



Contract 3099P

Sanitary Sewer Assessment for the Steveston Study Area

1. Introduction

The City of Richmond proposes to engage the services of a Civil Engineering Consultant to complete a condition assessment of the sanitary sewers and manhole structures in the Steveston sanitary sewer study area and recommend a remediation program based on the assessment.

The objective of this Request for Proposal (RFP) is to provide the City with qualified proponents capable of carrying out the work herein defined. The subsequent proponent submissions will form the basis for evaluation, interview and selection.

2. Submission Details

Three (3) copies of proposals marked “**Contract 3099P – Sanitary Sewer Assessment for the Steveston Study Area**” addressed to the Purchasing Section, will be received at the Information Counter, Main Floor, Richmond City Hall, 6911 No. 3 Road, Richmond BC V6Y 2C1, until 2:00pm, Local Time, on Tuesday, November 23, 2007. Submissions received after this time will be returned to the sender.

The City reserves the right to cancel this Request for Proposal (RFP) for any reason without any liability to any proponent or to waive irregularities at their own discretion.

Proposals may be withdrawn by written notice only provided such notice is received at the office of the City’s Purchasing Section prior to the date/time set as the closing time for receiving proposals.

Proposals shall be open for acceptance for the 90 days following the submission closing date.

All proposals will remain confidential, subject to the Freedom of Information and Privacy Act.

Any interpretation of, additions to, deletions from, or any other corrections to the Proposal document, will be issued as written addenda by the City of Richmond. All bidders receiving copies of the documents will be faxed and/or e-mailed copies of the addenda. It is the sole responsibility of the potential Bidders to check with the City of

Richmond's Purchasing Section to ensure that all available information has been received prior to submitting a bid.

3. Inquiries

3.1 Clarification of terms and conditions of the proposal process shall be directed to:

Purchasing

Sumita Dosanjh
Purchasing Section
City of Richmond

Telephone: 604-276-4097
E-mail: purchasing@richmond.ca

3.2 Technical clarification shall be directed to:

Technical

Kimberley Wong, EIT
Engineering Planning Department
City of Richmond

Telephone: 604-247-4657
E-mail: kwong2@richmond.ca

Richard Wong, P.Eng.
Engineering Planning Department
City of Richmond

Telephone: 604-276-4385
E-mail: rwong@richmond.ca

The City, its agents and employees shall not be responsible for any information given by way of verbal communication.

Any questions that are received by City of Richmond Staff that affect the Proposal Process will be issued as addenda by the City of Richmond.

4. Project Background

The Steveston sanitary sewer study area is located in the south west corner of Lulu Island. The estimated quantity of the sanitary sewer components within this study area are as follows:

| COMPONENT | QUANTITY |
|--------------------------|-----------------|
| Manholes | 1,450 |
| Gravity Mains | 88,650m |
| Force Mains | 11,240m |
| Trunk Sewers (GVS&DD) | 825m |
| Pump Stations | 18 exactly |

The trunk sewers under the ownership of the Greater Vancouver Sewerage and Drainage District (GVS&DD) are not part of the scope of this project. There is a mix of polyvinyl chloride pipes, asbestos cement pipes, fibre reinforced pipe and high density polyethylene pipes in this study area.

As part of the City's Sanitary Sewer Master Plan, a comprehensive review and condition assessment of the sanitary sewer system in the Steveston study area to:

1. Determine the structural and service condition of the system
2. Identify occurrences and potential sources of inflow and infiltration
3. Recommend a remediation program for the system based on a given annual budget

The project will not include evaluation of the system capacity. The recommended remediation strategy may combine open cut, alternate sewer alignments, and/or trenchless solutions for sewer repair and construction that can be demonstrated to be cost effective and less disruptive than open cut sewer repairs alone.

5. Project Scope

The Consultant will dedicate an experienced, efficient team capable of undertaking the variety of tasks within the allotted time frame. The Consultant's services include, but are not limited to the following:

BASE SCOPE

I. General

- Allow for sufficient meetings and discussions with City staff;
- Comply with the Supplementary Specifications to the Master Municipal Construction Document (attached in Appendix B) and relevant sections in the Master Municipal Construction Document;
- Comply with applicable bylaws and codes. This includes, but is not limited to, Workers Compensation Board regulations and the City's Public Health Protection Bylaw;
- Provide final reports signed and sealed by a Professional Engineer;

II. Compile Background Information and As-Built Drawings

- Collect and review all relevant data and drawings;
- Inspect and become familiar with site conditions and constraints;
- Interview relevant City staff for background information;
- Locate manholes and coordinate with the City Staff to locate any buried or missing manholes;

III. Notify Residents and Provide Traffic Control

- Notify all residents within work areas at least 1 week in advance of cleaning and closed circuit television (CCTV) activity, in the form of letters;
- Identify locations where access into private property is required and provide a list of these addresses to the City prior to accessing the properties;
- Notify affected residents as instructed by City Staff prior to accessing sewers in right of ways within private property;
- Where there are obstructions on private property for access, coordinate with the residents and the City to have the obstructions relocated/removed;
- Regulate traffic in working areas per Traffic Control Guidelines (see Appendix B) and obtain direction and approval from City's Traffic Department prior to commence of work;

IV. Perform Sewer Cleaning and Grease Cutting

- Provide a sanitary sewer bypass where necessary, with prior approval from the City (see CCTV Standard Supplemental Specifications in Appendix B);
- Flush and clean the entire sanitary sewer system within the subject catchments as per Sewer Cleaning Supplementary Specifications in Appendix B;
- Coordinate cleaning of all pump stations within the study area by the City's Operation Staff;
- Note that only City forces shall operate City fire hydrants. The Consultant will be required to apply for hydrant use permits, however, the City will waive the permit fee;
- Perform root and solid debris cutting as part of the cleaning process;
- Perform grease cutting where necessary (specify rates for all pipe materials);

V. CCTV Inspections and Manhole Inspections

- Perform CCTV inspection using Water Research Council (WRC) standard codes with an operator certified by the North American Association of Pipeline Inspectors and the WRC per CCTV Standard Supplemental Specification in Appendix B;
- Perform manhole inspections as per Manhole Inspection Standard Supplementary Specifications in Appendix B;

VI. Recommend a Remediation Strategy

- Review existing condition of the pipe systems and manholes;
- Assess rehabilitation of sewers and manholes required to address structural defects and infiltration concerns;
- Prepare a proposed prioritized rehabilitation program using the given annual budget;
- Provide maps that include the existing sanitary sewer network of the study area, location and type of needed remediation, colour coded prioritization of repair and schedule;

- Provide table summary of the remediation program that includes prioritization, location of repair, type of defect, description of pipe segment, recommendation, schedule and cost estimate;
- With each identified defect within the priority list, provide a separate detailed description including photos, exact location of needed repair, recommendations, schedule and cost estimate;
- Compile a summary DVD with all videos on defected areas in the sanitary sewers requiring major repairs in the remediation program.

The City will not be providing services or equipment required to complete the scope of work listed above, unless stated otherwise. All work must comply with applicable bylaws and codes. This includes, but is not limited to, Workers Compensation Board regulations and the City's Public Health Protection Bylaw.

OPTIONAL SCOPE (Includes Updating Existing Specifications)

The Consultant shall include this optional scope in the proposal only if the Consultant determines that updates and additions to the specifications provided in this RFP are required according to current industry standards and practices. The proposal shall include a description of the changes in the project scope as a result of the proposed specification amendment, and provide a separate set of cost estimates and schedule for this option.

6. Consultant Duties

The Consultant shall complete the scope of work outlined in this RFP. Results shall be presented in two reports:

1. CCTV Inspection Report
2. Manhole Inspection Report

The sanitary sewer inspection work is to be presented to the City of Richmond in the form of a CCTV inspection report (4 hardcopies and 1 electronic copy in a PDF file) complete with one set of Mpeg 2 format DVDs, and a CD-ROM of digital photographs and digital data output files in a Microsoft Access database (.mdb) format. The report will include the Consultants recommendations for remediation of appropriate pipe segments.

A manhole inspection report with photographs will be submitted in a separate report (4 hardcopies and 1 electronic copy in a PDF file) along with a CD-ROM of the digital photographs and the digital output files in a Microsoft Access database (.mdb) format.

The Consultant shall also provide 2 copies of a summary DVD with all videos on defected areas in the sanitary sewers requiring major repairs in the remediation program.

