



**AGENDA**

**ROADS COMMITTEE MEETING**

**TUESDAY, 24 MARCH 2020**

Notice is given that the next Roads Committee Meeting of the Roper Gulf Regional Council will be held on:

Tuesday, 24 March 2020 at 8:30AM  
The Roper Room, Roper Gulf Regional Council  
2 Crawford Street, Katherine, NT

Your attendance at the meeting will be appreciated.

Phillip LUCK  
**CHIEF EXECUTIVE OFFICER**

## PLEDGE

“We pledge to work as one towards a better future through effective use of all resources.

We have identified these key values and principles of Honesty, Equality, Accountability, Respect and Trust as being integral in the achievement of our vision, that the Roper Gulf Regional Council is Sustainable, Viable and Vibrant.”

## PRAMIS BLA WI

“Mela pramis bla wek gudbalawei bla meigim futja bla wi wanwei, en bla yusim ola gudwan ting bla helpum wi luk lida.

Mela bin luk ol dijlod rul, ebrobodi gada tok trubalawei, wi gada meik so wi gibit firgo en lisiin misalp, abum rispek en trastim misalp bla jinggabat bla luk lida, Roper Galf Rijinul Kaunsul deya maindim en kipbum bla wi pramis, dum wek brabli gudbalawei, en im laibliwan.”

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## **CONFIRMATION OF PREVIOUS MINUTES**

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|                    |  |
|--------------------|--|
| <b>ITEM NUMBER</b> | 4.1  |
| <b>TITLE</b>       | Roads Committee - 17 November 2019             |
| <b>REFERENCE</b>   | 908001   |
| <b>AUTHOR</b>      | Ashleigh ANDERSON, Local Authority Coordinator |

### **RECOMMENDATION**

**That the Roads Committee confirms the minutes from the meeting held on 17 November 2019, and affirms them to be a true and accurate record of the meetings decisions and proceedings.**

### **BACKGROUND**

The Roads Committee met at the Roper Gulf Regional Council Support Centre in Katherine on Wednesday 27 November 2019 at 8:30am.

Attached are the recorded minutes from that meeting for the Committee to confirm.

The next scheduled Roads Committee meeting is on Wednesday 27 May 2020 at 8:30am.

### **ISSUES/OPTIONS/SWOT**

Nil.

### **FINANCIAL CONSIDERATIONS**

Nil.

### **ATTACHMENTS**

- 1 Roads Committee 2019-11-27 [872025].DOCX





MINUTES OF THE ROADS COMMITTEE MEETING HELD AT THE CONFERENCE  
ROOM ROPER GULF REGIONAL COUNCIL SUPPORT CENTRE  
KATHERINE ON WEDNESDAY, 27 NOVEMBER 2019 AT 8:30AM

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**1. PRESENT/STAFF/GUESTS**

**1.1 Members**

- Mayor Judy MacFARLANE;
- Deputy Mayor Helen LEE;
- Councillor Annabelle DAYLIGHT;
- Councillor Donald GARNER;
- Councillor Edwin NUNGGUMAJBARR.

**1.2 Staff**

- Phillip LUCK, Chief Executive Officer;
- Sharon HILLEN, General Manager Infrastructure Services and Planning;
- Naomi HUNTER, Executive Manager;
- Vikrant JAGARLAMUDI, Roads Coordinator;
- Ashleigh ANDERSON, Local Authority Co-ordinator;
- Chelsey GILROY, Governance Officer.

**2. MEETING OPENED**

The Roads Committee Meeting was opened at 8:55am and the Pledge was read.

**3. APOLOGIES AND LEAVE OF ABSENCE**

That the Roads Committee does not accept the apologies of Cr Owen TURNER, noting that it was not given.

**4. CONFIRMATION OF PREVIOUS MINUTES**

**4.1 CONFIRMATION OF PREVIOUS MINUTES**

31/2019 RESOLVED (Helen LEE/Annabelle Daylight)

CARRIED

That the Roads Committee confirms the Minutes taken at the Roads Committee Meeting held on 28 August 2019 to be a correct record of its decisions and proceedings.

**5. CALL FOR ITEMS OF GENERAL BUSINESS**

Nil.

**6. DISCLOSURES OF INTEREST**

*There were no declarations of interest at this Roads Committee.*

**7. BUSINESS ARISING FROM PREVIOUS MINUTES****7.1 ACTION LIST**

32/2019 RESOLVED (Donald GARNER/Helen LEE) CARRIED

That the Roads Committee receives and notes the Action List.

**8. INCOMING CORRESPONDENCE**

Nil.

**9. OUTGOING CORRESPONDENCE**

Nil.

**10. ELECTED MEMBERS REPORT**

Nil.

**11. OPERATIONAL REPORT****11.1 ROADS EXPENDITURE ALLOCATION REPORT AS AT 25 OCTOBER 2019 FOR \$2 MILLION**

33/2019 RESOLVED (Edwin NUNGGUMAJBARR/Annabelle Daylight) CARRIED

That the Roads Committee receives and notes the reconciliation of the RGRC Roads Future Fund (\$2 million).

**12. GENERAL BUSINESS****12.1 JILKMINGGAN MAIN STREET UPDATE**

34/2019 RESOLVED (Helen LEE/Donald GARNER) CARRIED

That the Roads Committee receives and notes the update on Jilkmिंगgan Main Street design update.

**12.2 NUMBULWAR ROAD UPGRADES UPDATE**

35/2019 RESOLVED (Edwin NUNGGUMAJBARR/Helen LEE) CARRIED

That the Roads Committee receives and notes update on Numbulwar Roads upgrade Stage 1.

**12.3 MANYALLULUK (EVA VALLEY) ROADS AND DRAINAGE UPGRADES UPDATE**

36/2019 RESOLVED (Helen LEE/Donald GARNER) CARRIED

That the Roads Committee receives and notes update on Manyalluluk Roads and Drainage Upgrades.

**12.4 WEEMOL COMMUNITY - INTERNAL ROADS RESEAL**

37/2019 RESOLVED (Helen LEE/Edwin NUNGGUMAJBARR) CARRIED

That the Roads Committee receives and notes the update on Weemol internal roads reseal works.

**12.5 MATARANKA CEMETERY UPGRADES UPDATE**

**38/2019 RESOLVED (Annabelle DAYLIGHT/Donald GARNER) CARRIED**

**That the Roads Committee receives and notes the update on Mataranka Cemetery upgrades**

**13. ITEMS FOR NEXT MEETING**

Nil.

**14. CLOSE OF MEETING**

The meeting terminated at 10.05am.

This page and preceding pages are the minutes of the Roads Committee Meeting held on Wednesday, 27 November 2019 and will be confirmed on Tuesday 24 March 2020.

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Mayor Judy MacFARLANE

**GENERAL BUSINESS**

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|                    |  |
|--------------------|--|
| <b>ITEM NUMBER</b> | 11.1   |
| <b>TITLE</b>       | Proposal to Upgrade the Road Connecting the Community and the Minyerri Local Store |
| <b>REFERENCE</b>   | 911138   |
| <b>AUTHOR</b>      | Sharon HILLEN, General Manager Infrastructure Services and Planning                |

**RECOMMENDATION**

**That the Roads Committee:**

- (a) Receives and notes the proposal to upgrade the local roads in Minyerri; and,**
- (b) Refers to Council to approve the program allocation of \$148,000 from the next round of Roads Program.**

**BACKGROUND**

In 2019, Hodgson Downs Local Authority has nominated that the annual Local Authority funding go towards road upgrades in the community. The funding over the subsequent years has been used to reseal the road to the school, clinic and road to the children's' playground.

From a roads audit undertaken by Tonkin Consulting and Council Engineers, it is identified that the road to the store is unsealed with scouring in various sections and the road connecting lots 47 to 42 is completely deteriorated. During heavy rainfall events, it is observed water ponds over the pavement and creates extreme boggy conditions due to inadequate drainage.

It is recommended that these roads be upgraded and resealed to minimise repair costs and extend the life of the pavement by minimising the wear and tear.

The road upgrades include:

- Survey and Engineering Designs for pavement strengthening, widening and establishment of drainage;
- Earthworks for base formation;
- Sealing of unsealed roads;
- Resealing of existing bitumen roads; and
- Signage and traffic furniture.

It is estimated that these works will cost an approximate amount of \$320,000 excluding the costs for survey and designs.

**ISSUES/OPTIONS/SWOT**

Roads Committee has the following two options in its approach towards the road upgrades:

- To undertake standard engineering survey and designs which enables to pick up the critical drainage areas and run-off paths before going to construction.

**OR**

- To upgrade the road by providing a standard spray seal by engaging a contractor.

Conducting the survey and aiming to design the road with adequate drainage to Australian Standards will provide pavement life period up to 20 years with minimum annual maintenance costs whereas spray sealing the existing road will cause more damage in case of heavy rainfall events leading to high maintenance costs.

### **FINANCIAL CONSIDERATIONS**

The Hodgson Downs Local Authority has a current allocation to the next roads project of \$86,000. If the LA compounds its 2019/2020 and 2020/2021 Local Authority Project Funding Grant the Local Authority will have \$172,000.

The new works, based on this year's road works quantities, \$320,000 based on the current market rates.

Council will need to source \$148,000 in the 2020/2021 financial year to undertake the works in the dry season of 2021.

### **ATTACHMENTS**

- 1 Minyerri - Road to store project.pdf





**GENERAL BUSINESS**

|                    |   |
|--------------------|---|
| <b>ITEM NUMBER</b> | 11.2  |
| <b>TITLE</b>       | Regional Plan 19/20 - Roads Project Update                          |
| <b>REFERENCE</b>   | 911155  |
| <b>AUTHOR</b>      | Sharon HILLEN, General Manager Infrastructure Services and Planning |

**RECOMMENDATION**

**That the Roads Committee receive and note the update on the RGRC Regional Plan 2019/2020 Road Projects.**

**BACKGROUND**

Roads maintenance and management is a core responsibility of Council. Council manages over 900km of roads, ranging from sealed kerb and guttering; sealed roads, gravel roads and flat bladed track. Council undertakes repairs and maintenance activities as well as upgrades to roads in accordance with its Five Year Roads Plan.

Status - Current Priorities for the 2019/2020 Financial Year

| <b>Project</b>  | <b>Status</b>   | <b>Comments</b>  |
|---|---|--|
| <b>All Towns:</b> Pot holes, speedbumps and signage                         | On going  | Potholing and signage ongoing maintenance.   |
| <b>Maintenance Grades:</b> Eva Valley Road, Weemol Access Road and Urapunga | Eva Valley Road, Weemol Access Road   | Report sent to Ordinary Meeting of Council advising of maintenance frequencies.  |
| <b>Barunga:</b> Bottom Camp Housing Access – cul-de-sac-design              | Department of Local Government and Community Development is currently working on options to mitigate the dirt issues on the track through the lots. A paper has been put to RCM on the GHD proposal to extend and seal Bagala road and drive ways connecting lots 208, 209 and 210. | Correspondence from Department of Infrastructure Planning and Logistics confirmed that the lot boundaries are as per the Department of Infrastructure Planning and Logistics survey plan approved in 2016. |
| <b>Beswick:</b> Central Arnhem Road turn-off upgrade                        | Turn off upgrades will be undertaken in conjunction with Department of Infrastructure Planning and Logistics' Central Arnhem Road upgrade project.  | Note that Department of Infrastructure Planning and Logistics are upgrading the lighting at both Central Arnhem Road turnoffs this financial year.   |
| <b>Borroloola:</b> Completion of Rocky Creek Bridge                         | Department of Infrastructure Planning and Logistics is the Project Manager. Procurement plan is currently underway and tenders are expected to be advertised in April 2020  | Bridge Designs completed and waiting on approval from Telstra. Construction is expected to commence from June 2020 and finish in December 2020.  |

|   |   |  |
|---|---|--|
| <b>Bulman:</b> Seal and drainage of internal roads  | Flanagan Consulting has submitted the final designs and construction cost estimates.  | Council will provide the designs and documentation at the next Local Authority meeting for review and approval. Works are expected to go to public tenders in June 2020.                   |
| <b>Jilkminggan:</b> Main Street upgrade   | Coffey have completed the survey and preliminary findings will be tabled at the February Local Authority  | The Local Authority and Council will need to access the viability of this project.   |
| <b>Mataranka:</b> Cemetery Carpark  | Concept has been finalised and now with engineers for final design.   | Project has re-focused on the carpark and the Columbarium component is being managed as a separate project.  |
| <b>Manyallaluk:</b> Eva Valley access road maintenance and grade program.<br><br>Manyallaluk roads and drainage upgrade designs | Requested a quote from the contractor. An open grade will be conducted after the wet season, tentatively end of March or early April.<br><br>Requested revised design from Boytell Consultants with a view to reducing original cost estimate to more consistent with current market rates. | Maintenance grade undertaken in November 2019.<br>Next expected in March/April 2020.<br><br>Quote received from Boytell Consultants to revise design/specification.                        |
| <b>Minyerri:</b> Seal internal roads, reinstate drains  | Works completed in 2019.  | Next priority is the Road to the Minyerri store. A scope of works and cost estimate will be tabled at the March LA for consideration.  |
| <b>Ngukurr:</b> Freight Hub   | Tendering and negotiations completed  | Finance Committee Meeting Report.  |
| <b>Numbulwar:</b> Design and costing of all internal roads  | Designs complete. Cost estimates provided for stage one upgrade \$7.82m   | Priorities for road works were determined at the previous LA meeting in Feb 2020. Council to allocate and approve the budget for the construction of stage one priority roads in Numbulwar |
| <b>Urapunga:</b> Road C plus shoulder work  | 1. Shoulder work COMPLETED<br>2. Surveyor appointed works to be completed before end of January 2020.   | We have added more survey work to allow for a bus entry and exit and possible parking.   |
| <b>Weemol:</b> Reseal internal roads  | COMPLETED   | Works included shoulder repairs, resealing and signage.  |

**ISSUES/OPTIONS/SWOT**

Nil.



