



# TECHNICAL SPECIFICATIONS

## **CCTV Inspection and Condition Assessment of Sewer Networks in Banana Shire Council**

CONTRACT NO: T2425.25

**Sewer Cleaning and Condition Assessment  
Report – Sewer Networks in Biloela  
Catchments, Moura, Taroom and Theodore  
Technical Specifications**

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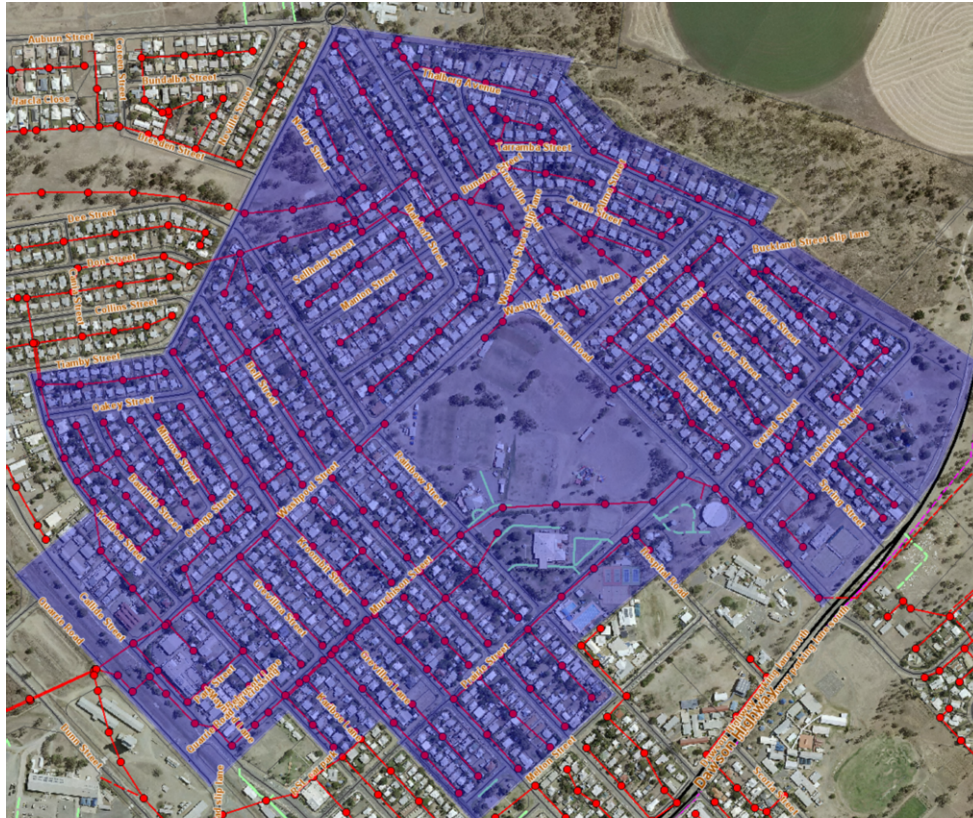


Figure 2: Biloela Sewer Catchment B

Catchment C comprises of approximately 89 manholes, 1,150m of 225mm pipes and 4,200m of 150mm pipes.