7. City Provided Items

The City will provide the following items:

- Relevant as-built information and reports, upon request by the Consultant
- Sanitary Sewer section maps for the Steveston Study Area
- Supplementary Specifications to complement the Master Municipal Construction Documents (Appendix B):
 - Section 02734 – Sewer Cleaning
 - Section 02735 – Manhole Inspection
 - Section 02733 – CCTV Video Inspection
- General Traffic Control Guidelines for the City of Richmond Roadways (Appendix B)
- Sanitary sewer size requirements

The City of Richmond Engineering Department Design Specifications, July 2002, and a new release of Supplementary Specifications and Detail Drawings, June 2005, must be purchased at the City's Front of House for \$100 each.

8. Project Schedule

A detailed schedule shall be included in the proposal. The schedule shall include a realistic time frame for all major tasks and identify milestone dates. The following project milestone dates have been set:

- CCTV Inspection Final Report Submission: May 25, 2008
- Manhole Inspection Final Report Submission: May 25, 2008

9. Proposal Submissions

All proponents are required to provide the following information with their submissions, and in the order that follows:

Project Scope

The Consultant shall outline an approach to the undertaking of the project reflecting a clear understanding of the scope of work.

Methodology

The proposal shall describe in detail the steps taken in the sanitary sewer pump station condition assessment. The Consultant shall include all corresponding fees for each of them and shall include detailed information on what will be delivered, including the expected outcome and benefits to the City of Richmond.

Schedule

The project must be completed by the submission date(s) listed above. If in the proponent's opinion more time is required to achieve the specified objectives, this should be clearly indicated in the proposal.

The Consultant shall provide one schedule for the Original Scope (following the specifications set out in this RFP) and a separate schedule for the project to include the Optional Scope.

The proponent shall include a detailed schedule of all activities, including milestones, project meetings, interim reports and progress reports required for this project.

The proponent shall provide a preliminary schedule for all services to be provided and a summary of levels of effort of personnel, their rates, hours, and costs for each aspect of the project.

A statement of commitment to undertake the project and provide the staff with the necessary experience on time and on budget shall be included.

Project Team

The Consultant shall list the personnel, including the project manager, who will be working on the project and provide resumes of previous related experience for each of them, as well as a schedule of their hourly fees.

The Consultant shall include in the proposal a list of any sub-consultants, description of technology/equipment that will be used, brief resume of relevant experience, and a minimum of three (3) client references.

The Consultant should also provide a minimum of three (3) client references from projects of a similar size and scope undertaken by key members of the project team.

Fees

The Consultant shall complete the Bid Summary in Appendix C of this RFP for the Original Scope (following specifications set out in this RFP) and a separate Bid Summary for the Optional Scope as described in the proposal.

The fees should be based on hourly rates for staff assigned to the project and broken down by the different phases of the work. The proposal shall include a maximum fee (upset price) for all services. This information shall form the basis for payments to the successful proponent. Staff rates shall be the basis for adjustments to the value of the contract in the event the scope of work varies from that proposed.

Corporate Profile

A Corporate profile of the proponent's firm outlining its history, philosophy and target market shall be included with the proposal.

References

A minimum of three (3) client reference from projects of a similar size and scope.

Bid Summary

The consultant shall complete the Bid Summary (see Appendix C) to be attached that to the proposal.

10. Working Agreement

The successful proponent will enter into a contract for services (see attached draft agreement in Appendix C) with the City based upon the information contained in this request for proposal and the successful proponents submission and any modifications thereto.

Proponents may include their standard terms of engagement.

11. Evaluation Criteria

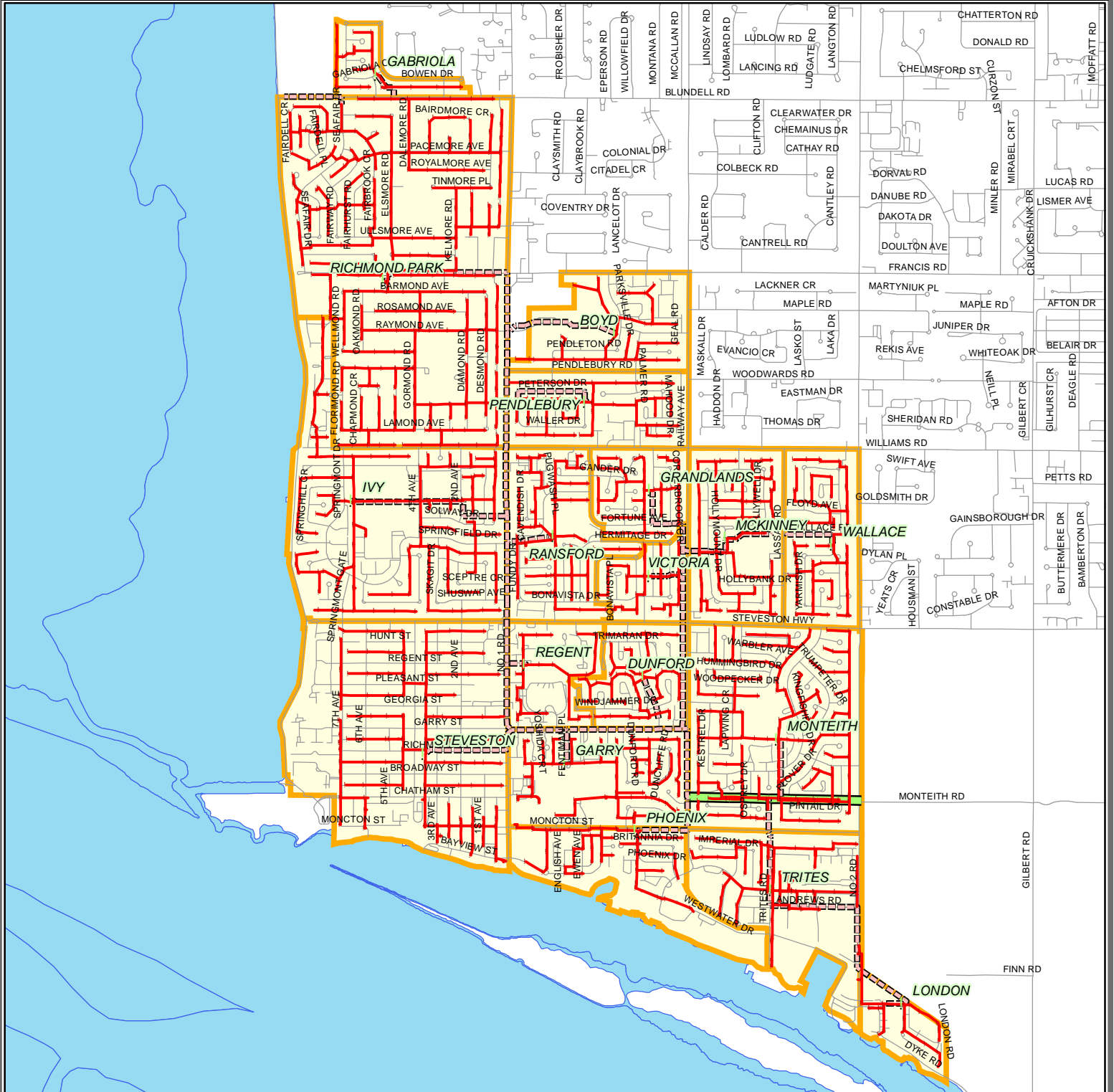
Proposals shall be evaluated to determine the best value offered to the City against conformance to the following criteria:

- Understanding of project objectives/outcomes and vision
- Project Methodology
- Team Composition – Experience and Qualifications of those staff to be assigned to the project.
- Project Deliverables
- Value for Money
- References
- Interview (if required)

APPENDIX A

- Steveston Sanitary Sewer Study Area Map

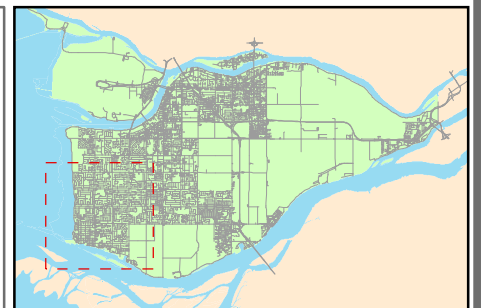
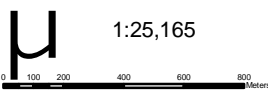
Steveston Sanitary Study Area