## FINANCIAL CONSIDERATIONS

Quotes received:

**Barunga** Bottom Camp Housing Access (cul-de-sac-design) - \$51,510.00.

**Beswick:** Central Arnhem Road turn-off upgrade design - \$69,734.89.

**Urapunga** Access road maintenance grade: \$3000.00 per service (this can change due to conditions and timeframes).

**Bulman:** Seal and drainage of internal roads – **construction estimate** \$610,592.30, Projects believe this to be under estimated by approximately \$100,000.00 due to mobilization and demobilisation fees not consistent with current rates.

**Manyallaluk** roads and drainage upgrade designs - \$10,000.00.

The table below details Council's three sources of funding, included in the '**RGRC 5 Year Roads Plan**' commencing at 2018/2019. The balance yet to be allocated is the remainder of the Future Fund and Roads To Recovery funding. The Roads Committee in March 2020 will determine the disbursements of the remaining funds available.

| Funding Source   | Total Funds 2018-2020 | Total funds Allocated | Balance to be allocated |
|--|-----------------------|-----------------------|-------------------------|
| Roads Future Fund  | \$2,000,000           | \$1,565,076           | \$434,924               |
| Roads to Recovery (R2R) **From previous Grant ending 2018/2019 | \$3,103,445           | \$1,500,000           | \$1,603,445             |
| NT Ops' Federal Assonance Grants                               | \$1,093,000           | \$1,093,000           | \$0                     |
|  | <b>\$6,196,445</b>    | <b>\$4,158,076</b>    | <b>\$2,038,369</b>      |

The following table details the expenditure to date, associated with each priority Road Project listed in the 2019/2020 Regional Plan.

| Location                                     | RGRC Roads Future Fund | R2R         | FAG       | Expenditure  |
|--|------------------------|-------------|-----------|--------------|
| All towns                                    |                        |             | \$100,000 | \$411,585.06 |
| Barunga                                      |                        |             |           | \$51,510.00  |
| Beswick                                      |                        |             |           | \$69,734.89  |
| Borroloola                                   |                        | \$1,500,000 |           | \$737,880    |
| Weemol                                       | \$320,000              |             |           | \$282,495    |
| Bulman                                       | \$77,533               |             |           | \$75,984     |
| Jilkminggan                                  | \$160,000              |             |           | \$30,800     |
| Mataranka                                    |                        |             |           |              |
| Urapunga                                     |                        |             |           |              |
| Manyallaluk                                  | \$100,000              |             |           | \$85,824     |
| <b>Total Expenditure at 31 February 2020</b> |                        |             |           |              |
| <b>\$1,745,804.95</b>                        |                        |             |           |              |

## ATTACHMENTS

There are no attachments for this report.

**GENERAL BUSINESS**

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|                    |   |
|--------------------|---|
| <b>ITEM NUMBER</b> | 11.3  |
| <b>TITLE</b>       | Manyalluluk - Roads and Drainage Design and Costing Project |
| <b>REFERENCE</b>   | 911380  |
| <b>AUTHOR</b>      | Vikrant JAGARLAMUDI, Roads Coordinator                      |

**RECOMMENDATION**

**That the Roads Committee:**

- (a) Receives and notes the update on Manyalluluk roads and drainage designs; and**
- (b) Supports the project estimate for gravel re-sheeting of the access road to be added to the Roads Program.**

**BACKGROUND****Design and costings of internal roads**

Council engaged Boytell Consulting to develop options and designs for the upgrade of roads and drainage in the community. The designs for construction and cost estimates have been completed. The designs are divided into three stages to suit the Council needs:

- Stage 1 – Pavement drainage from Council office (Lot 35) to Community Crèche (Lot 28) and construction of car park near Council office;
- Stage 2 – Access road upgrade, sealing and drainage works from community entry to the Council office (Lot 35); and
- Stage 3 – Upgrade and sealing of Thompson Court and road to Council works depot.

**Eva Valley access road re-sheeting program**

Council Engineers have undertaken road inspections on the unsealed access road to the community and have identified there is a significant loss of gravel causing exposure of sub-grade to the traffic and formation of corrugations at various sections.

**ISSUES/OPTIONS/SWOT****Design and costings of internal roads**

The advice from consultants on the project estimate to achieve the whole scope of works from the base of the jump-up through to the end of internal roads is too high for Council to fund alone.

The projects team will now use the consultant's report to identify a Community Roads Upgrades program that can be delivered over the next 10 Years.

**Eva Valley access road re-sheeting program**

Based on the audit, it is recommended that gravel re-sheeting be conducted to restore the thickness of the pavement in order to provide adequate support for vehicles using the road.

Current grading program does not replenish the gravel loss. To maintain the road to desired conditions gravel re-sheeting is suggested. Gravel Re-sheeting is the process that is used to maintain the life of a gravel road surface. It involves the application of 100mm- 200mm layer of new gravel over the existing surface. The process is intricate, depending on the condition of the road and other topographical constraints. This process costs \$50,000 per km on average.

It is recommended that Council periodically applies new gravel to roads in isolated areas that are deteriorating significantly. From the inspections, it is observed that 10.1km of road needs gravel addition and patching at present.

## **FINANCIAL CONSIDERATIONS**

### **Design and costings of internal roads**

Council has reviewed options and cost estimates developed by Boytell Consulting and the estimates exceed Councils funding capacity. Therefore, the Project team is working towards re-scoping the work to reduce the costs to an acceptable level.

### **Eva Valley access road resheeting program**

Councils requires approximately \$500,000 to undertake this work.

### **ATTACHMENTS:**

- 1** O. Budget (STAGE 1).pdf
- 2** O. Budget (STAGE 2).pdf
- 3** O. Budget (STAGE 3).pdf
- 4** Gravel re-sheeting estimate.pdf

| TENDER                     |  | MANYALLULUK ROAD & DRAINAGE REHABILITATION - STAGE 1 - BUDGET |      |               |                       |
|----------------------------|--|---|------|---------------|-----------------------|
| ITEM                       | DESCRIPTION  | QTY   | UNIT | RATE          | COST                  |
| <b>PRELIMINARIES</b>       |  |   |      |               |                       |
|                            | Mobilisation   | 1   | Item | \$80,000.00   | \$80,000.00           |
|                            | Demobilisation   | 1   | Item | \$62,000.00   | \$62,000.00           |
|                            | Site establishment   | 1   | Item | \$50,000.00   | \$50,000.00           |
|                            | Traffic management   | 1   | Item | \$25,000.00   | \$25,000.00           |
|                            | Accommodation inclusive of food  | 1   | Item | \$126,000.00  | \$126,000.00          |
|                            | Survey   | 1   | Item | \$62,974.00   | \$62,974.00           |
| <b>PLANT AND EQUIPMENT</b> |  |   |      |               |                       |
|                            | Inclusive of 2 x end tippers, water truck, 2 x rollers, GPS grader, loader, screening plant, crushing plant, 2 x excavators, 1 x side tipper | 1   | Item | \$550,000.00  | \$550,000.00          |
|                            | <b>LABOUR</b>  | 1   | Item | \$640,000.00  | \$640,000.00          |
|                            | <b>PROTECTION WORKS</b>  | 1   | Item | \$370,000.00  | \$370,000.00          |
|                            | <b>GRASSING</b>  | 40110   | m2   | \$11.50       | \$461,265.00          |
|                            | <b>TRAFFIC FURNITURE AND LINE MARKING</b>  | 1   | Item | \$20,530.00   | \$20,530.00           |
|                            | <b>SPRAY SEALING</b>   | 1587  | m2   | \$25.00       | \$39,675.00           |
| <b>GEOTECHNICAL</b>        |  |   |      |               |                       |
|                            | Earthworks   | 1   | Item | \$29,000.00   | \$29,000.00           |
|                            | Asphalt  | 1   | Item | \$76,000.00   | \$76,000.00           |
|                            |  |   |      | <b>BUDGET</b> | <b>\$2,592,444.00</b> |

| TENDER                     |  | MANYALLULUK ROAD & DRAINAGE REHABILITATION - STAGE 2 - BUDGET |      |              |                       |
|----------------------------|--|---|------|--------------|-----------------------|
| ITEM                       | DESCRIPTION  | QTY   | UNIT | RATE         | COST                  |
| <b>PRELIMINARIES</b>       |  |   |      |              |                       |
|                            | Mobilisation   | 1   | Item | \$80,000.00  | \$80,000.00           |
|                            | Demobilisation   | 1   | Item | \$62,000.00  | \$62,000.00           |
|                            | Site establishment   | 1   | Item | \$50,000.00  | \$50,000.00           |
|                            | Traffic management   | 1   | Item | \$25,000.00  | \$25,000.00           |
|                            | Accommodation inclusive of food  | 1   | Item | \$42,000.00  | \$42,000.00           |
|                            | Survey   | 1   | Item | \$62,974.00  | \$62,974.00           |
| <b>PLANT AND EQUIPMENT</b> |  |   |      |              |                       |
|                            | Inclusive of 2 x end tippers, water truck, 2 x rollers, GPS grader, loader, screening plant, crushing plant, 2 x excavators, 1 x side tipper | 1   | Item | \$550,000.00 | \$550,000.00          |
|                            | <b>LABOUR</b>  | 1   | Item | \$640,000.00 | \$640,000.00          |
|                            | <b>PROTECTION WORKS</b>  | 1   | Item | \$100,000.00 | \$100,000.00          |
|                            | <b>GRASSING</b>  | 28670   | m2   | \$11.50      | \$329,705.00          |
|                            | <b>TRAFFIC FURNITURE AND LINE MARKING</b>  | 1   | Item | \$20,530.00  | \$20,530.00           |
|                            | <b>SPRAY SEALING</b>   | 6060  | m2   | \$25.00      | \$151,500.00          |
| <b>GEOTECHNICAL</b>        |  |   |      |              |                       |
|                            | Earthworks   | 1   | Item | \$29,000.00  | \$29,000.00           |
|                            | Asphalt  | 1   | Item | \$76,000.00  | \$76,000.00           |
| <b>BUDGET</b>              |  |   |      |              | <b>\$2,218,709.00</b> |

| TENDER: MANYALLULUK ROAD & DRAINAGE REHABILITATION - STAGE 3 - BUDGET |  |       |      |               |                       |
|---|--|-------|------|---------------|-----------------------|
| ITEM  | DESCRIPTION  | QTY   | UNIT | RATE          | COST                  |
| <b>PRELIMINARIES</b>  |  |       |      |               |                       |
|   | Mobilisation   | 1     | Item | \$80,000.00   | \$80,000.00           |
|   | Demobilisation   | 1     | Item | \$62,000.00   | \$62,000.00           |
|   | Site establishment   | 1     | Item | \$50,000.00   | \$50,000.00           |
|   | Traffic management   | 1     | Item | \$25,000.00   | \$25,000.00           |
|   | Accommodation inclusive of food  | 1     | Item | \$42,000.00   | \$42,000.00           |
|   | Survey   | 1     | Item | \$62,974.00   | \$62,974.00           |
| <b>PLANT AND EQUIPMENT</b>  |  |       |      |               |                       |
|   | Inclusive of 2 x end tippers, water truck, 2 x rollers, GPS grader, loader, screening plant, crushing plant, 2 x excavators, 1 x side tipper | 1     | Item | \$550,000.00  | \$550,000.00          |
|   | <b>LABOUR</b>  | 1     | Item | \$640,000.00  | \$640,000.00          |
|   | <b>PROTECTION WORKS</b>  | 1     | Item | \$100,000.00  | \$100,000.00          |
|   | <b>GRASSING</b>  | 11020 | m2   | \$11.50       | \$126,730.00          |
|   | <b>TRAFFIC FURNITURE AND LINE MARKING</b>  | 1     | Item | \$20,530.00   | \$20,530.00           |
|   | <b>SPRAY SEALING</b>   | 6060  | m2   | \$25.00       | \$151,500.00          |
| <b>GEOTECHNICAL</b>   |  |       |      |               |                       |
|   | Earthworks   | 1     | Item | \$29,000.00   | \$29,000.00           |
|   | Asphalt  | 1     | Item | \$76,000.00   | \$76,000.00           |
|   |  |       |      | <b>BUDGET</b> | <b>\$2,015,734.00</b> |

## Manyallaluk (Eva Valley) Access road Gravel re sheet

CH 0-5.5kms pavement ok, gravel thinning

CH 5.5-7kms pavement ok. Gravel thinning

CH 7-10kms needs re sheet gravel -----3.0kms

CH 10-11kms gravel top up in places, cap rock showing -----approx 400 mtrs

CH 11-12.5 kms gravel re sheet in places, cap rock exposed -----approx 800 mmtrs

CH 12.5-18.5kms pavement ok, gravel thinning

CH 18.5-25kms pavement ok, gravel thinning.

