawings, specifications, reports, etc.

- Obtain any necessary construction related approvals/permits required for the project. The Proponent shall complete any necessary documentation to obtain and/or maintain permits/approvals.
- Promptly respond to all Contractor enquiries, RFI's, etc. within five business days. The Proponent shall assign resources to the project as required to ensure that the Contractor's schedule is not impacted as a result of awaiting further information from the Proponent.
- Issue supplementary drawings, details, information, etc., for clarification of contract documents, as needed.
- Prepare Deficiency Reports for any deficiencies observed during site inspections. Advise City staff immediately of any deficiencies observed.
- Coordinate with all approval agencies (MTO, TNPI, MECP, etc.) throughout construction. Provide all necessary documentation, reports, etc., as required. Provide all documentation in a timely manner to ensure the project is not delayed. The Proponent shall not defer coordination with approval agencies to the Contractor.
- Review any Contractor extra work requests and claims. Issue Contemplated Change Orders (CCO) and Change Orders (CO) complete with all required design drawings, details, specifications, etc., to the Contractor as necessary. The Proponent shall be responsible for any extra work/costs resulting from design error, negligence, etc. City staff shall approve all Change Orders.
- The Proponent shall prepare and present at one public meeting for the proposed construction.
- Notify all approval agencies when work has begun and is completed. Provide all necessary reports, documents, etc. as required. Coordinate any required inspections.

- Coordinate with City of Cornwall staff throughout construction and attend bi-weekly construction meetings with the City and Contractor.
- The Proponent shall assume construction site meetings are to occur bi-weekly. Construction meetings will occur at the City of Cornwall Infrastructure and Municipal Works boardroom at 1225 Ontario Street, Cornwall, Ontario, K6H 4E1.
- Prior to construction, the Proponent and the City will develop a Materials Testing Plan which will indicate the type and frequency of material testing to be completed throughout the course of construction.
- The Proponent shall support to City Staff for the duration of the construction. The Proponent shall base the Contract Administration services on the Fee Schedule included in Section 3.3 – *Construction Administration and Inspection Fees.*

3.2. Site Inspection Services

- The City will provide full-time site inspection services for the duration of the construction period. The Proponent will assist the City/CA throughout the construction phase of the project by providing supplementary Site Inspection Services as deemed necessary by the Corporation.
- The Proponent shall complete periodic site inspections at various stages throughout the duration of the project. The Proponent shall assume that each site visit shall be four hours in duration, which does not include travel time to the site.
- The Proponent’s Project Manager and City Project Manager shall coordinate the Proponent’s site inspections in order to ensure the intent of the design is met.

- The City shall coordinate all required geotechnical testing with the geotechnical Sub-Proponent. The Proponent shall review geotechnical reports as required.
- City Staff will maintain detailed As-Built Drawings in the field such that accurate As-Built Drawings, Service Location Sheets, etc., will be prepared by the Proponent and provided to the City at the conclusion of the project.

3.3. Construction Administration and Inspection Fees

- As the time commitments for Construction Administration and Site Inspection services are difficult to anticipate, the Proponent shall base the cost of these services, detailed in Section 3.1 and 3.2, on the estimates provided below:

3.3.1.1. Construction Administration and Inspection Fees for Phase III Works

POSITION	**HOURS**
Project Director	32
Project Manager/Contract Administrator	96
Site Inspector	240
Civil/Municipal Engineer	56
Electrical Engineer	24
Transportation Engineer	32
Landscape Designer/Architect	40
CAD Operator	40
Administrative Support	16

3.3.1.2. Construction Administration and Inspection Fees for Phase IV Works

POSITION	HOURS
Project Director	12
Project Manager/Contract Administrator	40
Site Inspector	96
Civil/Municipal Engineer	24
Electrical Engineer	12
Transportation Engineer	12
Landscape Designer/Architect	24
CAD Operator	24
Administrative Support	8

- All disbursements associated with Construction Administration and Site Inspection services such as mileage, lodging, meals, supplies, etc. shall be included in the staff unit rate and will not be paid for in addition to the staff unit rate provided in the submission. All costs associated with travel time to and from the project site are to be included in the staff unit rate and will not be paid for by the Corporation of the City of Cornwall.
- The fee for Construction Administration and Site Inspection services shall be time and material to an upset limit. The time allotment shown in the table above is estimated and the Proponent shall be paid based upon the actual time spent.
- If determined that a discipline not listed in the table above is required, the Proponent is responsible for providing a proposal that includes the rate/quantity of hours, roles and responsibilities and an explanatory note that describes why their presence is essential for the success of the project. The addition of any discipline to the Construction Administration team is subject to approval by the Corporation.