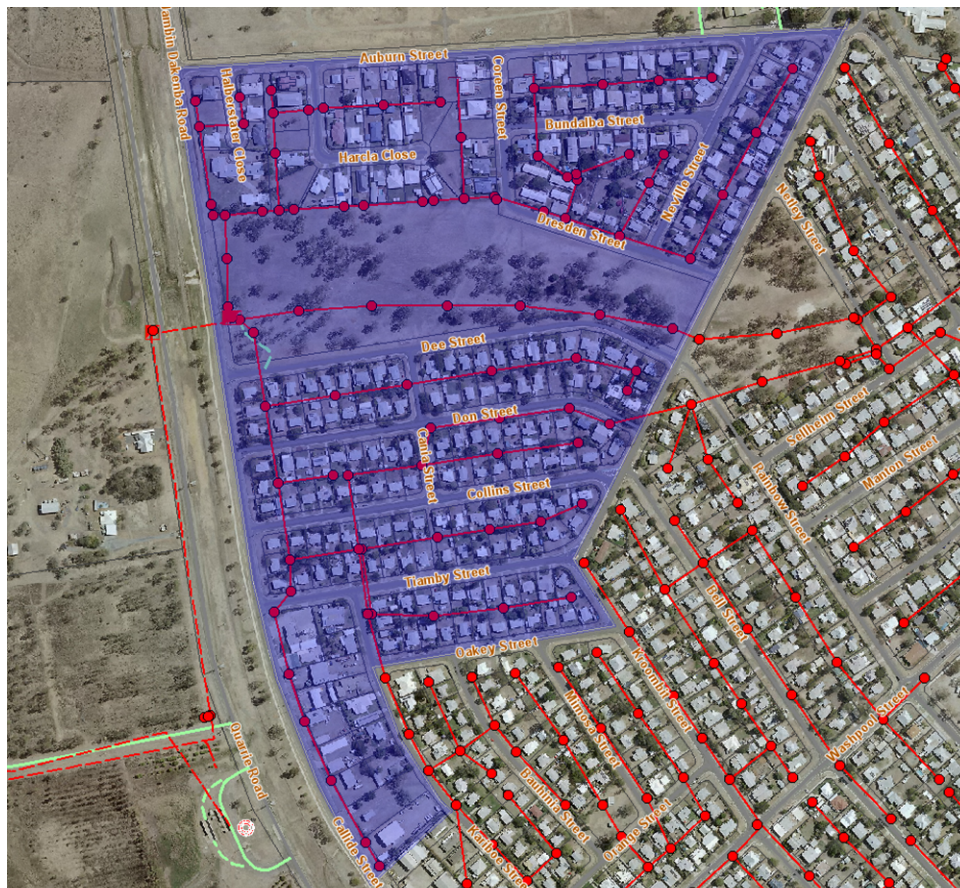


Figure 3: Biloela Sewer Catchment C

Catchment D comprises of approximately 409 manholes, 800m of 375mm pipes, 350m of 300mm pipes, 1,350m of 225mm pipes and 19,000m of 150mm pipes.

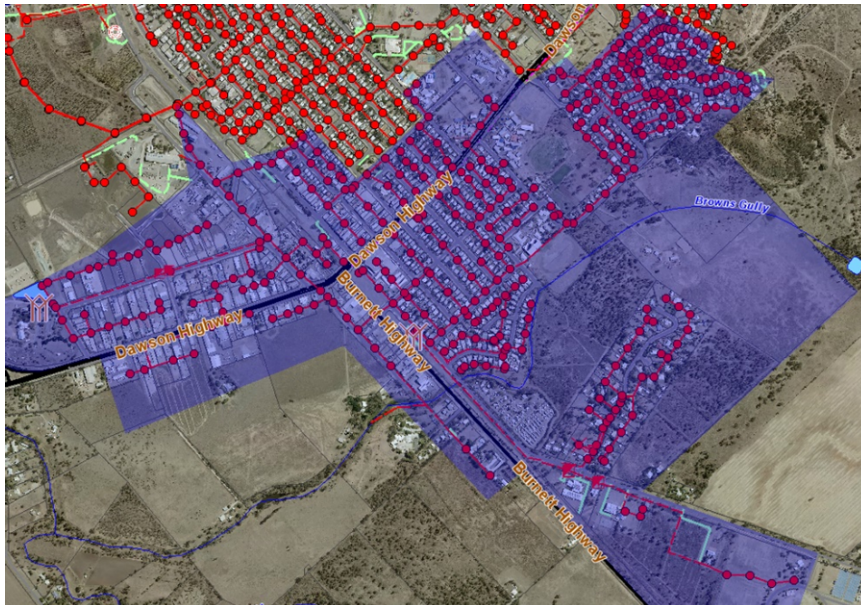


Figure 4: Biloea Sewer Catchment D

The town of Moura is the second largest in the Banana Shire and is situated 65 km west of Biloea, with a population of almost 2000. Reticulated water and sewerage services are available for the town. Similarly to Biloea, the Moura sewer network is due for cleaning and conditional assessment. The sewer network comprises of approximately 506 manholes, 200m of 300mm pipes, 4,200m of 225mm pipes and 26,000m of 150mm pipes.