CH 25.5-26.5 cap rock exposed, gravel re sheet. -----1.5kms

CH 26.5- 28kms cap rock exposed in places, pavement ok. -----1.0kms

CH 28-29kms loose pavement, needs rework when gravel re sheeted. -----1.0kms

CH29-31 gravel thinning, cap rock exposed, needs re sheet. -----2.0kms

- 10.1 kms re sheet required, 9 metres wide x 200mm layer gravel top up. Various sections.
- 5 EXISTING gravel pits needed @ CH 5.0 RHS, 11.-0 LHS, 15.0 LHS, 18.5 RHS, 26.3 RHS. Pits to be approved by Roper Gulf
- Water points required with standpipe access. To be approved by Roper Gulf.
- Approximately 18,000 cubic metres of gravel material required

Gibson Civil Contracting estimate 30 days to complete the above works.

The total price includes

- Mobilisation \$15,700.00
- Demobilisation \$ 15,700.00
- Dozer hire to push gravel. 14 days allowed. \$ 48,000.00
- Gravel cartage \$ 85,000.00
- Traffic Control, 30 days allowed \$30,000.00
- Accommodation and messing for 5 employees \$30,000.00
- Allowed 30 days @\$7,500.00 per day \$225,000.00

Total price this quote \$449,400.00 plus GST

Estimated at \$45,000.00 per kilometre. Current industry rates are averaging \$60,000.00 per km

### Machines utilised

Dozer, Grader, Water tanker, water truck, 13ton Roller, Service truck and side tippers, Drop deck trailer.

**GENERAL BUSINESS**

---



|                    |   |
|--------------------|---|
| <b>ITEM NUMBER</b> | 11.4  |
| <b>TITLE</b>       | Barunga Bottom Camp Road Design and Costing Project |
| <b>REFERENCE</b>   | 911510  |
| <b>AUTHOR</b>      | Vikrant JAGARLAMUDI, Roads Coordinator              |

**RECOMMENDATION**

**That the Roads Committee:**

- (a) Receives and notes the update on sealing of Barunga Bottom Camp Road; and**
- (b) Supports GHD's proposal and fee.**

**BACKGROUND**

Due to dust issues on the track connecting Lots 208, 209 and 210, Local Authority has requested the Council seal the track and driveways to these properties.

Following discussions with Department of Local Government, Housing and Community Development regarding the land tenure issues, the Projects Team has scoped works to seal the track and requested GHD to provide Council with a design proposal.

**ISSUES**

The following issues were identified by Council:

- Fence line of Lot 208 is not aligned with property boundaries;
- Lot 208's double gate has to be moved to Bagala's Road side of the property; and
- Stakeholder engagement was undertaken with the householders and they expressed that they didn't want the road to change but understand Councils position. The residents wanted the issue to be tabled at the Local Authority again in April.

The householders also asked if the store could be made to use its sealed access road and not the track between the houses as they create the most amount of dust. The Regional Manager has addressed this with the shop.

Council has discussed with the Department of Local Government, Housing and Community service the issue of fences and entry gates to the three houses. They have informally suggested to Council that the fences need to reflect the property boundary and that they agree with the proposed road works remaining true to the designated road reserve.

**OPTIONS**

Council's proposal is to upgrade Bagala Rd and provide sealed driveways to the property entries. This can be achieved either by surveying the boundaries and designing road upgrades or by spray sealing the pavement.

Council has received a proposal from GHD to design the works including the survey required.

**FINANCIAL CONSIDERATIONS**

It is recommended that the Roads Committee accept the proposal by GHD and approve the budget for the works to be added to the Roads Program.

**ATTACHMENTS**

- 1 12527653-PRP-1\_Bagala Road Upgrade\_All.pdf
- 2 Barunga Boundary Alignment\_208\_209\_210\_A3 Map.pdf





## **Roper Gulf Shire Council**

### **Proposal for Bagala Road Upgrade Barunga**

11 March 2020

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## Appendices

- Appendix A Geotechnical Sub-consultant Fee
- Appendix B Survey Sub-consultant Fees

|          |  |
|----------|--|
| Q Number | NA   |
| Q Title  | <b>CONSULTANCY- SURVEY AND DESIGN – PAVEMENT AND DRAINAGE DESIGN OF BAGALA ROAD IN BARUNGA</b> |

#### HOW TO RESPOND TO THIS QUOTE

Complete the quote form and schedules provided. This will become your Quote which may be lodged in any of the following ways:

**By Electronic Lodgement facility at:**  
Vikrant.jagarlamudi@ropergulf.nt.gov.au

Quotes should remain valid for acceptance for a period of 60 days from the closing date.

#### THIS SECTION TO BE COMPLETED BY THE RESPONDENT

I/We, the undersigned, having examined and acquired an actual knowledge of this Request for Quote do hereby offer to perform the whole of the Works in accordance with this Request for Quote in the amount of

|   |             |                       |
|---|-------------|-----------------------|
| Amount Quoted   | \$56,661.00 | Including GST         |
| I hereby declare I am quoting for whole of the scope of work. The price offered assumes one mobilisation of consultants for their respective site assessments on Beswick and Bagala, Barunga sites. |             |                       |
| Or part of the scope of work which include:   |             |                       |
| Name  | Jon Bulseco | Date                  |
|   |             | 11/3/2020             |
|   |             | (print name and date) |
| If applicable, I/We confirm receipt and inclusion in the Quote, addenda numbered:   |             | NA                    |

|   |                            |                               |  |
|---|----------------------------|-------------------------------|--|
| Legal Entity                                  | GHD Pty Ltd                |                               |  |
| (Name of legal entity – include trading name) |                            |                               |  |
| ACN/BN  | 39 008 488<br>373          | CAL<br>Registration<br>Number |  |
| ABN   | 39 008 488 373             |                               |  |
| Postal Address                                | PO Box 351, Darwin NT 0810 |                               |  |
| Telephone                                     | +61 8 8982 0100            |                               |  |
| e-mail address                                | NTRegion.BDTeam@ghd.com    |                               |  |

**CONTACT PERSON DETAILS**

|                |                     |          |                 |
|----------------|---------------------|----------|-----------------|
| Name           | Jon Bulseco         | Position | Project Manager |
| Telephone      | +61 8 8982 0100     |          |                 |
| e-mail address | Jon.bulseco@ghd.com |          |                 |

**DECLARATION OF BUSINESS STATUS**  
(Select the appropriate entity type and complete details)

|   |                               |    |
|---|-------------------------------|----|
| <input type="checkbox"/> <b>Sole Trader</b> | Full Name of Proprietor       | NA |
|   | Business Name (if applicable) |    |

|   |                                  |    |
|---|----------------------------------|----|
| <input type="checkbox"/> <b>Partnership</b> | Names of All Partners            | NA |
|   | Partnership Name (if applicable) |    |

|  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> <b>Company</b> | Company Name  | GHD Pty Ltd   |
|  | Business Name (if different from Company name)            | GHD Pty Ltd   |
|  | Names of all Directors                                    | Rob Knott, Ashley Wright, Denise Anderson, Jan Babiak, Sheryl Cornelius, Iver Skavdal, Peter Wasow, Stephen Trainor |
|  | Names of Holding and Subsidiary Companies (if applicable) | NA  |
|  | ACN/BN of Holding and Subsidiary Companies                | 39 008 488 373  |

|                                       |                             |                                 |
|---------------------------------------|-----------------------------|---------------------------------|
| <input type="checkbox"/> <b>Trust</b> | Copy of Trust Deed Attached | <input type="checkbox"/> Yes NA |
|                                       |                             | <input type="checkbox"/> No     |

|   |                       |    |
|---|-----------------------|----|
| <input type="checkbox"/> <b>Joint Venture</b> | Name of all Parties   | NA |
|   | ACN/BN of all Parties |    |

**CERTIFICATION**

I certify on behalf of \_\_\_\_\_ GHD Pty Ltd \_\_\_\_\_ (the Quoter),  
 To the best of my knowledge:

- (a) None of the Proprietors, Directors, Managers is bankrupt or a Director, Manager or Secretary of a Company that is being wound up (whether voluntary or otherwise), and
- (b) The business is not trading under:
  - An arrangement and / or reconstruction (i.e. restructuring a public company)
  - Receiver and management
  - Official management
  - An arrangement with creditors without sequestration (i.e. with the proprietors being made bankrupt).

|        |             |       |           |
|--------|-------------|-------|-----------|
| Signed | Jon Bulseco | Dated | 11/3/2020 |
|--------|-------------|-------|-----------|

|     |             |
|-----|-------------|
| For | GHD Pty Ltd |
|-----|-------------|

(Name of legal entity)

**LUMP SUM PRICE BREAKDOWN**

Complete the mandatory Lump Sum Price Breakdown Schedule by inserting the prices for each individual part of the work as set out below. All prices, where applicable, must be inclusive of GST.

This Lump Sum Price Breakdown schedule is required for quote assessment purposes and will be used as a basis for progress payment and either a Plus or Minus variation will be created when a final measurement of installed material.

| DESCRIPTION  | Unit Cost       | Amount (GST Inclusive) |
|--|-----------------|------------------------|
| PROJECT MANAGEMENT - INC SITE VISIT  | \$4,791         | \$4,791                |
| DESIGN   | \$19,414        | \$19,414               |
| DOCUMENTATION  | \$20,130        | \$20,130               |
| SUB CONSULTANTS  | \$12,326        | \$12,326               |
| <b>LUMP SUM AMOUNT – Total must match the amount shown on the QUOTE FORM</b> | <b>\$56,661</b> | <b>\$56,661</b>        |

|        |  |       |           |
|--------|--|-------|-----------|
| Signed |  | Dated | 11/3/2020 |
|--------|--|-------|-----------|

|     |             |
|-----|-------------|
| For | GHD Pty Ltd |
|-----|-------------|

(Name of legal entity)

# Executive summary

GHD Pty Ltd (GHD) is pleased to provide this proposal to the Roper Gulf Regional Council (RGRC) for the provision of survey, detailed design and documentation, and cost estimates to construct and seal the road by providing driveway access to the extended section of Bagala Road in Barunga, NT.

Project location map with extents are shown below:



The site of works comprises of Bagala road, in Barunga near the community store. Latitude/Longitude -14.52684, 132.86611.

GHD's fees, program and methodology as detailed in this proposal is based on information provided by email from RGRC dated 24 February 2020 – Request for Quotation - Design and Consulting Services.

# 1 Scope of work

RGRC seeks to develop an appropriate design solution to seal the battle axe block and address the dust issues resulting from the traffic on Bagala road. The key objective for the Consultant is to undertake engineering survey, pavement design, drainage design, documentation and cost estimation of the road requirement in accordance with Austroads guidelines and NTG roadworks specifications within the limited 8 weeks period.

Scope of Services are as follows:

- Engineering Survey. The Consultant shall provide survey to enable the Detailed Design of the project in accordance with the Standard Specification for Digital Ground Survey. The survey costs are to include preparation and implementation of a traffic management plan during the field works.
- Detailed Geometric Design
- Geo Technical Investigation and Reporting
- Drainage design
- Pavement design including strengthening and widening of intersection of Bagala road between lots 208 and 294.
- Design to provide driveway access to lots 208, 209 and 210 respectively.
- Provide permanent cost effective solutions to mitigate dust issues.
- Preparation of drawings and tender documentation including technical specification
- Schedule of quantities and cost estimates – Use standard NTG Schedule of Rates template
- Basis of Design Report
- Safety in Design Report



## 2 Methodology

GHD's proposed methodology to deliver the work is detailed in this section.