Legend

- Pump Stations
 - Manholes
 - Gravity Main
 - Force Man
 - Trunk Sewer
 - Steveston Study Area
- Data Snapshot Date: August 17, 2007
Map Created By: jhannan
Print Date: August 17, 2007
Printed By: jhannan

Note:
The information shown on this map is compiled from various sources and the City makes no warranties, expressed or implied, as to the accuracy or completeness of the information.
Users are reminded that lot sizes and legal description must be confirmed at the Land Title office in New Westminster.
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APPENDIX B

- Supplementary Specifications to complement the Master Municipal Construction Documents:
 - Section 02734 – Sewer Cleaning
 - Section 02735 – Manhole Inspection
 - Section 02733 – CCTV Video Inspection
- General Traffic Control Guidelines for City of Richmond Roadways

SEWER CLEANING

1.0 GENERAL

Section 02734 refers to those portions of the work that are unique to the requirements for cleaning new and existing sanitary, storm and combined sewer pipe and pipe culverts. Sewer cleaning shall remove all debris from sewers and manholes to alleviate blockages and prevent sewer backups, overflows and property damage, to restore hydraulic capacity, to reduce odors, to permit thorough condition inspection and to allow rehabilitation works to be performed. Definitions for debris are generally consistent with the nomenclature contained in the Water Research Centre (WRC) publication, "Manual of Sewer Condition Classification", Third Edition, August 1993. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

1.1 Related Work

- | | | |
|----|--------------------------|---------------|
| .1 | Traffic Regulation | Section 01570 |
| .2 | Storm Sewers | Section 02721 |
| .3 | Pipe Culverts | Section 02723 |
| .4 | Manholes and Catchbasins | Section 02725 |
| .5 | Sanitary Sewers | Section 02731 |
| .6 | Sewage Forcemains | Section 02732 |
| .7 | CCTV Video Inspection | Section 02733 |
| .8 | Manhole Inspection | Section 02735 |

1.2 References

- .1 The abbreviated standard specifications for testing, materials, fabrication and supply, referred to herein, are fully described in References – Section 02000.

1.3 Work Regulations

- .1 Work is to conform to all applicable regulations of the Workers Compensation Board (WCB). Confirm training compliance in the following:
- .1 Confined space rescue
 - .2 Confined space entry
 - .3 Ventilation
 - .4 Atmospheric monitoring
 - .5 Self-contained breathing apparatus
 - .6 Personal protective equipment
- .2 Provide written confirmation to the Contract Administrator that workers have knowledge of confined space entry practices and of the equipment required for confined space entry.
- .3 Work is to conform to all applicable bylaws and regulations.

1.4 Scheduling of Work

- .1 Schedule work to minimize interruptions to existing services.
- .2 Schedule work to comply with City Noise Bylaws.

1.5 Measurement for Payment

- .1 All units of measurement for payment will be as specified herein unless shown otherwise in the Schedule of Quantities and Prices.
- .2 Payment for all work performed under this Section will be

SEWER CLEANING

made at the respective unit price bid in the Schedule of Quantities and Prices.

.3 Sewer Cleaning

Sewer cleaning will be measured on a length basis. The length paid will be the total number of lineal metres acceptably cleaned. Measurement will be made above ground from centre of manhole to centre of manhole as confirmed by steel tape measurement in conjunction with sewer inspection.

If cleaning is abandoned the length paid will be measured from the start manhole to the point of abandonment.

Separate payments will be made for sewer cleaning prior to repairs (i.e. on sections inspected prior to tender) and for sewer cleaning to facilitate CCTV inspections (i.e. on sections not inspected prior to tender).

Separate payment will be made for sewer sizes exceeding 350 mm diameter, as indicated in the Schedule of Quantities and Prices.

Manhole cleaning will not be measured for payment and will not be paid for separately. Payment is to be included in the prices bid for sewer cleaning.

.4 Reverse Set-Up

Separate payment will not be made for reverse set-up cleaning. Payment is to be included in the prices bid for sewer cleaning.

.5 Solid Debris Cutting

Solid debris cutting will be measured on a length basis. The length paid will be the total number of lineal metres acceptably cut, as computed by measurements taken from the sewer inspection.

Separate payments will be made for solid debris cutting prior to repairs (i.e. on sections inspected prior to tender) and for solid debris cutting to facilitate CCTV inspections (i.e. on sections not inspected prior to tender).

No separate payment will be made for each size or size range of sewers.

.6 Flow Control and Traffic Control

Separate payment will not be made for flow control or traffic control. Payment is to be included in the prices bid for sewer cleaning.

SEWER CLEANING

2.0 PRODUCTS

- 2.1 High Velocity Cleaning Equipment** .1 High velocity sewer cleaning equipment is to be constructed for ease and safety of operation. The equipment is to have a selection of hydraulically or hydrodynamically propelled nozzles that are capable of producing a scouring action from 15 to 45 degrees, effectively scouring the sewer and transporting debris in all sizes of sewers to be cleaned. The equipment is to be capable of providing a minimum flow of 4.1 litres per second at 13,800 kPa. The equipment is to include a water tank, auxiliary engines, pumps, a hydraulically driven hose reel, a wash down gun for cleaning manholes and an approved back flow preventing device for water tank filling.
- 2.2 Debris Removal Equipment** .1 Debris removal equipment is to consist of a vacuum unit complete with positive displacement pumps or fans producing a minimum of 700 l/s air movement, a storage tank and hoses. The storage tank is to be water tight and configured in such a manner as to allow the liquid portion of the debris to be returned to the sewer. The suction hose is to have a minimum diameter of 150 mm. Equipment is to be capable of removing debris at a minimum of 4.5 metres of vertical head.
- 2.3 Solid Debris Cutting Equipment** .1 Solid debris cutting equipment is to be capable of removing heavy roots and solid debris such as encrustation and grease, and includes hydraulic cutters, saw or blade, and remotely operated robotic routers or grinders.
- 2.4 Sewer Plugs** .1 Sewer plugs are to be designed to stop or reduce flow from upstream sewer(s) and are to permit tethering to and be removable from the ground surface.
- 3.0 EXECUTION**
- 3.1 Sewer Cleaning** .1 Deliver City of Richmond notification letters to residents at least one week prior to commencing any cleaning work. Contact information for the CCTV Contractor will be provided in this initial notification letter. The Contractor may be required to provide further information and/or written notices to residents..
- .2 Provide a minimum of 24 hours notice to the Contract Administrator, of the locations where the cleaning will be performed on the following day(s).
- .3 Clean all pipelines using high velocity equipment. Take precautions to ensure that no flooding of public or private property occurs during the cleaning, taking particular care with lots having short frontages.
- .3 Scour and remove all debris from the sewers and manholes including but not limited to sludge, dirt, sand, gravel, rocks, bricks, grease, roots and other solid and semi-solid materials. Some deposits such as heavy grease or root masses may

SEWER CLEANING

require additional equipment and effort.

- .4 Begin cleaning with the upstream sewer in the system and proceed downstream. Scour clean manhole walls and benching prior to cleaning the downstream sewer. Cleaning is not to proceed downstream until all contributing upstream sewers have been cleaned. Sewers are to be cleaned in the direction of flow unless a reverse set-up is required..
- .5 If at any time during the cleaning operation pipe material or backfill is observed, immediately notify the Contract Administrator. Jointly, the Contractor and Contract Administrator will agree to:
 - complete or attempt to complete cleaning;
 - suspend cleaning operations and inspect the sewer;
 - simultaneously clean and inspect the sewer.

3.2 Reverse Set-Up

- .1 If cleaning of an entire sewer cannot be completed from the upstream manhole, move cleaning equipment to the downstream manhole and attempt cleaning again. Up to one hour is to be spent removing or attempting to remove a specific blockage in order to reduce upstream flow levels and permit complete sewer cleaning.

3.3 Debris Removal

- .1 Vacuum type debris removal equipment is to be on site and in operation in the downstream manhole at all times during sewer cleaning. Remove all debris from the downstream manhole of the sewer being cleaned and do not pass debris from manhole to manhole. Decant excess water and return to the sewer downstream of the sewer being cleaned.

