

# STORM WATER MANAGEMENT – VARIOUS LOCATIONS

RFQ 19/20-07

## Attachment 1 Specifications

The below specifications will form a guide for Consultants to follow when pricing up their submission and for project requirements on specific sites mentioned.

As part of all three projects, all (if any) Environmental, Heritage, Aboriginal, Main Roads, Railway, Utilities, Department of Water and Environmental Regulation (DWER) –native vegetation clearing etc. and any other approvals, would need to be identified in all reports.

Consultants are asked to identify any grant funding opportunities that may be applied for to fund wholly or partially for all three projects as part of their submission.

The below specifications are a direction and guide drafted by the Principal for the Consultant however during the course of the project other considerations not stated or considered may present as recommended by the Consultant and in the professional opinion of the Consultant and the Consultants technical staff i.e. Drainage, Civil or Hydrology Engineer/s. For this reason, Consultants are asked to supply their schedule of rates should any variations be identified during any of the projects for the consideration of the Principal.

A non-compulsory site meeting will be available for suitably qualified and experienced Consultants to attend to address on site clarification on any aspects of the three projects. It is recommended that Consultants attend all three sites to familiarise themselves with the projects. It will be the responsibility of the Consultant to research these projects (including aerial mapping) based on the information provided and as stated at each site meeting.

### **Site 1: Floreat Street South to Railway Dam.**

The overview for this project is to ascertain if storm water from the towns south/west drainage assets can be redirected from its current discharge point to a man- made drainage channel running parallel to Moss Street leading towards Railway Dam.

The purpose of this project is to relieve pressure and volume of storm water being directed through the town specifically residential and business properties which have in the past flooded when quick heavy volume storm events occur.

The current discharge point is a drainage pit located in Floreat Street between Felspar Street and Moss Street. This pit discharges storm water to a natural creek line that meanders through/under private and business properties to access Narrogin Brook.

The Consultant is required to supply a detailed report that:

- Advises if the project is feasible, if so;
- Identify and quantify the annual amount of storm water that flows into the current discharge pit in Floreat Street near Moss Street;
- Identify the area of catchment that feeds the current discharge point;
- Advise if the man-made drainage channel can cope with the volume of water that maybe fed into it. Would the channel need structural modification to carry the new volume of storm water that would be fed into it so that there would be no chance of structural failure resulting in flooding of private or business properties i.e. Toyota Dealership. A drainage or structural engineer is required to certify the structural integrity of the channel;

- If there were works required to the channel, then these would need to be identified in a detailed civil construction design/plans to a works ready specification for the Shire's works crew or contractors to follow. These plans are to be provided to the Principal in PDF format;
- The current man made channel currently does not feed into the Railway Dam however seems to end on possibly private property. A major point of this project is for the Consultant to determine where the most logical and cost efficient end point of discharge would be i.e. current location or old disused Ski Park or Railway Dam and identify if there would be any adverse effects to other properties as a result of redirecting the storm water;
- Identify any environmental factors that may affect this project;
- Identify what processes are required to be followed should the project affect private properties or utilities i.e. Rail Reserves etc.
- It would be part of this project to identify all clearances, applications and authorisations in order for the project to commence and proceed to completion. The Consultant can provide a separate quote to facilitate this service in full.

## **Site 2: May Street Storm Water Catchment Dam**

Please note, this project (Site 2) may affect factors in Site 3 – Gnarojin Park Master Plan, as the same storm water channel flows through both sites.

Situated on May Street at the junction of Dellar Street, is a storm water culvert outlet that feeds storm water catchment from the north west section of town to a storm water channel that moves around the rear of the horse racing track through Earl Street and Federal Street, under Kipling Street and into Narrogin Brook through Gnarojin Park parallel to Pioneer Drive. This channel is also fed via natural land catchment in May Street further north from the May Street/Dellar Street junction.

This storm water channel, during heavy high volume storm events, also sometimes floods private property and business in Federal Street and Earl Street. It is expected that a storm water catchment dam would reduce the likely hood of flooding to any properties.