### 2.1 Project start-up meeting and management

GHD will hold a project start-up meeting via teleconference with RGRC representatives within one week of receipt of written notice of contract award.

The following matters will be discussed in the meeting between RGRC and GHD:

- Discussion of project planning matters, identify potential risks to the schedule and confirm the proposed project schedule.
- Introduction of all key project management personnel, and project focal points.
- RGRC representatives will designate key personnel who will assist GHD in obtaining the necessary information required for undertaking this study.
- Receipt of relevant project information (hard and soft copy) from RGRC including the following:
  - Existing project site information such as constructed drawings, flood study, topographic map or Geotech report.
  - AAPA certificates
  - Location of gravel pits for estimating purposes
  - Any other information RGRC may have to assist GHD.
- Confirm delivery date of project deliverables.

#### 2.1.1 Project progress reporting

To provide RGRC with a snapshot of project progress, GHD will provide brief e-mail updates on project progress. The content of these emails will be agreed during the inception stage, but it is proposed that they would initially follow the outline prescribed below:

- Progress status
- Tasks completed this period
- Tasks to commence in forthcoming period
- Key technical issues related to design works
- Key commercial issues
- Project schedule review.

GHD project manager will touch base with the RGRC project manager via telephone as required during the project. This will allow GHD to discuss any urgent issues and gather useful information and feedback, which may be integrated into the project. GHD has web conferencing facilities available.



## **2.2 Initial site inspection, site investigations and surveys**

### **2.2.1 Initial site inspection**

In coordination with RGRC, GHD will undertake an initial site inspection with our senior civil engineer in attendance once a suitable date is identified and agreed. The inspection will focus on the road alignments, current condition, constraints (available road reserve widths, services, property accesses) and associated problems and current drainage systems (table drains, open drains, easements /reserves, outfalls, scouring, etc.) and the immediate surrounding area . Notes and photos will be taken. GHD would require RGRC to provide a representative to accompany the team during the inspection to provide valuable background and historical information.

The survey scope and requirements will be verified as part of the initial site inspection.

### **2.2.2 Survey**

Cross Solutions will undertake the land survey as part of the GHD team in line with the requirements nominated and GHD's assumptions and qualifications. Proposal from Cross Solutions is in Appendix A of this proposal.

### **2.2.3 Geotechnical**

WANT will undertake the geotechnical investigation as part of the GHD team in line with the requirements nominated and GHD's assumptions and qualifications. The geotechnical methodology of site investigation and reporting is described in the attached proposal from WANT. Traffic Management Plan and Dial-before-you-dig inquiry will be done prior to commencing on site.

### **2.2.4 Provisional items**

Items provided below have not been included in the current fee proposal, however have been provided to RGRC as they may provide overall cost benefits.

## **2.3 Design documentation**

### **2.3.1 Sustainable design principles**

The proposed design and upgrades will consider relevant elements of sustainable design principles that are constructible and practical. Examples of these would be looking into increasing targeted durability (for example, considering design solutions that would lessen maintenance requirements, minimise erosion control, etc.) as far as reasonably practicable.

### **2.3.2 Detailed design**

#### ***Hydrology / Hydraulics***

Hydrologic analysis of the catchment in accordance with ARR2016 is not required. Location of legal point of discharge of stormwater flow is not defined in the RFQ. During site visit, GHD, with the assistance of the survey will identify this potential location for the drainage design. RGRC will approve this discharge location before design can proceed. No hydrologic assessment required. Desktop study of flood levels using Rational Method will be done only for purposes of understanding a high level risk exposure. Per RGRC instruction, final road levels will be matched to existing road levels.

Stormwater discharge location will be the nearest drainage channel identified during survey that can be natural or man-made located outside the project boundary. RGRP will confirm this location once identified. RGRC will confirm following the survey and investigations.

Hydraulic design of roadside drainage will be based on surface flow from the road and only nearby relevant properties. It is assumed that there is no cross drainage design/culvert/floodway required. According to RGRC, any need for cross drainage will be identified during survey or site visit and GHD will advise of any need and will include them in the design.

### **Road Design**

The civil design team will undertake design and documentation for the proposed upgrades to priority roads. The civil design team will:

- Gather existing data
- Undertake a site inspection
- Assess the existing vertical and horizontal alignments and intersection spacing's against current standards (Austroads, Australian Standards and NTG requirements / standards).
- Consider outcomes of the stormwater flow desktop study.
- Complete 12D model of road alignments including intersections
- Identify accesses to existing properties
- Prepare technical specification and construction documentation
- Prepare a design report, including commentary on proposed construction methodology
- Develop a Safety in Design (SiD) risk assessment.

### **Pavement design**

GHD will provide a pavement design from typical NTG DIPL Standard Specification. This will include design solutions to address dust generation issues emanating from the unsealed road.

The use of additives or blending may be proposed to achieve the required pavement criteria with consideration of the initial construction cost and also ongoing maintenance or 'whole of life' costs. RGRC will have the responsibility to identify the possible source/s of these pavement materials.

The DESA will be based on typical DESA used by subdivisions located in the Northern Territory IE Palmerston, Litchfield or Darwin council subdivision guidelines, and will be discussed / confirmed with RGRC as it will have cost benefits effects on the project.

### **2.3.3 Cost estimate**

Based on RGRC email dated 9 March 2020, cost estimate will be excluded from the scope. Only schedule of quantities will be provided.

### **2.4 Formal reviews**

GHD will arrange formal reviews in consultation with the project manager at dates as agreed and nominated in the project program.

#### **2.4.1 15% design review**

The purpose is to review the concept design and options to include the drainage design and geometric design of horizontal and vertical civil alignment. Design Basis Table, sketches and geotechnical report will be reviewed.

#### **2.4.2 50% design review**

The purpose of this review is to identify and resolve any design issues that may have arisen during the preliminary design phase. Preliminary geometric and drainage design and drawings, 12D modelling outcome, pavement design, preliminary cost estimate and Basis of Design Report will be reviewed.

#### **2.4.3 90% design review**

The detailed design review shall constitute a thorough review of near final documentation prior to tender issue.

The following minimum information is required for the final review:

- Design report inclusive of all design assumptions and calculations
- Detailed Design
- Technical Specification
- Schedule of quantities and construction estimate

GHD will submit all necessary accompanying documents to the project manager at least two days prior to the scheduled design review meetings. The Consultant is responsible for the recording of minutes for all meetings and reviews.

Following review, GHD will send an email describing important matters discussed and action list. Any issues raised and approved by the client are to be implemented or discussed further as required.

The design and development review process is not limited to formal reviews only.

Liaison with the project manager on design aspects and, where possible, their immediate clarification and resolution is encouraged.

### **2.5 Tender and construction inspections**

It is understood that RGRC will undertake the tender and construction management on this project. GHD can provide a rate for provision of post design advice during the tendering and construction stages if required, provision of post design advice will be at a time-charge basis.

A provisional daily rate for construction inspections can be provided if required, this would be inclusive of travel to and from site and provision of a technical note in memorandum format on the observations and key issues encountered during any construction inspections.

### 3 Our team

Key members of GHD's Team are detailed below, who will be supported by a team of engineers based at GHD Darwin.

|   |  |
|---|--|
| <b>Dan O'Shaughnessy</b>                  | <b>Project Director/Technical Reviewer</b>   |
| Role within GHD:<br>Technical Reviewer    | Daniel has over 15 years of transport and civil infrastructure project planning, design and project management experience. Previous experience working in road civil design, storm water design, traffic modelling, rail civil design, traffic staging design, airport design, intelligent transport system design and utility relocation design.  |
| <b>Jon Bulseco</b>                        | <b>Project Manager / Lead Civil Engineer</b>   |
| Role within GHD:<br>Senior Civil Engineer | <p>Jon will be the GHD Project Lead and will be the primary point of contact for Roper Gulf Regional Council. He has had previous experience as the project lead in similar projects such as remote subdivisions in Numbulwar Road Upgrade and Emerald River road on Groote Eylandt.</p> <p>Jon has over 25 years of civil engineering experience and is a Chartered Professional in Civil, Structural and Project Management. Jon has a well-rounded civil engineering background which includes both civil design and construction experiences, having worked for both large construction companies and engineering consultancies.</p> |
| <b>Mathew Collins</b>                     | <b>Civil Engineer</b>  |
| Role within GHD: Civil Engineer           | <p>Mathew will provide engineering and general project support to the team.</p> <p>Since graduating in early 2018, Mathew has worked on a range of projects including concept design of urban roads, level 2 bridge inspections, infrastructure projects and quality assurance and quality control. His most recent work has been as an Independent Engineer as part of a team working at McArthur River Mine.</p>   |

| Jim Cross | Topographic Survey – Cross Solutions  |
|-----------|---|
|           | <p>Local Darwin company Cross Solutions will provide the surveying services for this project, Jim and his team have over 20 year experience working in the Northern Territory and over the years have formed a strong and close relationship with GHD and have become a preferred surveying consultant to GHD based on years of professional, accurate and timely survey provided.</p> <p>GHD is aware of the importance of accurately picking up existing services when working in brownfield sites.</p> |

We would be pleased to provide curriculum vitae's of our team members on request.



## 4 Project experience

### 4.1 Emerald River Road Groote Eylandt - South 32 / GEMCO

GHD completed a 3 km road design from the town of Angurugu to connect into the existing Emerald River Road on behalf of East Arnhem Council. This project required road design, pavement design, stormwater design & consultation with the East Arnhem Regional Council. GHD also completed phase 2 of the design and documentation. This road had sections of urban road and drainage, including kerb and gutter, drainage pits / pipes and erosion protection.

### 4.2 Ramingining Site investigation and subdivision - Department of Infrastructure Planning and logistics (DIPL).

GHD completed the detailed design of a subdivision in Ramingining in consultation with DIPL. GHD's work included the detailed design of Civil and water; sewage and stormwater and the electrical and telecommunications.

### 4.3 Numbulwar Road Upgrade, Roper Gulf Regional Council

GHD completed a reconstruct and upgrade design of existing damaged roads to provide a 2 lane sealed standard road, upgrading the road drainage and providing sealed property accesses for the five priority roads (AK, AL, AU, AW and AV). The key driver of this project is to increase the overall safety of the relevant roads for local road users and improving traffic management

### 4.4 Palumpa Airport Road Repairs, Upgrade & Sealing - West Daly Regional Council

GHD completed the detailed design, contract administration and prepared tender documentation for the Palumpa Airport Road Repairs, Upgrade & Sealing. Project included, sourcing and testing gravel pits, setting up contracts with DIPL to use gravel pits, rehabilitation of gravel pits, preparing tender and contract documentation and providing construction QA role.

### 4.5 Bulman Drainage Design, Roper Gulf Regional Council

GHD was engaged to design roads & drainage network in NTG remote community Bulman to provide better access & protect affected lots from flooding. The project involved the assessment of existing drainage scenario the rural subdivision and design of cost-effective road & drainage infrastructure.

## 5 Project schedule

**Table 1 Project Program**

| Task   | Duration Weeks | Cumulative from Project Start |
|--|----------------|-------------------------------|
| <b>PRELIMINARIES and 15% DESIGN PHASE</b>  | 3 weeks        | 3 weeks                       |
| <i>HOLD POINT – RGRC approval of concept sketch and survey</i>   |                |                               |
| <b>50% DESIGN PHASE</b>  | 2 week         | 5 weeks                       |
| <i>HOLD POINT – RGRC review and comments on 12D model, typical sections and details, Cost Estimate</i> |                |                               |
| <b>90% DOCUMENTATION PHASE</b>   | 2 weeks        | 7 weeks                       |
| <i>HOLD POINT – RGRC review and comments on 90% documentation</i>                                      |                |                               |
| <b>FINALISATION</b>  | 1 week         | 8 weeks                       |

## 6 Basis of offer and assumptions

### *General*

- AAPA certificates to be provided by RGRC, GHD can assist in requesting however have not included any costs associated with this activity
- Safety in Design risk register will be established and meeting with client held to identify and manage risks
- No allowance for environmental investigations etc. or liaison with government authorities to obtain planning approval has been allowed
- No allowance has been made to arrange contracts with gravel pit owners to source gravel pit material, it is assumed the gravel pits will have approval to use.
- The price offered assumes one mobilisation of consultants for their respective site assessments on Beswick and Bagala, Barunga sites.