Figure 5: Moura Sewer Network

The town of Theodore is situated 100 km south-west of Biloela, with a population of approximately 450. Reticulated water and sewerage services are available for the town. Again, the Theodore sewer network is due for cleaning and conditional assessment. The sewer network comprises of approximately 103 manholes, 250m of 225mm pipes and 6,200m of 150mm pipes.

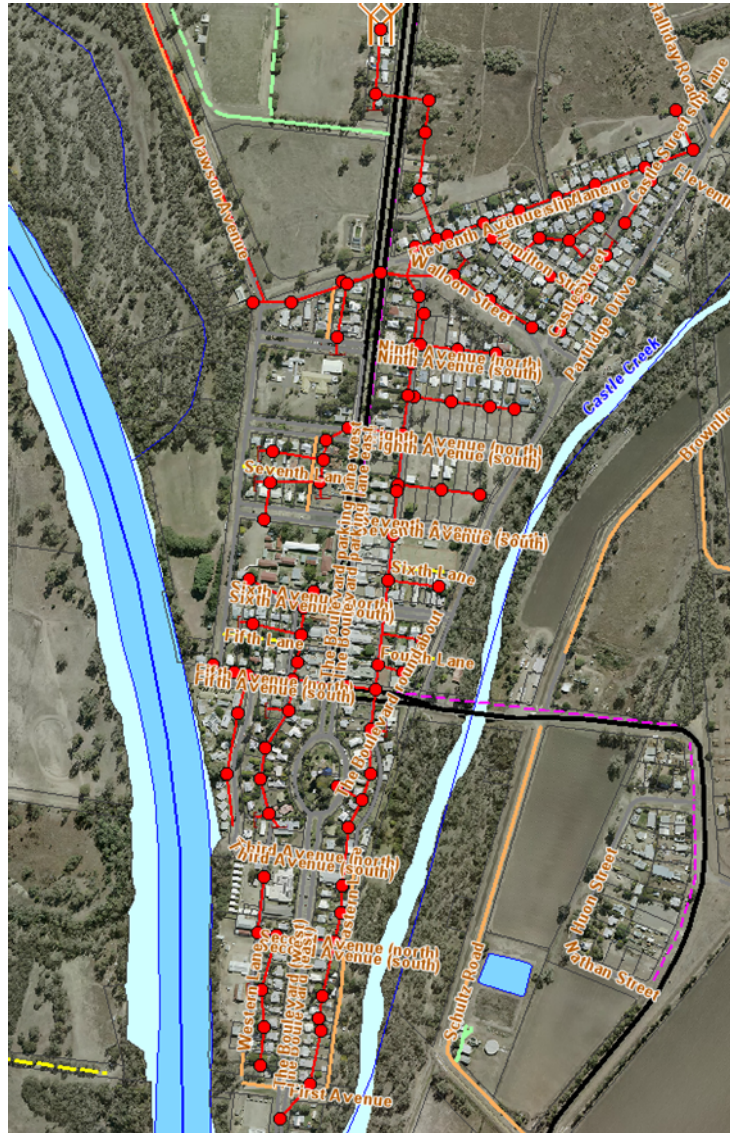


Figure 6: Theodore Sewer Network

Finally, Taroom is situated 200 km south-west of Biloela, with a population of approximately 900. Reticulated water and sewerage services are available for the town. Some sections may contain heavy fat and silt and require cleaning, CCTV and assessment. The sewer network (GIS image attached) comprises of approximately 267 manholes, 1,000m of 225mm pipes and 16,000m of 150mm pipes.