SEWER CLEANING

- .2 Keep solid and semi-solid debris in totally enclosed containers at all times and remove from the site at the end of each day to be disposed of offsite.
- 3.4 Solid Debris Cutting**
- .1 Obtain the Contract Administrator's approval prior to undertaking any cutting and removal of excessive roots or solid debris from the sewer. The limits will be as identified by post cleaning sewer inspection and as directed by the Contract Administrator. Perform the work using remote controlled equipment and monitor and record the entire operation by CCTV. Consider the existing pipe material and condition in selecting equipment and take care not to damage the existing pipe during the cutting and removal operation..
- 3.5 Flow Control**
- .1 If sewer flows are hampering effective sewer cleaning, flow control measures are to be undertaken. Flow control measures include but are not limited to, off peak work or plugging. Provide the Contract Administrator with forty-eight hours notice prior to undertaking any flow control measures. Select a method that ensures flooding of public or private property does not occur. Monitor flow levels upstream of a plugged sewer at all times.
- 3.6 Supply of Water**
- .1 Water for sewer cleaning operations will be supplied from Municipal fire hydrants. Provide the Contract Administrator with three (3) days notification of intended hydrant location(s). The specific hydrant in the requested location will be selected and equipped with an appropriate back flow preventing device by City forces. The Contractor will be advised of the hydrant location. The back flow preventing device must be used at all times and the fire hydrant is not to be obstructed in the event of a fire in the area served by the hydrant.
- 3.7 Quality Control**
- .1 Acceptance of all work described in this section will be made upon successful inspection by the Contract Administrator. If the inspection reveals the work to be deficient, the sewer is to be re-cleaned and the work re-performed and re-inspected at the Contractor's expense until fully compliant with the specifications contained herein.

END OF SECTION

 MANHOLE INSPECTION

- 1 GENERAL**
- .1 Section 02735 refers to those portion of the work that are unique to the requirements for non-person-entry inspection of existing sanitary, storm and combined sewer manholes and inspection chambers. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
- 1.1.1 Related Work**
- | | | |
|----|--------------------------|---------------|
| .1 | Traffic Regulation | Section 01570 |
| .2 | Storm Sewers | Section 02721 |
| .3 | Pipe Culverts | Section 02723 |
| .4 | Manholes and Catchbasins | Section 02725 |
| .5 | Sanitary Sewers | Section 02731 |
| .6 | Sewage Forcemains | Section 02732 |
| .7 | CCTV Video Inspection | Section 02733 |
| .8 | Sewer Cleaning | Section 02734 |
| .9 | Inclinometer Reporting | Section 02736 |
- 1.2 References**
- .1 The abbreviated standard specifications for testing, materials, fabrication and supply, referred to herein, are fully described in References - Section 02000.
- 1.3 Work Regulations**
- .1 Work is to conform with all applicable regulations of Workers Compensation Board (WCB). Confirm training compliance in the following:
- .1 Confined space rescue
 - .2 Confined space entry
 - .3 Ventilation
 - .4 Atmospheric monitoring
 - .5 Self-contained breathing apparatus
 - .6 Personal protective equipment
- .2 Provide written confirmation to the Contract Administrator that workers have knowledge of confined space entry practices and of equipment required for confined space entry.
- 1.4 Scheduling of Work**
- .1 Schedule work to minimize interruptions to existing services.
- 1.5 Measurement for Payment**
- .1 All units of measurement for payment will be as specified herein unless shown otherwise in the Form of Tender.
- .2 Payment for all work performed under this Section will be made at the respective unit price bid in the Form of Tender. Measurement for manhole inspection will be for each complete inspection as described in Section 3.0 Execution.
- 2.0 PRODUCTS**
- 2.1 Equipment**
- .1 The digital camera is to be capable of producing clear, sharp images at a minimum resolution of 800 x 600.

MANHOLE INSPECTION

3.0 EXECUTION**3.1 Inspection Process**

- .1 Report on and record the condition of all features on the inside of the manhole together with the ground level condition within a two (2) metre radius of the cover.
- .2 Each manhole is to be observed and assessed according to the standard City of Richmond Manhole Inspection Report form, field check sheets and associated codes. Any variation from the standard report form is to be noted in the survey report.

3.2 Photographs and/or Digital Images

- .1 Photograph the interior of each manhole perpendicular to the base with an approved digital camera.
- .2 Photograph the ground level characteristic surrounding the cover such that any defects and physical ground features impacting the manhole at ground level are recorded.
- .3 Photograph any manhole structural deterioration, iron/staining and infiltration defects with a rating of two (2) or greater to a maximum of two (2) additional images. These additional images are to be acknowledged in the Comments field.
- .4 Overlay on each photograph the following data in alphanumeric form such that it will not interfere with the image of the defect condition reported:
 - .1 Inspection number
 - .2 Manhole number
- .5 Include a white information board within the ground level photograph with the following data:
 - .1 Inspection number
 - .2 Manhole number
- .6 Capture the photograph and alphanumeric data as a digital image in Joint Photographic Experts Group (JPEG) format (.jpg). Identify each image file by manhole number and alphabetic suffix. E.g.: SM001234-A

3.3 Site Coding Sheets

- .1 Record the condition of each manhole according to the City of Richmond Manhole Inspection Report form and associated codes.

3.4 Inspection Reports & Digital Data

- .1 Inspection reports are to consist of hard copy reports and CD-ROMs of digital data output files and digital photographs. Submissions are to be made biweekly on a continuous basis as the manhole inspection proceeds.
 - .1 Hard copy reports are to be presented in accordance with the pre-designed City of Richmond Manhole Inspection Report forms.
 - .2 Digital data output files are to be presented in the City of Richmond's manhole inspection table configuration in Microsoft Access database (.mdb) file format. The digital database file is to contain survey report information identical to the printed report, exclusive of photograph

MANHOLE INSPECTION

- .3 Digital photographs are to be stored on CD-ROM in JPEG (.jpg) format, and hyper-linked to the City of Richmond Manhole Inspection Report MS Access database from the CD drive.
- .4 All dimensions and chainages in the reports are to be in metric units.
- .2 Present inspection reports in a 215 mm x 280 mm three ring D-type binder organised by catchment area or as specified in the contract documents.
 - .1 Each binder is to commence with an index of all survey inspection reports contained within.
 - .2 Insert CD-ROMs of digital database files and digital photographs in a three-hole punched plastic sheet holder at the back of the corresponding binder.
 - .3 Include City supplied, scale drawings highlighting inspected manholes in each relevant report binder.
- .3 Attach identical identification labels on the D-ring binder and CD-ROMs with the following information:
 - .1 Contract/Project ID
e.g. City of Richmond Central Catchment Area T-1525
 - .2 Inclusive inspection/report numbers
e.g. MH001-MH100
 - .3 Contractor name
e.g. XYZ Ltd.
 - .4 Dates of inspection
e.g. 2002/02/14 – 2002/02/21CD-ROMs of digital photographs are to include photograph identification numbers on the label.
- .4 Provide additional copies of the printed report if required, as specified in the contract documents.

3.5 Quality Control

- .1 At least two (2) weeks prior to beginning the inspection work, submit a sample hard copy inspection report and corresponding digital data files and digital photographs for review. The sample submission is to satisfy all of the specifications contained herein and the accepted report submission will be used as a benchmark for subsequent inspection report submissions.
- .2 No inspection surveys are to be carried out under this contract until an acceptable sample inspection report has been approved by the Contract Administrator.
- .3 Acceptance of all work described in this section will be made upon successful inspection by the Contract Administrator. If the inspection reveals the work to be deficient, the work is to be re-performed at the Contractor's expense until fully compliant with the specifications contained herein.