### *Civil and Road Design*

- RGRC will undertake the Traffic Management components of the road design.
- Pavement design based on empirical method for 20 year design life, a typical DESA as used by councils throughout the Northern Territory will most likely be adopted for the empirical pavement design)
- Pavement design to address dust generation issues emanating from the unsealed road. GHD will put forward two options with approximate costings for RGRC acceptance.
- Road cross section to be based generally on DIPL standard cross section for urban road and as required by RGRC.
- Traffic flows, vehicle types, heavy vehicles etc. to be determined on award in discussions with client, no allowance for traffic counting has been made,

### *Hydrology and Hydraulic Investigation*

Flow capacity for roadside drains is based on desktop hydrologic assessment.

Discharge point and channel sizing to match existing roads. RGRC to approve and will serve as given data in Basis of Design document.

### *Survey*

Refer attached survey proposal

### *Geotechnical*

- Refer attached geotechnical proposal
- Assumed RGRC can provide traffic management signage and/or traffic cones.





**Appendix A**  
**Survey Sub-consultant Fee**



DARWIN | GOVE | CAIRNS

Engineering Survey | Mine Survey | Property | GIS | RPAS/UAV | Hydrographic Survey | Construction Set Out

## QUOTE

|     |   |              |   |
|-----|---|--------------|---|
| For | GHD Pty Ltd<br>GPO Box 351<br>Darwin<br>NT 0800<br>Attention: Jon Bulseco | Quote Number | <b>Q002301-R1</b>   |
|     |   | Date         | 26/02/2020  |
|     |   | Valid To     | 25/03/2020  |
|     |   | Prepared By  | Jim Walker - 0447 870 117<br><a href="mailto:quotes@cross-solutions.com.au">quotes@cross-solutions.com.au</a> |

|         |   |
|---------|---|
| Details | <p><b>Beswick and Barunga Road Detail Surveys</b></p> <p><b>Project 1:</b><br/>Undertake survey of Cameron Road, Madigan Road and Blanas Street in Beswick, as per map attached. The site of works comprises of Madigan road, Cameron Road and Blanas Street in Beswick.</p> <p><b>Project 2:</b><br/>Undertake survey to construct and seal the road by providing driveway access to these lots. The site of works comprises of Bagala road, in Barunga near the community store. Please refer to below extents map.</p> <p>Survey information provided will be suitable for 12D and Autocad design.</p> <p>Cross Solutions have a generic approved Traffic management Plan(TMP) for the Katherine Region which will be used for this proposal. Our survey staff are WZ2 and WZ3 qualified to set up the TMP requirements.</p> |
|---------|---|

| Tasks  | Time     | Rate   | Amount ex gst |
|--|----------|--------|---------------|
| <b>Mobilisation &amp; De-Mobilisation</b>   Engineering Surveyor (Field)<br><i>Travel from Katherine Office to Beswick and return (220km)</i>                                | 2:30     | 140.00 | 350.00        |
| <b>Mobilisation &amp; De-Mobilisation</b>   Survey Technician<br><i>Travel from Katherine Office to Beswick and return (220km)</i>   | 2:30     | 85.00  | 212.50        |
| <b>Control Survey</b>   Engineering Surveyor (Field)<br><i>Locate existing CRMs to establish datum. Place site control for survey and future works.</i>                      | 3:00     | 140.00 | 420.00        |
| <b>Control Survey</b>   Survey Technician  | 3:00     | 85.00  | 255.00        |
| <b>Engineering Survey</b>   Engineering Surveyor (Field)<br><i>Detail the two project sites.</i>   | 17:00    | 140.00 | 2,380.00      |
| <b>Engineering Survey</b>   Survey Technician  | 17:00    | 85.00  | 1,445.00      |
| <b>Data Processing</b>   Engineering Surveyor (Calculations)<br><i>Office edits and verification of captured data.</i>   | 6:00     | 130.00 | 780.00        |
| <b>Office Calculations and Management</b>   Drafting<br><i>Survey plan search<br/>services plans search<br/>Prepare plans of detail survey in client's preferred format.</i> | 18:00    | 130.00 | 2,340.00      |
| <b>Office Calculations and Management</b>   Project Management<br><i>QA and Logistics</i>  | 2:00     | 130.00 | 260.00        |
| Expenses   | Quantity | Rate   | Amount ex gst |
| Accommodation & Meals<br><i>per day per person</i>   | 2.00     | 264.00 | 528.00        |
| Materials & Consumables  | 10.00    | 10.00  | 100.00        |



| Expenses         | Quantity | Rate         | Amount ex gst    |
|------------------|----------|--------------|------------------|
| Mileage (per km) | 220.00   | 1.30         | 286.00           |
|                  |          | Subtotal     | 9,356.50         |
|                  |          | GST          | 935.65           |
|                  |          | <b>Total</b> | <b>10,292.15</b> |

**Options**

| Option for mobilising a service locating contractor from Darwin for GPR locating.   | Amount ex gst         |
|---|-----------------------|
| Detection of u/g services (excludes potholing)<br>PWC and Telstra certified locator | 6,461.40              |
|   | GST 646.14            |
|   | <b>Total 7,107.54</b> |

Subject to the GHD Services Agreement

Extents of proposed survey at Barunga:



Extents of proposed survey at Beswick:





**Appendix B**  
**Geotechnical Sub-consultant Fee**



# WANT Geotechnics Pty Ltd

Serving the Territory

PO Box 36906  
Winnellie NT 0821

ABN 57 631 699 673

**GHD**  
Level 7, 24 Mitchell Street  
Darwin NT 0800

Proposal NTG2020816BarPrevb

Attention: Jon Bulseco

9 March 2020

Email: jon.bulseco@ghd.com

Dear Jon

### Geotechnical Fee Proposal – Upgrade of Bagala Road in Barunga, NT

WANT Geotechnics are pleased to forward their proposal to undertake a geotechnical investigation for the proposed upgrade of a section of Bagala Road in the community of Barunga in the Northern Territory. A geotechnical investigation is required to provide information that will provide recommendations on pavement design including strengthening and widening of intersections. The area of interest is shown below, and comprises the black/green highlighted sections along with the blue and red mesh sections of road:



Figure 1: Site of proposed upgrade

Geotechnical Fee Proposal  
Barunga Road Upgrades

# WANT Geotechnics Pty Ltd

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## Scope and Methodology

The ground investigation would comprise:

1. Preparation of a Traffic Control Diagram and completion of a Dial before you dig enquiry.
2. Desktop study of available reports and data in the public domain to assist with geotechnical planning.
3. Scanning of each location for the presence of underground services.
4. Excavation of 3 test pits at approximately 150m intervals in the outer wheel path of the roads to depths up to 1m.
5. In-situ CBR tests of existing road pavement using a Light Falling Weight Deflectometer with CBR extension.
6. Representative sampling of the subsoils to be tested in a Darwin-based NATA accredited laboratory and comprising:
  - a. Determination of particle size distribution for basecourse and subgrade (3 no.);
  - b. Atterberg Limits and linear shrinkage for basecourse and subgrade (3 no.);
  - c. California Bearing Ratio and compaction for basecourse and subgrade (3 no.); and
7. Logging of excavations by an experienced engineering geologist with over 25 years' experience.
8. Dynamic cone penetrometer test below subgrade, to 1.5m, to assist with the assessment of in situ strength and/or density.
9. GPS recording of test locations.
10. Reinstatement of the test holes will comprise:
  - a. Backfilling with excavated subgrade/fill material to top of subgrade level. Add water as required to assist with compaction and place in layers of 200mm loose maximum. Compact with a vertical rammer.
  - b. Pavement layers to be cement stabilised. Prior to placing in test pit, add water and cement to pavement material and mix thoroughly. Compact with a vertical rammer.
  - c. Level finished pavement surface and remove any loose gravel.

The report on the geotechnical investigation will cover:

1. Executive summary outlining all critical points of the investigations, including identification of risks and mitigation strategies
2. Completeness and reliability of the field and laboratory testing
3. For pavement failure investigations, advise of cause/s of failure and remedial options
4. Geotechnical model appropriate for the proposed project, including longitudinal sections, showing test pits, DCP data, correlations of pavement layers, groundwater, and laboratory test results
5. Interpreted rock, soil and groundwater profiles in cuttings
6. Batter slope requirements in proposed cuttings, including stabilisation requirements;
7. Excavatability issues for areas of cut and trenching excavations
8. Extent of topsoil and unsuitable ground, including soft and compressible soil profiles
9. Re-use potential of materials won from cuttings
10. Recommendations on design parameters, including, but not limited to;
  - a. CBR values for supporting subgrade materials
  - b. Batter slopes in cut and fill
  - c. Geotechnical parameters for treatments of soft ground
11. Erosion control advice for cuttings and fill batters
12. Geotechnical risks to be addressed by the designer
13. Appendices presenting photographs, logs, field testing and laboratory testing. GPS coordinates.



# WANT Geotechnics Pty Ltd

Serving the Territory

## Previous Experience

Staff from WANT Geotechnics have extensive experience of similar projects, having completed:

- March 2015: Geotechnical investigation for the upgrade of 8 Sections of the Roper Highway.
- May & September 2015: Geotechnical investigations for the upgrade of Tjukaruru Road from CH181.41km to CH189.80km and CH177.15km and CH181.41km.
- November 2015: Geotechnical investigation for the upgrade of the Tanami Road from CH0km to CH7km and from CH37km to CH45km.
- December 2015: Preliminary geotechnical investigation for the upgrade of 75km of Western Creek Road.
- June 2016: Geotechnical investigation for the upgrade of 88km of roads on the Tiwi Islands.
- August 2019: Geotechnical investigation for the upgrade of roads in Numbulwar.

## Fee

Our fee estimate for carrying out the original scope of work is **\$4,650** (exclusive of GST) as shown in the accompanying schedule of rates.

The additional fee for carrying out the extra work along the red mesh and blue highlighted section is **\$850** (exclusive of GST) as shown in the accompanying schedule of rates.

## Program

If awarded the work we would be on site within 10 working days, subject to approval of the Traffic Control Diagram. Field work will require 1 day to complete, and the report will be completed within 5 working days of the completion of the laboratory testing.

We thank you for your enquiry and look forward to being of service.

Yours faithfully

**WANT Geotechnics**

*Mary Flux*

**Mary Flux**

Attachments:

Schedule of Rates

**Reviewed by**



**Stephen Flux**

# WANT Geotechnics Pty Ltd

Serving the Territory

## Geotechnical Fee Proposal for Bagala Road, Barunga Upgrade Schedule of Rates

| Item                                   | Estimated Quantity | Unit | Rate    | Amount       |         |
|--|--------------------|------|---------|--------------|---------|
| <b>Project Planning / Management</b>   |                    |      |         |              |         |
| 1 Field Investigation                  | 0.5                | day  | \$1,500 | \$750        |         |
| 2 Reporting                            | 1                  | item | \$1,250 | \$1,250      |         |
|  |                    |      |         | Sub-total    | \$2,000 |
| <b>Testing</b>                         |                    |      |         |              |         |
| 3 Atterberg Limits & Linear Shrinkage  | 2                  | no   | \$120   | \$240        |         |
| 4 Particle Size Distribution           | 2                  | no   | \$100   | \$200        |         |
| 5 4 Day soaked CBR at 95% or 100% MMDD | 2                  | no   | \$225   | \$450        |         |
| 6 Dynamic Cone Penetration Testing     | 2                  | no   | \$55    | \$110        |         |
| 7 Light Falling Weight Deflectometer   | 2                  | no   | \$100   | \$200        |         |
|  |                    |      |         | Sub-total    | \$1,200 |
| <b>Disbursements</b>                   |                    |      |         |              |         |
| 8 Mobilisation / demobilisation        | 1                  | item | \$450   | \$450        |         |
| 9 Traffic Control Diagram              | 1                  | item | \$350   | \$350        |         |
| 10 Service Clearance                   | 1                  | item | \$200   | \$200        |         |
| 11 Excavator                           | 1                  | item | \$325   | \$325        |         |
| 12 Reinstatement                       | 1                  | item | \$125   | \$125        |         |
|  |                    |      |         | Sub-total    | \$1,450 |
|  |                    |      |         | Total ex GST | \$4,650 |
|  |                    |      |         | GST          | \$465   |
|  |                    |      |         | Total+GST    | \$5,115 |