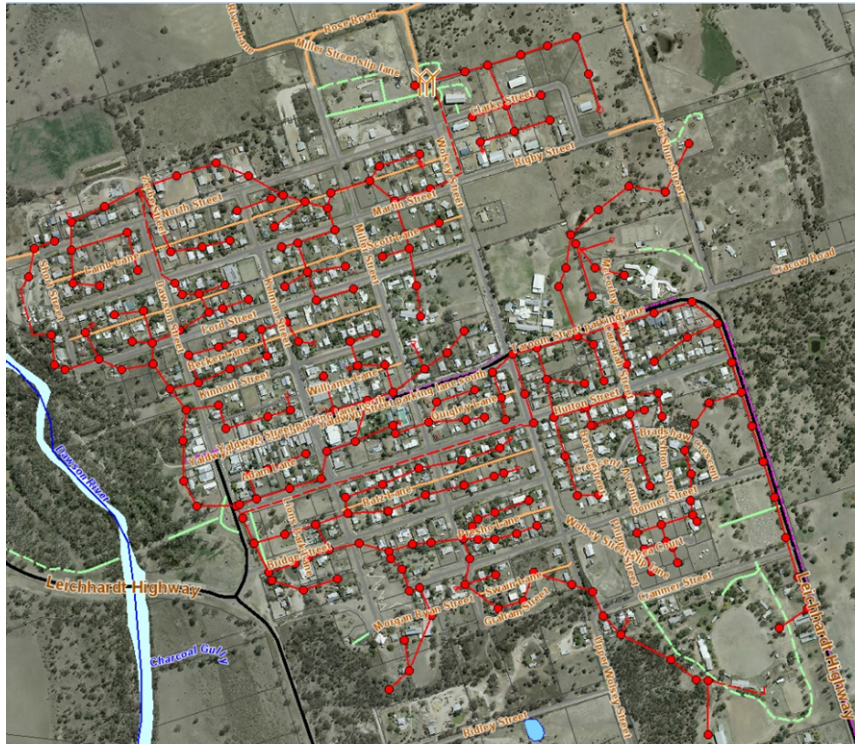


Figure 7: Taroom Sewer Network

Banana Shire Council is seeking to engage a contractor specialising in sewer cleaning, inspection and assessment to carry out works as specified. Accordingly, Council is seeking tender submissions from interested contractors for this project.

## 2. SCOPE OF THE WORK

Banana Shire Council is seeking to engage a contractor who is specialised in sewer cleaning and conditional assessment of sewers and manholes to undertake the required works.

The purpose of the proposed work is to address the following:

- Thorough cleaning of all sewers and manholes in the proposed areas and correct disposal of all waste and wastewater collected during cleans at the dumping points listed in this scope (tenderer to submit a *Waste Management Plan* with their proposal).
- Inspect all sewers in these networks and catchments using CCTV cameras to identify and record defects, root intrusions, pipe cracks, blockages, pipe wall conditions and other existing conditions necessary to find solutions to the present problems.
- Undertake condition assessment of all pipelines and manholes.
- Confirm location and depth of manholes
- Identify the manholes and jump ups where rainwater infiltration could occur during sustained wet weather situations.
- Preparation of a report detailing the present condition of the pipe networks and outlining recommendations to improve the situation.

Concrete lids need to be resealed with tared foam seal (Council to supply) and steel lids need to be recoated with copper seal (Council to supply). All manholes that are buried or unable to be opened need to be reported to Council while onsite and Council staff will locate.