END OF SECTION

B-18

CCTV VIDEO INSPECTION

- 1.0 GENERAL**
- .1 Section 02733 refers to those portions of the work that are unique to the requirements for inspecting new and existing sanitary, storm, and combined sewer pipe, and pipe culverts by closed circuit television. Sewer inspections shall be performed to observe and record structural defects, service defects and construction features, to assess thoroughness of cleaning, and to verify quality of new installation and rehabilitation work prior to acceptance. All observations are to be coded in accordance with the Water Research Centre (WRc) publication, "Manual of Sewer Condition Classification" (MSCC) Third Edition, August 1993 and "Addendum" dated February 1996. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
- 1.1 Related Work**
- | | | |
|----|--------------------------|---------------|
| .1 | Traffic Regulation | Section 01570 |
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| .7 | Sewer Cleaning | Section 02734 |
| .8 | Manhole Inspection | Section 02735 |
- 1.2 References**
- .1 The abbreviated standard specifications for testing, materials, fabrication and supply, referred to herein, are fully described in References – Section 02000.
- 1.3 Work Regulations**
- .1 Work is to conform to all applicable regulations of the Workers Compensation Board (WCB). Confirm training compliance in the following:
- .1 Confined space rescue
 - .2 Confined space entry
 - .3 Ventilation
 - .4 Atmospheric monitoring
 - .5 Self-contained breathing apparatus
 - .6 Personal protective equipment
- .2 Provide written confirmation to the Contract Administrator that workers have knowledge of confined space entry practices and of the equipment required for confined space entry.
- .3 Work is to conform to all applicable bylaws and regulations.
- 1.4 Scheduling of Work**
- .1 Schedule work to minimize interruptions to existing services.
- .2 Schedule work to comply with City Noise Bylaws.
- 1.5 Measurement for Payment**
- .1 All units of measurement for payment will be as specified herein unless shown otherwise in the Schedule of Quantities and Prices.
- .2 Payment for all work performed under this Section will be made at the respective unit price bid in the Schedule of

CCTV VIDEO INSPECTION

Quantities and Prices. CCTV video inspection will be measured on a length basis. The length paid will be the total number of linear metres acceptably inspected. Measurement will be made above ground from the centre of the start manhole to the centre of the finish manhole, as confirmed by steel tape or measuring wheel measurement.

Separate payments will be made for inspections of post-repair sections and for those sections not inspected prior to tender.

No payment will be made for any pre-repair inspection or for the one-year warranty inspection, as it is incidental to payment made in other sections. Note that the limits of work for the one-year maintenance period inspection need only be sufficient to inspect the repairs and sewer cleaning work carried out by the Contractor.

- .3 For sections of pipe where a blockage or obstruction occurs, measurement will be from the centre of the start manhole to the point of abandonment of survey.
- .4 For sections of pipe with the Water Research Centre (WRc) condition code CU (camera underwater) for a continuous distance greater than five (5) metres, the measurement above will be reduced by the distance in excess of five metres.
- .5 *Separate payment will not be made for flow control, with the exception of bypass pumping. Payment for bypass pumping as required, and where approved by the Contract Administrator, will be made on a per occurrence basis (refer to Clause 3.4).*
- .6 Separate payment will not be made for inspection reports, digital recordings, or photographs. Payment is to be included in the prices bid for CCTV video inspection.
- .7 Separate payment will not be made for reverse set-up inspection or traffic control. Payment is to be included in the prices bid for the CCTV video inspection.

1.6 Additional Work

- .1 Additional work may be identified by the Contract Administrator after reviewing the inspection reports provided for those sections not inspected prior to tender. This work will be paid under tendered prices, where applicable, and will be covered by the contingency amount provided.
- .2 Schedule CCTV inspection of those sections not previously inspected at the start of work and provide for a two week review period by the Contract Administrator once inspection reports have been submitted.

CCTV VIDEO INSPECTION

2.0 PRODUCTS**2.1 Inspection Unit**

- .1 The inspection unit is to consist of a self-contained vehicle with separate areas for viewing and equipment storage. All equipment utilized within the pipeline is to be stored outside of the viewing, recording and control area. External power sources from public or private sources are not permitted. Each inspection unit is to be equipped with a cellular telephone and suitable communication system linking all crew members. Each unit is to be equipped with fans and blowers to remove any fog that may be present in the sewer at the time of the inspection.
- .2 The viewing and control area is to be insulated against noise and extremes in temperature. Proper seating accommodation is to be provided to enable one person in addition to the operator to clearly view the monitor. External and internal sources of light are to be controllable to ensure that light does not impede the view of the monitor.

2.2 Inspection Equipment

- .1 Inspection equipment includes cameras, lighting, cables, power source, monitor, and other related equipment.
- .2 The camera is to be capable of producing high quality colour imagery and providing complete inspection and view of all laterals and deficiencies. Live picture is to be visible with no interference. The camera is to be pan and tilt type with panning capability of 360° and tilting capability of 270°. The focus and iris are to be remotely adjustable to allow optimum picture quality. The focal range is to be adjustable from 100 mm in front of the camera's lens to infinity. The digital camera is to be capable of producing clear, sharp images at a minimum resolution of 800 x 600.
- .3 The light source is to be remotely adjustable to allow an even distribution of light around the sewer perimeter without loss of contrast, flare out of picture or shadowing.
- .4 Digital equipment is to be capable of superimposing alphanumeric information onto the digital recording with a minimum of 15 lines of information, 30 characters per line (refer to Clause 3.3.2).
- .5 The camera is to be transported through the sewer by means of a crawler or rubber tired tractor. Mounting of the camera on a float or skid for towing through the sewer will only be permitted where the condition of the sewer or flow level precludes the use of a tractor. If the camera is towed the supporting equipment is not to impede the view of the camera and is to be stable to ensure steady and smooth progress.
- .6 The camera transport is to permit complete inspection of the sewer from the centre of the start manhole to the centre of the finish manhole. The camera transport and cable is to be capable of inspecting a minimum of 150 metres of sewer from

CCTV VIDEO INSPECTION

a single access point. Each unit is to carry sufficient numbers of guides and rollers such that when surveying, all cables are supported away from pipe and manhole edges. All CCTV cables and lines used to measure the camera's location within the pipeline are to be maintained in a taut manner and set at right angles, where possible, to run through or over the measuring equipment. A remote reading counter is to be used to measure distance travelled from the centre of the start manhole. Measurements are to be recorded in metres to the nearest 0.1 m.

- .7 The camera height is to be adjustable so as to position the centre of the lens in the centre of circular sewers, and at $2/3$ the height of the pipe measured from the invert for elliptical sewers.

2.3 Sewer Plugs

- .1 Sewer plugs are to be designed to stop or reduce flow from upstream sewer(s) and are to permit tethering to and be removable from the ground surface.

2.4 Bypass Pumping

- .1 Bypass pumping equipment includes pumps, piping, tank trucks, and other related equipment. Equipment selection and configuration is to be reviewed on a site-specific basis.

3.0 EXECUTION**3.1 Sewer Inspection Process**

- .1 Provide a minimum of 24 hours notice to the Contract Administrator, of the locations where the inspections will be performed on the following day(s).
- .2 Add the following amendments to the standard coding form shown on page 14 of the MSCC:
 - .1 Line 2, field 8 (date) to be eight (8) characters in the format of yyyy.mm.dd (year, month, day).
 - .2 Each DVD should be given a unique identifier.
 - .3 Note observations as to the condition of service connections beyond the mainline in the remarks column using standard codes as per the Manual of Sewer Condition Classification.
- .3 Prior to CCTV video inspection, sewers are to be cleaned in accordance with Sewer Cleaning Supplementary Specifications - Section 02734.
- .4 Prior to beginning the inspection measure the distance on the ground surface between the centres of the start and finish manholes using a steel tape or measuring wheel. Ensure a minimum of 80% of the height of the sewer is visible for the entire inspection. Notify the Contract Administrator of excessive flows before implementing flow control measures (refer to Clause 3.4). Keep the camera lens clean at all times and the sewer clear of fog during the entire inspection by introducing forced air flow by means of fans or blowers.

CCTV VIDEO INSPECTION

- .5 Conduct all inspections in the direction of flow unless a reverse set-up is required. Inspections are generally to begin with the upstream sewer in the system and proceed downstream in a consecutive manner. Inspection is not to proceed downstream until all contributing upstream sewers have been cleaned.
- .6 The face of the start manhole is to be clearly visible at the start of the inspection and the inspection is to be performed from the centre of the start manhole to the centre of the finish manhole. Note the condition of pipe joints at manhole walls at the beginning and end of each pipeline. At the start of the inspection record the length of sewer from the centre of the manhole to the cable calibration point and adjust the distance reading at the cable calibration point such that zero is at the centre of the start manhole.
- .7 Automatic distance measurement is to be indicated on the screen during the entire inspection and should begin to move immediately as the camera moves.
- .8 The camera travel speed is limited to the following:
 - .1 0.10 m/s for pipeline diameter < 200 mm
 - .2 0.15 m/s for pipeline diameter 200 mm – 310 mm
 - .3 0.20 m/s for pipeline diameter > 310 mm
- .9 During the inspection the picture is to be in focus from the point of observation to a minimum of two pipe diameters ahead.
- .10 Stop the camera for a minimum of 2 seconds at rehabilitated sewer sections, any observed major defects, change of pipe condition, connections, junctions and major branches. Major defects include but are not limited to deformed sewers, displaced bricks, holes, large displaced joints, missing bricks, totally missing mortar, obstructions, and large open joints. Position the camera to provide a perpendicular view of major defects, connections, junctions, and major branches. Pan each service such that the camera looks down the centreline of the service and note the condition of the joint or pipe/service interface.
- .11 Photograph all major defects as defined in the MSCC by condition codes B, CC, CL, CM, CX, CXI, D, FC, FL, FM, H, IR, IG, JDM, JDL, JX, OB, OJL, RT, RM, and X.