Geotechnical Fee Proposal  
Barunga Road Upgrades

# WANT Geotechnics Pty Ltd

Serving the Territory

## Geotechnical Fee Proposal for additional Works Schedule of Rates

| Item                                   | Estimated Quantity | Unit | Rate    | Amount       |       |
|--|--------------------|------|---------|--------------|-------|
| <b>Project Planning / Management</b>   |                    |      |         |              |       |
| 1 Field Investigation                  | 0                  | day  | \$1,500 | \$0          |       |
| 2 Reporting                            | 0.1                | item | \$1,250 | \$125        |       |
|  |                    |      |         | Sub-total    | \$125 |
| <b>Testing</b>                         |                    |      |         |              |       |
| 3 Atterberg Limits & Linear Shrinkage  | 1                  | no   | \$120   | \$120        |       |
| 4 Particle Size Distribution           | 1                  | no   | \$100   | \$100        |       |
| 5 4 Day soaked CBR at 95% or 100% MMDD | 1                  | no   | \$225   | \$225        |       |
| 6 Dynamic Cone Penetration Testing     | 1                  | no   | \$55    | \$55         |       |
| 7 Light Falling Weight Deflectometer   | 1                  | no   | \$100   | \$100        |       |
|  |                    |      |         | Sub-total    | \$600 |
| <b>Disbursements</b>                   |                    |      |         |              |       |
| 8 Mobilisation / demobilisation        | 0                  | km   | \$1.25  | \$0          |       |
| 9 Traffic Control Diagram              | 0                  | item | \$350   | \$0          |       |
| 10 Service Clearance                   | 0                  | item | \$200   | \$0          |       |
| 11 Excavator                           | 0                  | item | \$375   | \$0          |       |
| 12 Reinstatement                       | 1                  | item | \$125   | \$125        |       |
|  |                    |      |         | Sub-total    | \$125 |
|  |                    |      |         | Total ex GST | \$850 |
|  |                    |      |         | GST          | \$85  |
|  |                    |      |         | Total+GST    | \$935 |

Geotechnical Fee Proposal  
Barunga Road Upgrades

GHD

Level 7, 24 Mitchell Street  
 Darwin NT 0800  
 T: 61 8 8982 0100 F: 61 8 8981 1075 E: drwmail@ghd.com

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12527653-56186-

10/[https://projectsportal.ghd.com/sites/pp11\\_03/bagalaroadupgradebar/OppDocs/12527653-PRP\\_Bagala Road Upgrade.docx](https://projectsportal.ghd.com/sites/pp11_03/bagalaroadupgradebar/OppDocs/12527653-PRP_Bagala Road Upgrade.docx)

Document Status

| Rev No. | Author     | Reviewer         |           | Approved for issue |           |          |
|---------|------------|------------------|-----------|--------------------|-----------|----------|
|         |            | Name             | Signature | Name               | Signature | Date     |
| 0       | J. Bulseco | D. O'Shaughnessy |           | D. O'Shaughnessy   |           | 06/03/20 |
| 1       | J. Bulseco | D. O'Shaughnessy |           | D. O'Shaughnessy   |           | 11/03/20 |
|         |            |                  |           |                    |           |          |

[www.ghd.com](http://www.ghd.com)



Illona Wilson

From: Christine Martelli  
Sent: Thursday, 5 December 2019 8:58 AM  
To: Illona Wilson  
Subject: Barunga 208,209 and 210



— SIP LEASE SUR RENDERED

||||| FENCE

— SINGLE GATE

— DOUBLE GATE

⌋ POWER POLE WITH LIGHT

○ SEWERPATE

**GENERAL BUSINESS**

---



|                    |  |
|--------------------|--|
| <b>ITEM NUMBER</b> | 11.5   |
| <b>TITLE</b>       | Cameron and Madigan Intersection Designs and Costing Project |
| <b>REFERENCE</b>   | 911529   |
| <b>AUTHOR</b>      | Vikrant JAGARLAMUDI, Roads Coordinator                       |

**RECOMMENDATION**

**That the Roads Committee:**

- (a) Receives and notes update on intersection upgrades in Beswick; and**
- (b) Refers the GHD's proposal and associated fees to Council to approve the project budget.**

**BACKGROUND**

Council Project Team have conducted road condition assessments and identified the poor pavement conditions on Cameron and Madigan Streets. The increased heavy vehicle traffic, combined with poor conditions, narrow roads and intersections, limited sight distances and poor drainage that has led to significantly increased road safety risks.

The inspections also identified low areas which get inundated by storm water during the wet season.

**ISSUES/OPTIONS/SWOT**

The following issues were identified:

- Large potholes and damaged seal
- Narrow pavement widths
- Restricted sight distances
- Insufficient turning radius at intersections
- Poor drainage
- Deteriorated unsealed shoulders

To overcome the issues, it is suggested the roads be upgraded to strengthen and widen pavement and intersections to contain heavy vehicle movements, provide drainage, increase lane widths and sight distances.

A detailed engineering survey and geo-technical investigation has to be conducted to confirm the road reserves for road widening, property boundaries and physical conditions suitable for construction. Council has approached GHD to provide a quote to carry out the necessary investigations and designs for the upgrades.

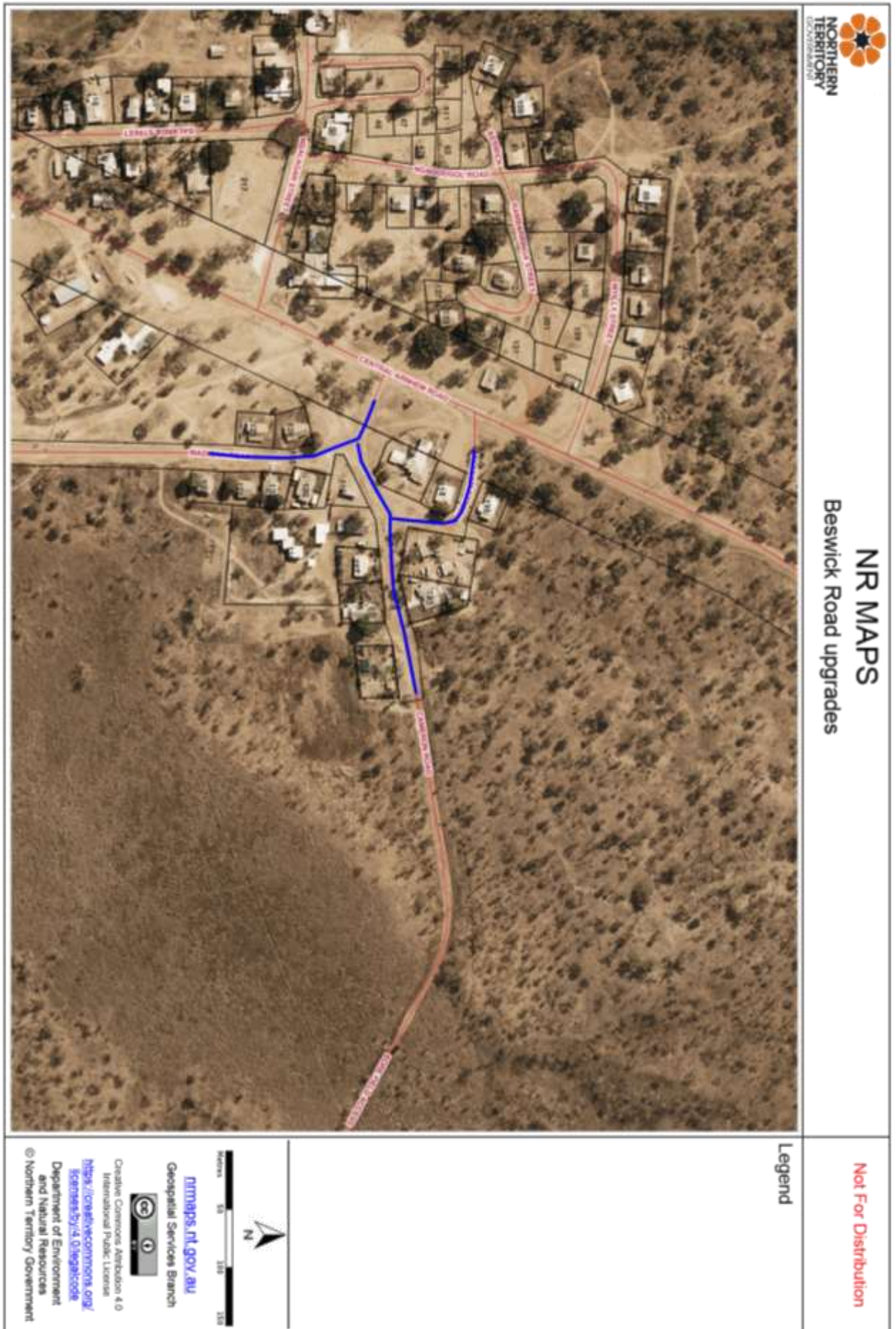
**FINANCIAL CONSIDERATIONS**

Roads Committee to review GHD's proposal and refer to Council that they approve a budget allocation.

**ATTACHMENTS**

- 1 Cameron and Madigan Street upgrades.pdf
- 2 12527651-PRP-1\_Beswick Road Upgrade\_All.pdf







**Roper Gulf Shire Council**  
Proposal for Beswick Road Upgrade

11 March 2020

## Executive summary

GHD Pty Ltd (GHD) is pleased to provide this proposal to the Roper Gulf Regional Council (RGRC) for the provision of survey, detailed design and documentation, and cost estimates for pavement strengthening and widening to safety standards of Cameron Road, Madigan Road and Blanas Street in Beswick, NT.

Project location map with extents are shown below:



GHD's fees, program and methodology as detailed in this proposal is based on information provided by email from RGRC dated 24 February 2020 – Request for Quotation - Design and Consulting Services.

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## Appendices

- Appendix A Geotechnical Sub-consultant Fee
- Appendix B Survey Sub-consultant Fee



**PROJECT SPECIFIC REQUIREMENTS**

This Quote is subject to the General Contract Conditions Annexure.

|             |                          |
|-------------|--------------------------|
| <b>Q NO</b> | <b>RGRC – AM-2020/04</b> |
|-------------|--------------------------|

|                                    |           |   |
|------------------------------------|-----------|---|
| 1. For further information contact | Name      | Vikrant Jagarlamudi                     |
|                                    | Telephone | 08 89720404                             |
|                                    | Facsimile |   |
|                                    | Email     | Vikrant.jagarlamudi@ropergulf.nt.gov.au |

|   |                              |
|---|------------------------------|
| 2. Contact for Site Inspection              | Vikrant Jagarlamudi          |
| Contact Details                             | 08 89720404                  |
| Location of Briefing                        | 63 Chardon Street, Katherine |
| Designated Time/Day for Inspection /Meeting | Contact for inspection       |

|                                      |    |
|--------------------------------------|----|
| 3. Subject to Industry Accreditation | No |
|--------------------------------------|----|

|                       |    |
|-----------------------|----|
| 4. Alternative Quotes | No |
|-----------------------|----|

|                          |    |
|--------------------------|----|
| 5. Part Offer Acceptable | No |
|--------------------------|----|

|  |                                  |
|--|----------------------------------|
| 6. Quote Validity Period<br><i>(Response Schedule)</i> | 60 days, Changes are not allowed |
|--|----------------------------------|

|                                      |  |
|--------------------------------------|--|
| 7. Documents to be lodged with Quote | QUOTE FORM<br>DECLARATION OF BUSINESS STATUS<br>LUMP SUM PRICE BREAK DOWN<br>ANY OTHERS AS REQUESTED |
|--------------------------------------|--|

|   |                |
|---|----------------|
| 8. Indigenous Development Plan Required   | Not Applicable |
| Optimising Indigenous Opportunities- What services suppliers and sub-contractors will use on this project to optimise indigenous employment outcomes and community benefit? |                |

|                                   |                     |
|-----------------------------------|---------------------|
| 9. Specific Site Conditions apply | Strictly no alcohol |
|-----------------------------------|---------------------|

|  |    |
|--|----|
| 10. Specific Sub-Contractors apply<br><i>(Clause 3.9 – General Contract Conditions Annexure)</i> | NA |
|--|----|

|  |              |
|--|--------------|
| 11. Basis of Payment<br><i>(Clause 4.14– General Contract Conditions Annexure)</i> | LUMP SUM FEE |
|--|--------------|

|          |  |
|----------|--|
| Q Number | NA   |
| Q Title  | <b>CONSULTANCY- SURVEY AND DESIGN –<br/>PAVEMENT AND INTERSECTION UPGRADES OF<br/>VARIOUS ROADS IN BESWICK</b> |

#### HOW TO RESPOND TO THIS QUOTE

Complete the quote form and schedules provided. This will become your Quote which may be lodged in any of the following ways:

**By Electronic Lodgement facility at:**  
Vikrant.jagarlamudi@ropergulf.nt.gov.au

Quotes should remain valid for acceptance for a period of 60 days from the closing date.