Collected waste and wastewater to be disposed at the following dumping points in the stated town:

- Waste collected in Biloela may be disposed of in the sludge ponds at the Biloela sewage treatment plant.
- Waste collected in Moura may be dumped at a pit next to the Moura water treatment plant. This pit must be pumped out weekly and transported to the Biloela sludge ponds to dispose.
- Waste collected in Theodore may be dumped at a pit at the Theodore water treatment plant. Like Moura, this pit must be pumped out weekly and transported to the Biloela sludge ponds to dispose.
- Waste collected in Taroom may be dumped at a pit opposite the Taroom depot.

Customer relations will need to be completed by the contractor (door knocking and letter delivery with minimum 48 hrs notice being given; customer complaints and sewer clean-ups to be handled by the contracted company within two hours). The outgoing notice sent out and delivered to the public will have to be vetted by Council at least seven days prior to commencement of works.

In consultation with Council, sewer mains may require the following services:

- Heavy cleaning to remove choke point / blockage (including all plant and labour to clean, remove and dispose of debris)
- Root cutting (Including all plant and labour to cut, clean, remove and dispose of roots)
- Bypass pumping arrangements (where required and approved)

Council staff will be onsite periodically for site visits during this task and will liaise with the contractor – operating hours for this task will be from 7 am to 5 pm Monday to Friday (excluding public holidays).

These works include the supply of all plant, equipment, materials and labour relevant to enact the necessary cleans, maintenance and inspections. All breakdowns of equipment are the responsibility of the contractor and Council will not be charged for this time.

It is the respondent's responsibility to ensure that the quoted price for the work outlined above includes provision for flow and traffic control. In addition, all work must comply with the Workplace Health and Safety Act 2011 (Qld) and Workplace Health and Safety Regulation 2008.

Respondents should include with their submissions an overview of the proposed schedule of works demonstrating capacity to complete the required works in the timeframe allowed.

Prior to award of contract the contractor must provide to the principal a current exemption from Work Health and Safety QLD for cleaning of asbestos cement sewer mains with high pressure water (Clause 446 – Work Health and Safety Regulation 2011). No works are permitted on asbestos cement sewer mains unless this exemption has been granted to the contractor and the contractor has liaised with Council and implemented an appropriate safe work procedure.

## **2.1. GENERAL**

All works shall be of professional quality and suitable for assessing the structural and serviceability conditions of the asset. The following subsection details the general specification for the sewer conduit survey:

- i. All of the Contractor's operators and inspectors shall be qualified as per Water Services Association of Australia Conduit Inspection Reporting Code of Australia (Third Edition – 2013) (WSA 05) Clause 2.2
- ii. All conduit cleaning shall be carried out in accordance with WSA 05
- iii. All conduit surveys shall be conducted, scored and reported to as per WSA 05

## **2.2. EQUIPMENT CAPABILITY**

The preferred method of sewer conduit cleaning is via mobile, jet vacuum units. Combination trucks are preferred due to the spatial tightness of some of the locations. The use of an easement reel for certain situations would be favourable for the same reason. The jet pressure must be clearly stated in the respondent's proposal. A recycling combination truck could also be considered due to their sustainable benefits in terms of allowing water in the sewer system to be recycled for cleaning and any waste solids decanted, minimising the need for clean water and reducing waste volume. Water for combination truck can be obtained from Council. Truck description, tank size and water pressures to be indicated in the Price Schedule.

Cameras and scanners shall meet the minimum requirements of WSA 05 Clause 2.5, with all video and images to be high resolution and colour. The media shall be clear, well illuminated, in focus and not affected by smudging or fogging of the camera lens. The survey camera shall be able to pan, tilt and zoom. The survey vehicle shall include a device to measure the grade of each line (i.e. an inclinometer). The media playback shall meet the minimum requirements of WSA 05 Clause 2.8 and shall be annotated with the asset number, date of inspection, live linear distance, operator observations and comments. All media recording is to be taken with the camera lens in the centre of the conduit in accordance with WSA 05 Clause 2.6. The survey camera must be sufficient for diameters from 150 to 450 mm pipe.