- The Proponent shall notify the Corporation immediately should the Proponent expect to exceed the allotted time. The Proponent shall require City approval prior to exceeding the estimated time allotment. The Proponent shall provide detailed justification for additional time required. The Corporation will not compensate the Proponent for additional time should the Proponent fail to provide sufficient notification and/or justification to the Corporation.
- The Corporation will not be responsible for any overtime, rate premium, etc. Any mandated rate premiums shall be the responsibility of the Proponent. The Proponent shall not transfer these rate premiums to the Corporation in any manner.
- The Corporation shall not be responsible for costs related to design error, omissions, negligence, etc. The Proponent shall be responsible for all costs related to re-design work due to the Proponent's error, negligence, etc.

3.4. Geotechnical Construction Services

3.4.1. Geotechnical Site Inspections

- The City will retain a qualified geotechnical engineering firm to complete any materials testing required during the construction phase of the proposed project. The Proponent and/or geotechnical Sub-Proponent shall not be responsible for materials testing.
- The Proponent and/or geotechnical Sub-Proponent shall provide support to City Staff during the construction phase of the project and answer any question that may arise. Additionally, the Proponent and/or geotechnical Sub-Proponent will complete periodic site inspections as needed to ensure the intent of the geotechnical design is met.

- The Proponent's Project Manager and City Site Inspector shall coordinate the geotechnical Sub-Proponent's site inspections as required in order to ensure the intent of the design is met.
- The geotechnical Sub-Proponent that was retained for the initial geotechnical investigation in the design phase must complete all geotechnical services required in the construction phase of the project.
- The Proponent shall provide as much notice as possible; however, a minimum three (3) hour response time from the geotechnical Sub-Proponent shall be required.
- The geotechnical Sub-Proponent shall provide written reports for all site inspections. All reports/site reports shall be completed in the field at the time of the inspection. Site reports completed at a later date shall not be accepted or paid for.
- The geotechnical Sub-Proponent shall not direct the Contractor but report directly to the Proponent's Project Manager and/or City Site Inspector.
- All site reports shall be stamped by a Professional Engineer licensed in the Province of Ontario. No exceptions will be made.
- The coordination and the management of the geotechnical Sub-Proponent shall be included in the Project Manager's scope of work and shall not be included in the fee for Geotechnical Construction Services. Sub-Proponent fees are to be paid at cost by the Corporation. No mark-up of any Sub-Proponent fees shall be applied to any invoice and/or paid by the Corporation.
- The hydrogeological investigation for the Permit to Take Water (PTTW) applications shall be included in the design fees and not in this item.
- Any geotechnical services required post-construction, shall be paid on a time and material basis.

3.4.2. Geotechnical Construction Services Fees

- As the geotechnical services are difficult to anticipate, the Proponent shall base the cost of these services for each anticipated year of construction on the estimates provided in the Fee Schedule below:

3.4.2.1. Geotechnical Construction Services for Phase III Works

POSITION	HOURS
Technologist/Technician	24
Senior Geotechnical Engineer	80
Preparation of Reports/Technical Memos	40

3.4.2.2. Geotechnical Construction Services for Phase IV Works

POSITION	HOURS
Technologist/Technician	8
Senior Geotechnical Engineer	32
Preparation of Reports/Technical Memos	16

4. POST-CONSTRUCTION SERVICES

4.1. Post-Construction Services & Inspections

- Complete warranty inspections for each discipline twelve months and twenty-four months following Substantial Performance for each phase of the project. Issue Warranty Inspection Site Reports immediately following each site visit
- Assist the Corporation as required during the warranty period. Ensure all warranty issues have been addressed and resolved.

- Conduct additional inspections as required for any outstanding or deficient work.
- Coordinate with the Corporation and the contractor to ensure all warranty, deficiency and/or outstanding work is completed.
- Assist the Corporation and coordinate with the contractor to review and resolve any third-party claims.