#### THIS SECTION TO BE COMPLETED BY THE RESPONDENT

I/We, the undersigned, having examined and acquired an actual knowledge of this Request for Quote do hereby offer to perform the whole of the Works in accordance with this Request for Quote in the amount of

|   |                            |                               |
|---|----------------------------|-------------------------------|
| Amount Quoted   | \$76,371.89                | Including GST                 |
| I hereby declare I am quoting for whole of the scope of work<br>The price offered assumes one mobilisation of consultants for their respective site assessments on Beswick and Bagala, Barunga sites. |                            |                               |
| <input type="checkbox"/> Or part of the scope of work which include;  |                            |                               |
| Name  | Jon Bulseco                | Date 11/3/2020                |
| (print name and date)   |                            |                               |
| If applicable, I/We confirm receipt and inclusion in the Quote, addenda numbered:   | NA                         |                               |
| Legal Entity  | GHD Pty Ltd                |                               |
| (Name of legal entity – include trading name)   |                            |                               |
| ACN/BN  | 39 008 488 373             | CAL<br>Registration<br>Number |
| ABN   | 39 008 488 373             |                               |
| Postal Address  | PO Box 351, Darwin NT 0810 |                               |
| Telephone   | +61 8 8982 0100            |                               |
| e-mail address  | NTRRegion.BDTeam@ghd.com   |                               |

| CONTACT PERSON DETAILS |                     |          |                          |
|------------------------|---------------------|----------|--------------------------|
| Name                   | Jon Bulseco         | Position | Civil Technical Director |
| Telephone              | +61 8 8982 0100     |          |                          |
| e-mail address         | Jon.Bulseco@ghd.com |          |                          |

| DECLARATION OF BUSINESS STATUS                            |  |  |
|---|--|--|
| (Select the appropriate entity type and complete details) |  |  |

|                                      |                               |    |
|--------------------------------------|-------------------------------|----|
| <input type="checkbox"/> Sole Trader | Full Name of Proprietor       | NA |
|                                      | Business Name (if applicable) |    |

|                                      |                                  |    |
|--------------------------------------|----------------------------------|----|
| <input type="checkbox"/> Partnership | Names of All Partners            | NA |
|                                      | Partnership Name (if applicable) |    |

|   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Company | Company Name  | GHD Pty Ltd   |
|   | Business Name (if different from Company name)            | GHD Pty Ltd   |
|   | Names of all Directors                                    | Rob Knott, Ashley Wright, Denise Anderson, Jan Babiak, Sheryl Cornelius, Iver Skavdal, Peter Wasow, Stephen Trainor |
|   | Names of Holding and Subsidiary Companies (if applicable) | NA  |
|   | ACN/BN of Holding and Subsidiary Companies                | 39 008 488 373  |

|                                |                             |                                 |
|--------------------------------|-----------------------------|---------------------------------|
| <input type="checkbox"/> Trust | Copy of Trust Deed Attached | <input type="checkbox"/> Yes NA |
|                                |                             | <input type="checkbox"/> No     |

|  |                       |    |
|--|-----------------------|----|
| <input type="checkbox"/> Joint Venture | Name of all Parties   | NA |
|  | ACN/BN of all Parties |    |

**CERTIFICATION**

I certify on behalf of \_GHD Pty Ltd\_\_\_\_\_ (the Quoter),

To the best of my knowledge:

- (a) None of the Proprietors, Directors, Managers is bankrupt or a Director, Manager or Secretary of a Company that is being wound up (whether voluntary or otherwise), and
- (b) The business is not trading under:
  - An arrangement and / or reconstruction (i.e. restructuring a public company)
  - Receiver and management
  - Official management
  - An arrangement with creditors without sequestration (i.e. with the proprietors being made bankrupt).



|        |             |       |           |
|--------|-------------|-------|-----------|
| Signed | Jon Bulseco | Dated | 11/3/2020 |
|--------|-------------|-------|-----------|

|                        |             |
|------------------------|-------------|
| For                    | GHD Pty Ltd |
| (Name of legal entity) |             |

**LUMP SUM PRICE BREAKDOWN**

Complete the mandatory Lump Sum Price Breakdown Schedule by inserting the prices for each individual part of the work as set out below. All prices, where applicable, must be inclusive of GST.

This Lump Sum Price Breakdown schedule is required for quote assessment purposes and will be used as a basis for progress payment and either a Plus or Minus variation will be created when a final measurement of installed material.

| DESCRIPTION  | Unit Cost          | Amount (GST Inclusive) |            |
|--|--------------------|------------------------|------------|
| PROJECT MANAGEMENT - INC SITE VISIT  | \$4,631.21         | \$4,631.21             |            |
| DESIGN   | \$28,017.00        | \$28,017.00            |            |
| DOCUMENTATION  | \$24,098.03        | \$24,098.03            |            |
| SUB CONSULTANTS  | \$19,625.65        | \$19,625.65            |            |
| <b>LUMP SUM AMOUNT – Total must match the amount shown on the QUOTE FORM</b> | <b>\$76,371.89</b> | <b>\$76,371.89</b>     |            |
| Signed   |                    | Dated                  | 11/03/2020 |
| For  | Dan O'Shaughnessy  |                        |            |

(Name of legal entity)

# 1 Scope of work

The increased heavy vehicle traffic, combined with poor conditions, narrow pavement and intersections, limited sight distances and poor drainage has led to significantly increased road safety risks. The shoulders are deteriorated more often from vehicles driving off the road and due to sealed roads being single lane.

The key objective for the GHD is to undertake the survey, design; documentation and cost estimate for the pavement strengthening and widening to safety standards of Cameron Road, Madigan Road and Blanas Street in Beswick. The scope of this service includes the engineering survey, pavement design, drainage design, documentation and cost estimation in accordance with Austroads guidelines and NTG roadworks specifications within the limited 8 weeks period.

Scope of Services as listed in the Request for Quotation are as follows:

- Engineering Survey. The Consultant shall provide survey to enable the Detailed Design of the project in accordance with the Standard Specification for Digital Ground Survey. The survey costs are to include preparation and implementation of a traffic management plan during the field works.
- Detailed Geometric Design
- Geo Technical Investigation and Reporting
- Drainage design
- Pavement design including strengthening and widening of intersections
- Car park Design
- Preparation of drawings and tender documentation including technical specification
- Schedule of quantities and cost estimates – Use standard NTG Schedule of Rates template

## 2 Methodology

GHD's proposed methodology to deliver the work is detailed in this section.

### 2.1 Project start-up meeting and management

GHD will hold a project start-up meeting via teleconference with RGRC representatives within one week of receipt of written notice of contract award.

The following matters will be discussed in the meeting between RGRC and GHD:

- Discussion of project planning matters, identify potential risks to the schedule and confirm the proposed project schedule.
- Introduction of all key project management personnel, and project focal points.
- RGRC representatives will designate key personnel who will assist GHD in obtaining the necessary information required for undertaking this study.
- Receipt of relevant project information (hard and soft copy) from RGRC including the following:
  - Existing project site information such as as constructed drawings, flood study, topographic map or Geotech report.
  - AAPA certificates
  - Location of gravel pits for estimating purposes
  - Any other information RGRC may have to assist GHD.
- Confirm delivery date of project deliverables.

#### 2.1.1 Project progress reporting

To provide RGRC with a snapshot of project progress, GHD will provide brief e-mail updates on project progress. The content of these emails will be agreed during the inception stage, but it is proposed that they would initially follow the outline prescribed below:

- Progress status
- Tasks completed this period
- Tasks to commence in forthcoming period
- Key technical issues related to design works
- Key commercial issues
- Project schedule review.

GHD project manager will touch base with the RGRC project manager via telephone as required during the project. This will allow GHD to discuss any urgent issues and gather useful information and feedback, which may be integrated into the project. GHD has web conferencing facilities available.

## **2.2 Initial site inspection, site investigations and surveys**

### **2.2.1 Initial site inspection**

In coordination with RGRC, GHD will undertake an initial site inspection with our senior civil engineer in attendance once a suitable date is identified and agreed. The inspection will focus on the road alignments, current condition, constraints (available road reserve widths, services, property accesses) and associated problems and current drainage systems (table drains, open drains, easements /reserves, outfalls, scouring, etc.) and the immediate surrounding area. Notes and photos will be taken. GHD would require RGRC to provide a representative to accompany the team during the inspection to provide valuable background and historical information.

The survey scope and requirements will be verified as part of the initial site inspection.

### **2.2.2 Survey**

Cross Solutions will undertake the land survey as part of the GHD team in line with the requirements nominated and GHD's assumptions and qualifications. Proposal from Cross Solutions is in Appendix A of this proposal.

### **2.2.3 Geotechnical**

WANT will undertake the geotechnical investigation as part of the GHD team in line with the requirements nominated and GHD's assumptions and qualifications. The geotechnical methodology of site investigation and reporting is described in the attached proposal from WANT. Traffic Management Plan and Dial-before-you-dig inquiry will be done prior to commencing on site.

## **2.3 Design documentation**

### **2.3.1 Sustainable design principles**

The proposed design and upgrades will consider relevant elements of sustainable design principles that are constructible and practical. Examples of these would be looking into increasing targeted durability (for example, considering design solutions that would lessen maintenance requirements, minimise erosion control, etc.) as far as reasonably practicable.

### **2.3.2 Detailed design**

#### ***Hydrology / Hydraulics***

Hydrologic analysis of the catchment in accordance with ARR2016 is not required. Location of legal point of discharge of stormwater flow is not defined in the RFQ. During site visit, GHD, with the assistance of the survey will identify this potential location for the drainage design. RGRC will approve this discharge location before design can proceed. No hydrologic assessment required. Desktop study of flood levels using Rational Method will be done only for purposes of understanding a high level risk exposure. Per RGRC instruction, final road levels will be matched to existing road levels.

Stormwater discharge location will be the nearest drainage channel identified during survey that can be natural or man-made located outside the project

boundary. RGRP will confirm this location once identified. RGRC will confirm following the survey and investigations.

Hydraulic design of roadside drainage will be based on surface flow from the road and only nearby relevant properties. It is assumed that there is no cross drainage design/culvert/floodway required. According to RGRC, any need for cross drainage will be identified during survey or site visit and GHD will advise of any need and will include them in the design.

### **Road design**

The civil design team will undertake design and documentation for the proposed upgrades to roads identified in Section 1. The civil design team will:

- Gather existing data
- Undertake a site inspection
- Assess the existing vertical and horizontal alignments and intersection spacing's against current standards (Austroads, Australian Standards and NTG requirements / standards).
- Consider outcomes of the stormwater flow desktop study.
- Complete 12D model of road alignments
- Identify accesses to existing properties
- Prepare technical specification and construction documentation
- Prepare a design report, including commentary on proposed construction methodology
- Develop a Safety in Design (SiD) risk assessment.

### **Pavement design**

GHD will provide a pavement design from typical NTG DIPL Standard Specification. RGRC will have the responsibility to identify the possible source/s of these pavement materials. The use of additives or blending may be proposed to achieve the required pavement criteria with consideration of the initial construction cost and also ongoing maintenance or 'whole of life' costs.

The DESA will be based on typical DESA used by subdivisions located in the Northern Territory IE Palmerston, Litchfield or Darwin council subdivision guidelines, and will be discussed / confirmed with RGRC as it will have cost benefits effects on the project.

### **2.3.3 Cost estimate**

Based on RGRC email dated 9 March 2020, cost estimate will be excluded from the scope. Only schedule of quantities will be provided.

## **2.4 Formal reviews**

GHD will arrange formal reviews in consultation with the project manager at dates as agreed and nominated in the project program.

### **2.4.1 15% design review**

The purpose is to review the concept design and options to include the drainage design and geometric design of horizontal and vertical civil alignment. Design Basis Table, sketches and geotechnical report will be provided for review.

#### **2.4.2 50% design review**

The purpose of this review is to identify and resolve any design issues that may have arisen during the preliminary design phase. Preliminary geometric and drainage design and drawings, 12D modelling outcome, pavement design, preliminary cost estimate and Basis of Design Report will be reviewed.

#### **2.4.3 90% design review**

The detailed design review shall constitute a thorough review of near final documentation prior to tender issue.

The following minimum information is required for the final review:

- Design report inclusive of all design assumptions and calculations
- Detailed Design
- Technical Specification
- Schedule of quantities and construction estimate

GHD will submit all necessary accompanying documents to the project manager at least two days prior to the scheduled design review meetings. The Consultant is responsible for the recording of minutes for all meetings and reviews.

Following review, GHD will send an email describing important matters discussed and action list. Any issues raised and approved by the client are to be implemented or discussed further as required.

The design and development review process is not limited to formal reviews only.

Liaison with the project manager on design aspects and, where possible, their immediate clarification and resolution is encouraged.

### **2.5 Tender and construction inspections**

It is understood that RGRC will undertake the tender and construction management on this project. GHD can provide a rate for provision of post design advice during the tendering and construction stages if required, provision of post design advice will be at a time-charge basis.

A provisional daily rate for construction inspections can be provided if required, this would be inclusive of travel to and from site and provision of a technical note in memorandum format on the observations and key issues encountered during any construction inspections.