Note: Various sections of sewer pipeline in the Shire have been relined with spiral wound PVC liner or CIPP liner. These lining processes have reduced pipeline diameter and may restrict the use of some inspection/camera equipment. The contractor is to ensure that their proposal accommodates this situation and that their equipment can access sewers with reduced diameter due to the existence of spiral wound and cured-in place liners. Contractor should identify the pipe material and, where lined, the type of liner to conduct works with adequate equipment.

## **2.3. SURVEY SPECIFICATION**

- i. Sewer conduits and chambers shall be cleaned to enable the survey equipment to pass through on a single run and ensure all structural defects are clearly visible when surveyed. All surveys to be carried out within 7 days of cleaning. Should the survey not be able to be carried out within 7 days of cleaning, direction from Council shall be sought as to how to proceed. Should additional cleaning be required, it shall be at the tendered hourly rate, excluding the contractor's margin.

- ii. Surveys must be taken in low flow conditions, with the contractor being responsible for flow restriction measures between entry and exit manholes. Council will supply indicative detention times prior to commencement of work. Detention times will reduce during times of wet weather due to infiltration within the network. The contractor shall liaise with Council to facilitate management of pump stations to create a survey window with minimum 48 hrs notice prior to providing network assistance. The order of operations shall generally be based upon the contractor's programme and, more specifically, the site conditions encountered, liaising closely with Council.
- iii. The preferential survey direction is from downstream to upstream. Where this survey direction is not possible due to access restrictions, the contractor shall ensure detailed lateral section imaging is obtained and recorded. Lateral imaging shall ensure the camera axis is aligned with the laterals' centre axis. Should the contractor be unable to satisfy the requirement of a section of survey, the contractor shall liaise with Council.
- iv. The contractor shall request approval from Council prior to commencement of any additional works such as heavy cleaning, root cutting and bypass pumping as above. The number of subsequent hours required to complete the works are to be agreed on-site with a Council inspector and shall be recorded by the contractor in their daily records.
- v. Should the contractor encounter or suspect brittle sewer conduits, works shall cease immediately and liaise with Council for agreement on how to proceed.
- vi. Should the contractor encounter a sewer chamber/maintenance structure where the hydrogen sulphide gas (H<sub>2</sub>S) exceeds the levels for a safe working environment, works shall cease immediately and a direction as to how to proceed shall be sought from the relevant inspector. The asset shall be documented within the contractor's daily records.
- vii. At commencement of each survey, after initial entry and display of header information, the contractor shall image and assess the conduit connection by completing a full revolution at the chamber wall with the exception where the pipework prohibits movement.
- viii. The survey 0.0 m reference point shall be the beginning of the pipe soffit identified as reference point "P" in WSA 05.
- ix. The camera shall stop at all defects and shall include an in focus, close-up image of the defect as per WSA 05.
- x. Camera travel speed is not to exceed the rates outlined in WSA 05 Clause 2.6.2.
- xi. The grade of each sewer line shall be measured and included with the video playback and report.
- xii. When a conduit survey ends in a chamber the operator shall capture imagery of the chamber benching, walls and lid section.
- xiii. If a non-identified chamber is found during a survey, its location shall be marked on a map and Council shall be alerted. The surface shall also be marked for later rectification. The minimum extent of information required to be captured has been outlined in Section 4 – Deliverables.

### 3. PROPOSAL REQUIREMENTS

Respondents should provide a proposal with an itemised price for the various work identified. This proposal should also document the necessary work not specifically stated in the scope to achieve Banana Shire Council's (BSC) objectives.

The items of work in the Price Schedule are divided into four Separable Portions and the tenderer may be appointed to undertake works pursuant to any one or more Separable Portions as follows:

- Separable Portion A:** Moura Sewerage Network;
- Separable Portion B:** Theodore Sewerage Network;
- Separable Portion C:** Biloela Sewerage Network (split into catchments); and
- Separable Portion D:** Taroom Sewerage Network

Alongside the submitted proposal, the respondent should supply Council with a proposed Waste Management Plan for the disposal of all waste and wastewater collected during cleans (dumping points to be specified by Council prior to commencement of works).