Overlay on each photograph the following data in alphanumeric form such that it will not interfere with the defect condition reported:

 - .1 Report/job number
 - .2 Chainage
 - .3 Manhole from/to numbers and/or pipe length reference number
 - .4 Photograph number
 - .5 Condition defect code

CCTV VIDEO INSPECTION

.6 Date of survey (yyyy.mm.dd)

Capture the photograph and alphanumeric data as a digital image in Joint Photographic Experts Group (JPEG) format (.jpg) or as specified in the contract documents.

- .12 If inspection of an entire sewer cannot be completed due to collapse, excessive deformation or solid debris, intruding connections, obstructions or large displaced joints, move the equipment to the upstream manhole and attempt inspection again. If complete inspection still cannot be performed immediately notify the Contract Administrator. Jointly, the Contractor and Contract Administrator will decide to:
- Abandon the inspection; or
 - Complete the inspection subsequent to:
 - Performing solid debris cutting;
 - Removing intruding connections;
 - Modifying the camera set-up (position and/or method of transport); and
 - Completion of emergency repairs.
- .13 If during the inspection clear water infiltration, flow disparity, a hole or missing bricks, collapse, void, or deformation greater than 10% is observed, capture an image (digital photograph or digital recording) and immediately notify the Contract Administrator. If a void is visible or suspected outside the pipe immediately place barricades around the location and notify the Contract Administrator or Emergency Services. If required, the Contract Administrator will coordinate emergency repairs by City forces or another Contractor.

3.2 Inspection Reports

- .1 Inspection reports are to consist of hard copy CCTV inspection reports and DVDs of digital recordings, digital data output files and digital photographs. Submissions are to be made weekly on a continuous basis as the CCTV inspection proceeds.

The digital data output files are to be stored on DVD in a Microsoft Access database (.mdb) format. The digital database file is to contain survey report information identical to the printed report, exclusive of photographs.

Photographs, where required, are to be either digital or in colour with minimum image size of 4 inches x 6 inches reproduced on premium glossy ink jet paper. Digital photographs are to be stored on DVD in JPEG (.jpg) format. Coordinate photographs with the written report by reference number and insert into the report following the relevant section of pipeline inspected.

All dimensions and chainages in the reports are to be in metric units.

- .2 Present inspection reports in a 215 mm x 280 mm three ring

CCTV VIDEO INSPECTION

D-type binder organised by catchment area or as specified in the contract documents. Each binder is to commence with an

index of all survey inspection reports contained within. Insert DVDs of digital recordings, digital database files and digital photographs in a three-hole punched plastic sheet holder at the back of the corresponding binder. Attach City supplied, scale drawings highlighting inspected pipeline to the corresponding inspection condition report for each section of sewer surveyed.

Attach identical identification labels on the D-ring binder and DVDs with the following information:

- .1 Contract/Project ID
e.g. City of Richmond Central Catchment Area T-1525
- .2 Inclusive inspection/report numbers
e.g. 001-020
- .3 Inclusive DVD Identification number
e.g. DVD1 (MH2:MH20)
- .4 Contractor name
e.g. XYZ Ltd.
- .5 Dates of inspection
e.g. 2002/02/14 – 2002/02/21

- .3 Provide additional copies of the printed report if required, as specified in contract documents.

3.3 Digital Recordings

- .1 Record the inspections in colour in MPEG 2 format on DVDs.
- .2 At the start of each survey clearly display the following alphanumeric information on the digital recording for a minimum of 30 seconds:
 - .1 Contract ID
e.g. City of Richmond T-1525
 - .2 Inspection/report number
e.g. 001
 - .3 Street name/location
e.g. 5th Avenue from 1st Street to 2nd Street
 - .4 Sewer size (diameter)
e.g. 200 mm
 - .5 Sewer pipe material
e.g. PVC
 - .6 Type or use of pipe
e.g. sanitary
 - .7 Start MH ID number
e.g. SMH0001234
 - .8 Finish MH ID number
e.g. SMH0000567
 - .9 Contractor name
e.g. XYZ Ltd.
 - .10 Date and time of inspection
e.g. 2002/02/29-14:15
 - .11 Direction of inspection
e.g. with flow/downstream
 - .12 Cable calibration distance
e.g. 1.5 m

CCTV VIDEO INSPECTION

- .13 Verbal description of all the above on screen information

Enter this information prior to beginning the inspection.

- .3 During the inspection clearly display the following information at the periphery of the monitor and digital recording, arranged such that interference with the inspection image is minimized:
 - .1 Automatic update of the camera's distance from the centre of the start manhole
e.g. 15.3 m
 - .2 Street name/location
e.g. 5th Avenue from 1st Street to 2nd Street
 - .3 Start MH ID number
e.g. SMH0001234
 - .4 Finish MH ID number
e.g. SMH0000567
 - .5 Inspection/report number of the run
e.g. 001
- .4 In addition to continuously displayed data, overlay WRc sewer condition codes on the monitor and digital recording at defects, connections and junctions.

3.4 Flow Control

- .1 Reduce flow in the pipeline to approximately 20% of the pipe diameter during CCTV inspection.

If sewer flows are hampering effective sewer inspection, flow control measures are to be undertaken. Flow control measures include, but are not limited to: off peak work; plugging or impeding flow; use of sewer cleaning equipment to lower downstream flow levels; and bypass pumping. Provide the Contract Administrator with forty-eight hours notice prior to undertaking any flow control measures. Select a method that ensures no flooding of public or private property occurs.
- .2 Prior to requesting the use of bypass pumping the Contractor must demonstrate that off peak work, plugging, sewer cleaning equipment, or a combination thereof cannot effectively reduce flow levels to the specified maximum. Temporary bypass hoses and pumps are to be of sufficient capacity to handle the peak flow, and all hoses and couplings are to be leak free. Approved bypass pumping is to be set up such that flow is pumped to a downstream manhole on the same system or run whilst the inspection takes place.
- .3 Monitor flow levels upstream of a plugged or bypassed sewer at all times.

3.5 Quality Control

- .1 Camera Position

Camera position tolerance is +/-10% of the vertical dimension of the sewer.

If the camera position does not satisfy the requirements the

CCTV VIDEO INSPECTION

inspection is to be re-performed at the Contractor's expense.

.2 Distance Accuracy

Distance measurement within the sewer is to be accurate to within 0.5% of the above ground measurement as confirmed by steel tape or measuring wheel measurement between start and finish manhole centres.

Check the chainage tolerance at the start of the contract and a minimum of once every two weeks thereafter, or every 5000 metres of pipeline inspected, whichever is greater.

If the distance measurement does not satisfy the accuracy requirements the inspection is to be re-performed at the Contractor's expense.

.3 Recording Resolution

The minimum resolution for digital recordings is MPEG 2 format.

.4 Operator Qualifications - Inspection and Condition Coding

Each inspection unit is to have a minimum of one operator on site at all times who has successfully attained the North American Association of Pipeline Inspectors (NAAPI) Level of Qualification for WRc Operators or an accepted alternate training program. Condition coding is to be performed by this duly qualified operator who is fully trained in all aspects of sewer inspection and is capable of making accurate observations and recordings of all conditions that may be encountered in the sewers.

Submit a copy of each operator's current NAAPI Qualifications for WRc Operators Certificate at least two (2) business days prior to the commencement of work.

If no NAAPI certified operators are available on a given day, no inspection work is to be performed.

.5 Sample Inspection Report

At least two (2) weeks prior to beginning the inspection work submit a sample inspection report with corresponding digital data files, digital recordings and digital photographs on DVD for review. One submission is to be made for each camera proposed for use on the work. Clearly identify the camera make, model and serial number on each DVD. Demonstrate the resolution of each camera by performing a recording resolution test with the use of a Marconi or RETMA resolution chart. The camera is to be capable of providing a minimum resolution of MPEG 2 format. The sample submission is to satisfy all of the specifications contained herein and the accepted report submission will be used as a benchmark for subsequent inspection report submissions.