4.2. Post-Construction Services Breakdown of Costs

- As the time commitments associated with post-construction, testing, training and commissioning services are difficult to anticipate, the Proponent shall base the cost of these services, as detailed in Section 4.1 and 4.2, on the estimates provided below:

4.2.1.1. Post-Construction Services for Phase III Works

POSITION	HOURS
Project Manager	16
Site Inspector	32
Municipal Engineer	16
Transportation Engineer	16
Electrical Engineer	16
Landscape Architect	16
CAD Operator	32

4.2.1.2. Post Construction Services for Phase IV Works

POSITION	HOURS
Project Manager	8
Site Inspector	16
Municipal Engineer	8
Transportation Engineer	8
Electrical Engineer	8
Landscape Architect	8
CAD Operator	16

- All disbursements associated with post-construction and inspection services such as mileage, lodging, meals, supplies, etc. shall be included in staff unit rate and will not be paid for in addition to the staff unit rate provided in the submission. All costs associated with travel time to and from the job site are to be included in the unit rate and will not be paid for by the Corporation of the City of Cornwall.
- The fees for post-construction services shall be time and material to an upset limit. The time allotment shown in the table above is estimated and the Proponent shall be paid based upon the actual time spent.
- The Proponent shall notify the Corporation immediately should the Proponent expect to exceed the allotted time. The Proponent shall require Corporation approval prior to exceeding the estimated time allotment. The Proponent shall provide detailed justification for the additional time required. The Corporation will not compensate the Proponent for additional time should the Proponent not provide sufficient notification and/or justification to the Corporation.

4.3. As-Built Drawings

- Prepare detailed As-Built Drawings and submit to the City in AutoCad and PDF format.
- As-Built Drawings shall be submitted to the City no later than three months after Substantial Performance for each phase of the project.
- The Corporation will review the submitted As-Built Drawings and provide comments to the Proponent. The Proponent shall update the As-Built Drawings as required and re-submit to the City.
- The Corporation will complete any additional field surveying as required as a result of incomplete as-built information.
- The Proponent shall submit a time and material to upset limit fee for the preparation of As-Built Drawings. The Proponent shall not include the labour required for As-Built Drawings in the time and material estimates in Section 4.2 – *Post-Construction Services Breakdown of Costs.*

5. SCHEDULE & PROJECT RISKS

- The Corporation and Landowners intend for the construction of Phase III of the Lemay Street Improvements and Extension to be completed by the end of 2021, and Phase IV to be completed by the end of 2022. The Proponent shall prepare a detailed schedule for the entire project including the design, tender, construction and post-construction phases of the project. If the Proponent does not believe the completion date is achievable, the proposed schedule should indicate the earliest possible completion date.

- The Proponent shall base the schedule on the following:

Item	Date
Issue of RFP	January 31, 2020
Deadline for Questions	February 14, 2020
Deadline for Submission	February 28, 2020
Award of RFP – Council Meeting	March 23, 2020
Project Commencement	March 30, 2020

Note: although every attempt will be made to meet dates as listed, the Corporation reserves the right to modify any or all dates at its sole discretion

- The Proponent shall provide a detailed project schedule identifying all tasks required to complete the project on time and on budget.
- The Proponent shall detail the proposed project management and methodology to ensure the project remains on schedule.
- The proposed project has numerous project risks which can impact the project schedule and budget. The Proponent shall identify all project risks and provide a detailed project methodology which will mitigate the project risks. The Proponent shall also include any actions required by the Corporation.
- The Proponent shall identify the design, tender, construction, etc., methodology and strategy to accelerate the project schedule.
- The quantity of regulatory approvals required for the project present significant risk to the project schedule as well as the budget. The Proponent shall include details on the proposed strategy to secure permits and approvals in a timely fashion in order to mitigate project delays and cost overruns.

- The Proponent shall consider various tendering and construction phasing alternatives which could expedite the overall project schedule.
- The Proponent shall review various construction methodologies which could expedite the project schedule and mitigate costs.
- Continually update the project schedule and submit an updated version monthly to the City to be reviewed at monthly progress meetings. The schedule shall include City review time.