The work must satisfy the scope of works (Section 2) and deliverables (Section 4) outlined in this brief. BSC requires contractors/service providers to comply with all BSC guidelines specified or referred to in this tender request, however where the guidelines do not detail requirements, the current version of the WSA Code applies.

The proposal must state the time required for completion of the project from receipt of a Council purchase order and should include a program for the main tasks to be undertaken. Any failure to complete the work in the nominated timeframe will be taken into consideration in the award of future work.

### 4. DELIVERABLES

The Deliverable Package shall meet the minimum requirements of WSA 05 Clause 2.12 and shall include the following:

- CCTV files for each pipe section in a digital format (mpg-format) on a portable SSD.
- WinCAN reports for each pipe section. Banana Shire Council uses WinCAN VX software to record CCTV inspections on digital media and to capture customised WSA Code defect coding. Therefore, the contractor must supply the coding information in a WinCan project file, and all digital video files (mpg files) must also be linked into the WinCan project file.
- Conditional assessment report in an approved format (hard copy & pdf). The files must be named in the format:  
Asset Name(number)\_inspection date(YMMDD)\_Programmed Inspection.  
Sample: SM1854\_241120\_Programmed Inspection.
  - Abandoned surveys on the same reach (from downstream chamber and upstream chamber) to be combined into one survey file through WinCAN's functionality.
- Each report to include:
  - Date and time of inspection
  - Physical address of inspection
  - Asset IDs for the upper and lower sewer nodes and the sewer main
  - Sewer main material
  - Sewer main diameter
  - Condition grading

- Critical locations identified in survey complete with images, distance from start node and field identification information
- The “Assessment Summaries” Microsoft Excel spreadsheet (see attached) is to be filled out to summarise the reports of each town. All fields are to be filled out for each survey and a link to the report provided.
- Complete Banana Shire Council’s “Maintenance Hole Inspection Form” (see attached) for each maintenance hole including photos of each maintenance hole – internal & external.
- Survey accurate GPS co-ordinates of all maintenance holes to be obtained and provided in a Microsoft Excel spreadsheet listing manhole number, latitude and longitude according to datum/projection GDA2020 Zone 56.
- GIS database files (.MDB access format)
- Additional assets found with the following minimum information:
  - Asset type
  - Inspection zone
  - Physical address
  - Unique identifier
  - Pictures of location
  - Marked map location
  - Inspection data, where possible

Note: Following the completion of Sewer Pipe and Maintenance Hole works as per the Price Schedule, 10% of full payment shall be withheld until the submissions of all corresponding deliverables from the above list have been received.

## **5. INFORMATION AVAILABLE TO THE CONTRACTOR**

Council will supply relevant information in its possession to the successful contractor on request, subject to completion of a “terms of use” agreement where required.

The information available will include sewer pump station details, some maintenance hole details, pipe sizes, plans, detention times, etc.

The Contractor will be supplied with the location and asset numbers for each main segment, as well as the asset numbers of the upstream and downstream access chambers (manholes). Additionally, maps and GIS data of all relevant sewer assets will be supplied.

## **6. ACCEPTANCE OF PROPOSALS**

Council specifically reserves the right to accept no proposal or any proposal which it considers to be most advantageous to Council, regardless of lowest cost or degree of conformity to council’s requirements. It further reserves the right that, after the submission closing date, it may negotiate with one or more submitters with a view of modifying the terms, conditions, prices and any other matters applicable to any contract that may be subsequently entered into.

A proposal shall not be deemed to have been accepted unless accepted in writing by way of Letter of Acceptance.

## **7. SUBMITTER TO BECOME FULLY INFORMED**

The Submitter shall be considered to have become fully informed of all conditions affecting the Proposal and is deemed to have inspected the work sites. If any clarification is required regarding the content in this document, enquires should be forwarded to the Banana Shire Council.