CCTV VIDEO INSPECTION

No inspection work is to be performed until an acceptable sample inspection report has been submitted and approved for each camera to be used in the completion of the work.

.6 Coding Accuracy

Coding accuracy is to be a function of the number of defects or construction features not recorded (omissions) and the correctness of the coding and classification recorded. Coding accuracy is to satisfy the following requirements:

- header accuracy 95%
- detail accuracy 85%

The Contractor is to implement a formal coding accuracy verification system at the onset of the work. Coding accuracy is to be verified by the Contractor on a random basis, on a minimum of 10% of the inspection reports. The Contract Administrator is entitled to review the accuracy verification system and results and to be present when the assessments are being conducted. A minimum of two accuracy verifications are to be performed for each operator for each working week.

Quality Assurance and Quality Control shall be implemented by the Contract Administrator on a random basis, on a minimum of 10% of the inspection reports.

Coding not satisfying the accuracy requirements are to be re-coded at the Contractor's expense, and the accuracy of the inspection report immediately preceding and following the non-compliant inspection is to be verified. This process is to be repeated until the preceding and subsequent inspections meet the accuracy requirements.

Any operator failing to meet the accuracy requirements on two occasions will not be permitted to code on the remainder of the project until successfully re-attaining the NAAPI Level of Qualification for WRc Operators.

.7 Sewer Cleaning

For sewers that are deemed by the Contract Administrator to be unacceptably cleaned, CCTV video inspection reports will be rejected and the sewer is to be re-cleaned and re-videoed at the Contractor's expense.

.8 Report Submissions

Inspection reports, digital recordings, digital data files and digital photographs will be reviewed by the Contract Administrator to ensure compliance with the specifications. The frequency of review will be adjusted based on the results of the review. The Contract Administrator, at the Contractor's expense, will return non-compliant submissions for correction.

CCTV VIDEO INSPECTION

Corrected submissions are to be resubmitted within five working days.

END OF SECTION

**GENERAL TRAFFIC CONTROL GUIDELINES
FOR
CITY OF RICHMOND ROADWAYS**

December 2006

In every case traffic control shall be conducted in accordance with the Ministry of Transportation Traffic Control Manual for Work on Roadways and WorkSafe BC requirements under Part 18 of the Occupational Health and Safety Regulation. Traffic control persons shall be certified by an approved agency.

Guidelines

1. Arterial Roads;

Traffic control may only be established on arterial roads between the hours of 0900 and 1500 but maybe further restricted under the following conditions;

- If > 400 vehs/hr are being restricted down to one lane, in each direction, between 0900 and 1500 hours then night work will be required. If the location is abutting a residential area then daytime work will be considered but additional advance warning requirements shall be required such as but not limited to signage, newspaper notices and radio announcements.
- If >800 vehs/hr are being restricted down to one lane in each direction between 0900 and 1500 hours then night work will be required even within a residential area.
- Adjustments to start or finish times are possible if that segment of the road does not have a heavy AM peak volume or a heavy PM peak volume.
- A night variance will be required from Public Works for all night work.

2. Collector Roads;

Traffic control maybe established during the authorized hours for construction, 0700 to 2000 hours Monday to Saturday and 0900 to 1800 hours on Sunday. Traffic control must maintain one lane in each direction at all time however, alternating traffic can be considered between 0900 to 1500 hours if traffic volumes allow. Adjustments to start or finish times for alternating traffic are possible if that segment of the road does not have a heavy AM peak volume or a heavy PM peak volume.

3. Local Roads;

Traffic control maybe established during the authorized hours for construction, 0700 to 2000 hours Monday to Saturday and 0900 to 1800 hours on Sunday. Traffic control must maintain one lane in each direction at all time however, alternating traffic can be considered if traffic volumes allow.

4. Authority to Amend;

The above guidelines may be amended by the Director of Transportation if in his opinion traffic control needs to be more or less restrictive.

5. Road Closures;

Road closure requests are considered on a case by case basis due to the number of variables that can come into each possible scenario. The Director of Transportation is the only person authorized to permit a road closure. This operation requires considerable lead time, a minimum of two weeks in order to plan the detour routes, provide signage and issue newspaper and radio notices. (Police, Fire and emergency City utility repairs are exempt.)

6. Consider,

- Large traffic generators such as malls or industrial sites,
- The proximity to schools and the level of the school, high school or elementary,
- Bike routes, is it a shared roadway or a bike lane,
- Pedestrian routes, is it a primary access for school children,
- Excavations;
 - i. Closed, make sure it's backfilled or plated with asphalt ramps (preferred),
 - ii. Open, ensure signage, lights, barricades, temporary curbs and fencing,
- Signalized intersection protection of loops and conduits. Do not locate vehicles over detection equipment and advise Signal Control Center.
- Transit operations;
 - i. If work is on a bus route contact CMBC a minimum 72 hours in advance of start of work so they are aware of possible delays and can advise the drivers,
 - ii. If the work is also within a bus stop then CMBC needs to know so they can place advisories at the stop and locate the nearest operating stop for the patrons,
- The proximity to an emergency services facility such as a fire hall or ambulance station, advise the service and determine if they have any concerns or requirements,

D. Newton

APPENDIX C

- Bid Summary
- Notice of No Bid
- Draft Consultant's Agreement

BID SUMMARY

(to be attached to proposal)

PROJECT TEAM

Prime Consultant: _____

Sub-consultants:

| Responsibility (e.g. sewer cleaning, CCTV inspections, manhole inspections, solid debris cutting, traffic control) | Name of Sub-Consultant |
|--|-------------------------------|
| | |
| | |
| | |

PROPOSED COST

| SCOPE (refer to Supplementary Specifications in Appendix B for details on measurement of payment) | UNIT | PROPOSED COST |
|---|------------------------|----------------------|
| CCTV Inspections (includes flow control, inspection reports, digital recordings, photographs, reverse set-up inspection and traffic control) | Unit Cost per m | |
| Manhole Inspections | Unit Cost per m | |
| Sewer Cleaning | Unit Cost per m | |
| Solid Debris / Grease Cutting (show rates for different pipe materials) | Unit Cost per m | |
| Bypass Pumping | Unit Cost per location | |



Note: Receipt of this completed form will assist us in calling for future bids. Please complete and submit this form prior to the closing date and time as shown on the Request for Quotation/Proposal/Tender form.
Please remember to include Quotation/Proposal/Tender No. at right.

Quotation/Proposal/Tender No.

3099P

A Quotation/Proposal/Tender is not being submitted for the following reason(s):

- | | |
|--|--|
| <input type="checkbox"/> We do not manufacture/supply the required goods/services | <input type="checkbox"/> Cannot obtain raw materials/goods in time to meet delivery requirements |
| <input type="checkbox"/> We do not manufacture/supply to stated specifications | <input type="checkbox"/> Cannot meet delivery requirements |
| <input type="checkbox"/> Specifications are not sufficiently defined | <input type="checkbox"/> Cannot quote/tender a firm price at this time |
| <input type="checkbox"/> Insufficient information to prepare quote/proposal/tender | <input type="checkbox"/> Insufficient time to prepare quote/tender. |
| <input type="checkbox"/> Quantity too small | <input type="checkbox"/> We are unable to competitively quote/tender at this time. |
| <input type="checkbox"/> Quantity too large | <input type="checkbox"/> We do not have facilities to handle this requirement |
| <input type="checkbox"/> Quantity beyond our production capacity | <input type="checkbox"/> Licensing restrictions (please explain) |
| <input type="checkbox"/> Cannot meet packaging requirements | <input type="checkbox"/> Agreements with distributors/dealers do not permit us to sell directly. |
| <input type="checkbox"/> Cannot handle due to present plant loading | <input type="checkbox"/> Other reasons or additional comments (please explain below) |

| | | |
|---|---|-------------|
| I / We wish to quote / tender on similar goods / services in future <input type="checkbox"/> Yes <input type="checkbox"/> No | Authorized Company Official – Signature and Title | Date |
| This space for City of Richmond Comments | Firm Name | |
| | Address | |
| | | |
| | City | |
| | Province | Postal Code |
| | Telephone Number | |



This Agreement dated the ☼ day of September, 2007, at the City of Richmond, in the Province of British Columbia

Between:

City of Richmond
6911 No. 3 Road
Richmond, BC
V6Y 2C1

(the "City")

And:

☼

(the "Consultant")

Whereas:

- A. The City is ☼ (the "Event or Project");
- B. The City requires a ☼ the Event or Project;
- C. The City issued a Request for Quotation ☼ for the supply and delivery of ☼;
- D. The Consultant is willing and prepared to deliver ☼;

NOW THEREFORE in consideration of the mutual covenants and agreements set out below, the parties covenant and agree as follows:

1. Responsibilities and Duties

1.1. The Consultant shall be responsible for the following as per Request for Quotation ☼/Proposal ☼ and the Consultant's submission dated ☼.