The main purpose of this project is to harvest storm water catchment in the form of a dam for further irrigation opportunities for example:

- Centre Sports Recreational Reserve
- Other non-irrigated parks in the vicinity
- Narrogin Race and Pace Horse Racing Track

Currently, Clayton Oval, Centre Sports Reserve and the Narrogin Horse Racing Track are irrigated from the Shire's Treated Water Irrigation System (TWIS) and a holding dam at the rear of Clayton Oval. At times the amount of treated water for irrigation is limited which effects the amount of irrigation water available for Centre Sports Reserve. It is Councils desire to improve the quality of turf at Centre Sports Reserve which could be achieved with additional water. It is envisaged that a storm water catchment dam could assist in achieving this.

The Consultant is required to supply a detailed report:

- Identifying if a water catchment dam is feasible and identify the benefits and negative points if any;
- Identify the most beneficial location for a dam to be constructed i.e. within the Narrogin Race and Pace leased area, Shire managed land along or beside the storm water channel;

- Is there potential for the current Treated Water dam located on the northern side of Clayton Oval to be extended to capture storm water;
- Consultant to comment and explain if storm water and treated water could be mixed as part of the existing or new dam or would need to be kept separate;
- Identify the storage capacity and usage levels of the current dam and any constraints or opportunities in “shandyng” the water for effluent and storm water in terms of water management and dam design retrofitting;
- Identify and quantify the annual volume of storm water that potentially may be harvested if a dam was to be constructed;
- Recommend the size and nature of a dam that would maximize the full potential of the storm water harvesting opportunities at the recommended location;
- Supply a full civil construction design of a storm water harvest dam in relation to this project that is shovel ready and could be given to a contractor to quote on and construct. Plans to be provided to the Principal in PDF form;
- As part of the dam design, the Consultant is asked to supply best estimate pricing for all components of the dam for the Principal’s information should the Principal go to procurement for the construction of the dam or grant funding application opportunities;
- As part of the report and the design of the dam, the Consultant is requested to also identify further infrastructure requirements of the potential dam for the purpose of irrigation i.e. fencing requirement, power supply, pump and irrigation piping to the current irrigation dam located on Clayton Reserve or potential other location as recommended by the Consultant;
- Identify any environmental factors that may affect this project and
- It would be part of this project to identify all clearances, applications and authorisations in order for the project to commence and proceed to completion. The Consultant can provide a separate quote to facilitate this service in full.

### **Site 3: Gnarojin Park Master Plan – Waterway Improvements**

A major point of feedback from the community consultation process, was the prospect and improvement of the Narrogin Brook. The Masterplan proposal has taken into consideration and includes a range of improvements to the waterway including WSUD treatment ponds, bank stabilisation, removal of exotic weeds with revegetation of native and indigenous species to help improve water quality, and create opportunities for a range of biodiversity and ecological environments.

The overview for this project is to identify if the concept design requirements within the Gnarojin Park Master plan under Waterway Improvements can be achieved with the volume of storm water that flows through the Narrogin Brook. As previously mentioned, this project may be effected by Site 2 project i.e. Storm Water Catchment Dam so commentary in the report would need to address this.

The consultant is to provide a detailed report as follows:

- Identify and quantify the annual flow of storm water through the Narrogin Brook adjoining Gnarojin Park at present- without a dam at Site 2 and if a dam at Site 2 was constructed;
- Identify if the requirements of the conceptual designs of the Waterway Improvements contained in the Master Plan can be achieved based on the annual water flow from the Narrogin Brook;
- If the requirements of the Waterway Improvements contained in the Master Plan cannot be achieved, then to what extent can they be achieved or part of;

- To what extent would Site 2 May Street Catchment Dam effect the requirements identified in the Waterway Improvements contained in the Master Plan;
- Identify any environmental factors that may affect this project and identify all approvals required for this project to proceed;
- If the Water Way Improvements are possible, the Consultant is asked to submit a separate quote to provide:
  - Full detailed construction designs in accordance with the conceptual designs of the Waterway Improvements contained in the Master Plan, to shovel ready stage;
  - Best estimate pricing for all components of the construction designs;
  - Detailed comment on a maintenance schedule for the Water Way Improvements should they be built, including what would be the weekly/monthly/annual maintenance requirements, identify and cost for materials to maintain and what would be the labour component, should the Principal wish to put the construction designs out for procurement for construction and
  - Identify and facilitate all clearances, applications and authorisations in order for the project to commence and proceed to completion of the Water Way Improvements.