- a) ☼
- b) ☼
- c) ☼
- d) ☼
- e) ☼

- f) ✖
- g) ✖
- h) ✖

1.2. The Consultant agrees to conduct himself professionally and with integrity so as not to embarrass or discredit the City throughout the performance of the duties and responsibilities set out in this agreement.

2. Compensation

- 2.1. In exchange for carrying out the duties and responsibilities set out in this agreement, the City agrees to pay to the Consultant, the amount of \$✖ plus GST per ✖ for the duration of the term of this agreement, but total amount of payments not to exceed \$✖ plus GST.
- 2.2. Once per month, commencing no sooner than ✖, the Consultant shall submit to the City a written statement of account and setting out a detailed summary of hours worked, meetings attended and the status of ✖ (the "Statement of Account").
- 2.3. The Statement of Account must show the amount of GST charged and include the Consultant's GST registration number and City Purchase Order number.
- 2.4. The City agrees to make payments to the Consultant within ten (10) working days of receipt of the Consultant's Statement of Account.
- 2.5. The Consultant shall, on a monthly basis, submit to the City a list of expenses incurred in carrying out the duties and responsibilities set out in this agreement and, upon approval of such expenses by the City, the City will reimburse the Consultant for such expenses.

3. Performance Standards

- 3.1. The Consultant is responsible for meeting the following ✖ targets:
 - ✖
- 3.2. The Consultant agrees to comply with following project deadlines:
 - ✖
- 3.3. The Consultant shall prepare a report to the City on a monthly basis indicating ✖ what targets have been met over the preceding month and the status of efforts in relation to the targets set out.

4. Benefits

- 4.1. The Consultant hereby waives all rights, claims, and entitlements whatsoever afforded to employees of the City pursuant to the Group Life Insurance Plan, Long Term Disability Plan and the Dental Plan and any other such benefits. The Consultant agrees to pay, as required by Federal or Provincial Statutes any payments for Income Tax, Workers Compensation, Unemployment Insurance, Canada Pension Plan, Superannuation and other such payments.

5. Independent Contractor

5.1. The Consultant is an independent contractor and no agency, joint venture, association, partnership, employer-employee relationship is created between the City and the Consultant.

6. Assignment And Subcontracting

6.1. The Consultant will not, without the prior written consent of the City, assign, either directly or indirectly, any right or obligation of the Consultant under this agreement.

6.2. No sub-contract entered into by the Consultant will relieve the Consultant from any of his obligations or impose any obligation or liability upon the City to any such sub-contractor.

7. Indemnity

7.1. The Consultant agrees to indemnify and hold harmless the City, its agents, employees, and elected officials, against any damages, liabilities, or costs, including reasonable attorney fees and defence costs, arising from or allegedly arising from or in any way connected with any act or omission by the Consultant, his employees, officers, volunteers, servants, or agents, or persons for whom the Consultant has assumed responsibility, in the performance or purported performance of this agreement.

8. Insurance

8.1. The Consultant shall, at his own expense, carry and keep in force during the term of this agreement, the following coverage.

a) Professional liability insurance with a minimum limit of \$250,000.00 for each occurrence and \$500,000.00 aggregate.

b) Comprehensive general liability insurance with a minimum limit of \$2,000,000 per occurrence with a cross-liability clause.

8.2. The City may require a dedicated limit of the Consultant's professional liability policy be allocated to cover the Consultant's work while contracted by the City.

8.3. The City shall be added as an additional insured under the Consultant's comprehensive general liability insurance.

8.4. All insurance policies shall provide that they cannot be cancelled, lapsed or materially changed without at least 30 days' notice to the City.

8.5. Prior to the commencement of the services hereunder, the Consultant shall file with the City a copy of each insurance policy and certificate required. All such insurance shall be maintained until final completion of the service.

9. Representation

9.1. The parties hereto agree that for all purposes hereunder the City shall be represented by the ☼.

10. Ownership of Products

10.1. The City shall take title to and ownership of all materials and products developed by the Consultant pursuant to this agreement, including reports, drawings, schematics, computer files, and designs developed, except those covered by copyright. All materials and products produced shall be provided to the City upon expiry of this agreement.

11. Confidentiality

11.1. The Consultant shall not disclose any information provided by the City, specifically proprietary, sensitive, personal or confidential information or that developed resulting through the performance of this agreement to any other party without the express written consent of the City. All information provided to the Consultant or developed by the Consultant pursuant to this agreement shall be returned to the City upon the expiration of this agreement. The Consultant acknowledges that the City is subject to the Freedom of Information and Protection of Privacy Act of British Columbia.

12. Related Companies

12.1. The Consultant shall not during the term of this agreement, perform a service for or provide advice to any person, firm or corporation where the performance of the service or the provision of the advice may or does, in the opinion of the City, give rise to a conflict of interest between the obligations of the Consultant to the City under this agreement and the obligations of the Consultant to such other person, firm or corporation.

13. Term

13.1. This agreement is valid for the period commencing ☼ and ending ☼ (the “Expiration Date”), or such later date as may be mutually agreed upon.

14. Termination

14.1. Notwithstanding any other provisions of this agreement, either party may terminate this agreement at any time upon at least two (2) weeks’ written notice delivered to the Parties at the addresses shown on the first page of this agreement, or such shorter time and in such a manner as may be agreed upon by the parties.

14.2. Notwithstanding the provisions of subsection 14.1, if in the opinion of the ☼, the Consultant has breached a material covenant, the City may cancel this Agreement immediately without notice.

15. Notices

15.1. Any notices or other communications required or permitted hereunder shall be sufficiently given if delivered, or if sent by prepaid regular mail, to the addresses of the parties set out on the first page of this agreement, or to such other addressees as shall have been specified by notice in writing by either party to the other. Any such notice or communication shall be deemed to have been given, if delivered, and if mailed in Canada, on the fourth business day after the date of mailing.

16. Feminine/Masculine

16.1. Wherever the singular or masculine is used throughout these Terms the same shall be construed as meaning the plural, the feminine or body corporate or politic where the context or the parties hereto so require and vice versa.

17. General

17.1. This Agreement may be amended upon mutual agreement of the parties in writing.

17.2. This Agreement and the rights and obligations of the parties hereunder shall be governed by and construed in accordance with the laws of British Columbia.

17.3. This Agreement sets out the entire agreement of the parties and no representations, warranties or conditions have been made other than those expressed or implied herein. No agreement collateral hereto shall be binding upon the City unless made in writing and signed by the City.

The City and the Consultant Agree to these Terms the day and year first above written.

Consultant

City of Richmond

Draft

November 15, 2007
File: 10-6060-03-01/2007-Vol 01

Engineering
Telephone: (604) 247-4657
Fax: (604) 276-4197

TO THOSE WHO HAVE RECEIVED COPIES OF 3094P

Dear Sir/Madam:

Re: RFP 3099P
Addendum No. 1
Sanitary Sewer Assessment for the Steveston Study Area

The following points are to be added to Section 5 of the RFP:

- (1) All sanitary force mains in the study area are not to be included as part of the scope of this project. However, proponents are welcomed to include in their proposals as an optional item innovative strategies to clean and inspect the force mains with minimal disruption to the operations of the sanitary sewer system.
- (2) For gravity mains before the pump stations, the Consultant is responsible for cleaning up to the first manhole before each pump station. The City's Operations Staff will clean the sewer from the first manhole before each pump station to the pump station. The Consultant will be responsible for coordinating this work with the City's Operations Staff and inspecting the sewer to each pump station when the cleaning is completed.

If you have any further questions or questions concerning this addendum, please contact me at (604)247-4657 or kwong2@richmond.ca.

Yours truly,

Kimberley Wong, EIT
KW:kw