### 3 Our team

Key members of GHD’s Team are detailed below, who will be supported by a team of engineers based at GHD Darwin.

| Dan O’Shaughnessy                      | Project Director/Technical Reviewer   |
|--|---|
| Role within GHD:<br>Technical Reviewer | Daniel has over 15 years of transport and civil infrastructure project planning, design and project management experience. Previous experience working in road civil design, storm water design, traffic modelling, rail civil design, traffic staging design, airport design, intelligent transport system design and utility relocation design. |

| Jon Bulseco                               | Project Manager / Lead Civil Engineer  |
|---|--|
| Role within GHD:<br>Senior Civil Engineer | <p>Jon will be the GHD Project Lead and will be the primary point of contact for Roper Gulf Regional Council. He has had previous experience as the project lead in similar projects such as remote subdivisions in Numbulwar Road Upgrade and Emerald River road on Groote Eylandt.</p> <p>Jon has over 25 years of civil engineering experience and is a Chartered Professional in Civil, Structural and Project Management. Jon has a well-rounded civil engineering background which includes both civil design and construction experiences, having worked for both large construction companies and engineering consultancies.</p> |

| Rafi Hasan                         | Civil Engineer   |
|------------------------------------|--|
| Role within GHD:<br>Civil Engineer | <p>Rafi will provide engineering and general project support to the team.</p> <p>Rafi completed his Master of Engineering (Civil), Charles Darwin University and has five years’ consulting knowledge and experience in the areas of land development, subdivision design &amp; construction, network design for sewage and potable water systems, stormwater infrastructure assessment &amp; design, traffic intersection and network assessment, contract administration &amp; compliance inspection and structural design of RCC structures. Rafi has also authored an e-journal published by the Australian Water Association.</p> |

| Jim Cross | Topographic Survey – Cross Solutions  |
|-----------|---|
|           | Local Darwin company Cross Solutions will provide the surveying services for this project, Jim and his team have over 20 year experience working in the Northern Territory and over |



| Jim Cross | Topographic Survey – Cross Solutions  |
|-----------|---|
|           | <p>the years have formed a strong and close relationship with GHD and have become a preferred surveying consultant to GHD based on years of professional, accurate and timely survey provided.</p> <p>GHD is aware of the importance of accurately picking up existing services when working in brownfield sites.</p> |

We would be pleased to provide curriculum vitae's of our team members on request.

## 4 Project experience

### 4.1 Emerald River Road Groote Eylandt - South 32 / GEMCO

GHD completed a 3 km road design from the town of Angurugu to connect into the existing Emerald River Road on behalf of East Arnhem Council. This project required road design, pavement design, stormwater design & consultation with the East Arnhem Regional Council. GHD also completed phase 2 of the design and documentation. This road had sections of urban road and drainage, including kerb and gutter, drainage pits / pipes and erosion protection.

### 4.2 Ramingining Site investigation and subdivision - Department of Infrastructure Planning and logistics (DIPL).

GHD completed the detailed design of a subdivision in Ramingining in consultation with DIPL. GHD's work included the detailed design of Civil and water; sewage and stormwater and the electrical and telecommunications.

### 4.3 Numbulwar Road Upgrade, Roper Gulf Regional Council

GHD completed a reconstruct and upgrade design of existing damaged roads to provide a 2 lane sealed standard road, upgrading the road drainage and providing sealed property accesses for the five priority roads (AK, AL, AU, AW and AV). The key driver of this project is to increase the overall safety of the relevant roads for local road users and improving traffic management.

### 4.4 Palumpa Airport Road Repairs, Upgrade & Sealing - West Daly Regional Council

GHD completed the detailed design, contract administration and prepared tender documentation for the Palumpa Airport Road Repairs, Upgrade & Sealing. Project included, sourcing and testing gravel pits, setting up contracts with DIPL to use gravel pits, rehabilitation of gravel pits, preparing tender and contract documentation and providing construction QA role.

### 4.5 Bulman Drainage Design, Roper Gulf Regional Council

GHD was engaged to design roads & drainage network in NTG remote community Bulman to provide better access & protect affected lots from flooding. The project involved the assessment of existing drainage scenario the rural subdivision and design of cost-effective road & drainage infrastructure.

## 5 Project schedule

**Table 1 Project program**

| Task   | Duration Weeks                            | Cumulative from Project Start |
|--|---|-------------------------------|
| <b>PRELIMINARIES and 15% DESIGN PHASE</b>  |   |                               |
| Initial kick-off meeting   | Within 1 week of receiving purchase order | 1 week                        |
| Site Inspection  | Within 1 week of receiving purchase order | 1 week                        |
| Topographic Survey   | 2 weeks                                   | 2 weeks                       |
| Design Concept Sketch, conform design basis  | 2 weeks                                   | 3 weeks                       |
| Safety In Design   | 1 week                                    | 3 weeks                       |
| <i>HOLD POINT – RGRC approval of concept sketch and survey</i>   |   |                               |
| <b>50% DESIGN PHASE</b>  |   |                               |
| Civil 12D model  | 2 week                                    | 5 weeks                       |
| Drainage Design  | 2 week                                    | 5 weeks                       |
| Pavement Design  | 1 week                                    | 5 weeks                       |
| Design Reviews / Approvals   | 0.5 weeks                                 | 5 Weeks                       |
| <i>HOLD POINT – RGRC review and comments on 12D model, typical sections and details, Cost Estimate</i> |   |                               |
| <b>90% DOCUMENTATION PHASE</b>   |   |                               |
| 90% Drawings   | 2 weeks                                   | 7 weeks                       |
| 90% Cost Estimate  | 1 week                                    | 7 weeks                       |
| Design Basis Report  | 1 week                                    | 7 weeks                       |
| <i>HOLD POINT – RGRC review and comments on 90% documentation</i>                                      |   |                               |
| <b>FINALISATION</b>  |   |                               |
| 100% Design Drawing Set  | 2 week                                    | 8 weeks                       |
| 100% Cost Estimate   | 1 Week                                    | 8 weeks                       |
| 100% Specification (NTG 2019 roadworks Specification)  | 1 Week                                    | 8 weeks                       |
| 100% Design Basis Report   | 1 Week                                    | 8 Weeks                       |
| 100% Safety in Design  | 1 Week                                    | 8 Weeks                       |

## 6 Basis of offer and assumptions

### *General*

- AAPA certificates to be provided by RGRC, GHD can assist in requesting however have not included any costs associated with this activity
- Safety in Design risk register will be established and meeting with client held to identify and manage risks
- No allowance for environmental investigations etc. or liaison with government authorities to obtain planning approval has been allowed
- No allowance has been made to arrange contracts with gravel pit owners to source gravel pit material, it is assumed the gravel pits will have approval to use.
- The price offered assumes one mobilisation of consultants for their respective site assessments on Beswick and Bagala, Barunga sites.

### *Civil and road design*

- RGRC will undertake the Traffic Management components of the road design.
- Pavement design based on empirical method for 20 year design life, a typical DESA as used by councils throughout the Northern Territory will most likely be adopted for the empirical pavement design)
- Road cross section to be based generally on DIPL standard cross section for urban road and as required by RGRC.
- Traffic flows, vehicle types, heavy vehicles etc. to be determined on award in discussions with client, no allowance for traffic counting has been made,

### *Hydrology and hydraulic investigation*

Flow capacity for roadside drains is based on desktop hydrologic assessment.

Discharge point and channel sizing to match existing roads. RGRC to approve and will serve as given data in Basis of Design document.

### *Survey*

Refer attached survey proposal

### *Geotechnical*

- Refer attached geotechnical proposal
- Assumed RGRC can provide traffic management signage and/or traffic cones.



## Appendix A Survey Sub-consultant Fee



DARWIN | GOVE | CAIRNS

Engineering Survey | Mine Survey | Property | GIS | RPAS/UAV | Hydrographic Survey | Construction Set Out

## QUOTE

|     |   |              |   |
|-----|---|--------------|---|
| For | GHD Pty Ltd<br>GPO Box 351<br>Darwin<br>NT 0800<br>Attention: Jon Bulseco | Quote Number | <b>Q002301-R1</b>   |
|     |   | Date         | 26/02/2020  |
|     |   | Valid To     | 25/03/2020  |
|     |   | Prepared By  | Jim Walker - 0447 870 117<br><a href="mailto:quotes@cross-solutions.com.au">quotes@cross-solutions.com.au</a> |

|         |   |
|---------|---|
| Details | <p><b>Beswick and Barunga Road Detail Surveys</b></p> <p><b>Project 1:</b><br/>Undertake survey of Cameron Road, Madigan Road and Blanas Street in Beswick, as per map attached. The site of works comprises of Madigan road, Cameron Road and Blanas Street in Beswick.</p> <p><b>Project 2:</b><br/>Undertake survey to construct and seal the road by providing driveway access to these lots. The site of works comprises of Bagala road, in Barunga near the community store. Please refer to below extents map.</p> <p>Survey information provided will be suitable for 12D and Autocad design.</p> <p>Cross Solutions have a generic approved Traffic management Plan(TMP) for the Katherine Region which will be used for this proposal. Our survey staff are WZ2 and WZ3 qualified to set up the TMP requirements.</p> |
|---------|---|

| Tasks  | Time     | Rate   | Amount ex gst |
|--|----------|--------|---------------|
| <b>Mobilisation &amp; De-Mobilisation</b>   Engineering Surveyor (Field)<br><i>Travel from Katherine Office to Beswick and return (220km)</i>                                | 2:30     | 140.00 | 350.00        |
| <b>Mobilisation &amp; De-Mobilisation</b>   Survey Technician<br><i>Travel from Katherine Office to Beswick and return (220km)</i>   | 2:30     | 85.00  | 212.50        |
| <b>Control Survey</b>   Engineering Surveyor (Field)<br><i>Locate existing CRMs to establish datum. Place site control for survey and future works.</i>                      | 3:00     | 140.00 | 420.00        |
| <b>Control Survey</b>   Survey Technician  | 3:00     | 85.00  | 255.00        |
| <b>Engineering Survey</b>   Engineering Surveyor (Field)<br><i>Detail the two project sites.</i>   | 17:00    | 140.00 | 2,380.00      |
| <b>Engineering Survey</b>   Survey Technician  | 17:00    | 85.00  | 1,445.00      |
| <b>Data Processing</b>   Engineering Surveyor (Calculations)<br><i>Office edits and verification of captured data.</i>   | 6:00     | 130.00 | 780.00        |
| <b>Office Calculations and Management</b>   Drafting<br><i>Survey plan search<br/>services plans search<br/>Prepare plans of detail survey in client's preferred format.</i> | 18:00    | 130.00 | 2,340.00      |
| <b>Office Calculations and Management</b>   Project Management<br><i>QA and Logistics</i>  | 2:00     | 130.00 | 260.00        |
| Expenses   | Quantity | Rate   | Amount ex gst |
| Accommodation & Meals<br><i>per day per person</i>   | 2.00     | 264.00 | 528.00        |
| Materials & Consumables  | 10.00    | 10.00  | 100.00        |





| Expenses         | Quantity | Rate         | Amount ex gst    |
|------------------|----------|--------------|------------------|
| Mileage (per km) | 220.00   | 1.30         | 286.00           |
|                  |          | Subtotal     | 9,356.50         |
|                  |          | GST          | 935.65           |
|                  |          | <b>Total</b> | <b>10,292.15</b> |

**Options**

| Option for mobilising a service locating contractor from Darwin for GPR locating.   | Amount ex gst         |
|---|-----------------------|
| Detection of u/g services (excludes potholing)<br>PWC and Telstra certified locator | 6,461.40              |
|   | GST 646.14            |
|   | <b>Total 7,107.54</b> |

Subject to the GHD Services Agreement

Extents of proposed survey at Barunga:



Extents of proposed survey at Beswick:





## Appendix B Geotechnical Sub-consultant Fee

**WANT**  
**Geotechnics Pty Ltd**  
*Serving the Territory*

PO Box 36906  
 Winnellie NT 0821  
 ABN 57 631 699 673

**GHD**  
 Level 7, 24 Mitchell Street  
 Darwin NT 0800

Proposal NTG2020816P

Attention: Jon Bulseco

9 March 2020

Email: jon.bulseco@ghd.com

Dear Jon

**Geotechnical Fee Proposal – Upgrade of Madigan Road, Cameron Road and Blanas Street in Beswick, NT**

WANT Geotechnics are pleased to forward their proposal to undertake a geotechnical investigation for the proposed upgrade of a number of roads within the community of Beswick in the Northern Territory. A geotechnical investigation is required to provide information that will provide recommendations on pavement design including strengthening and widening of intersections.

It is understood the area of interest comprises Madigan Road, Cameron Road and Blanas Street, a total length of approximately 400-500 metres. The areas of interest are shown below:

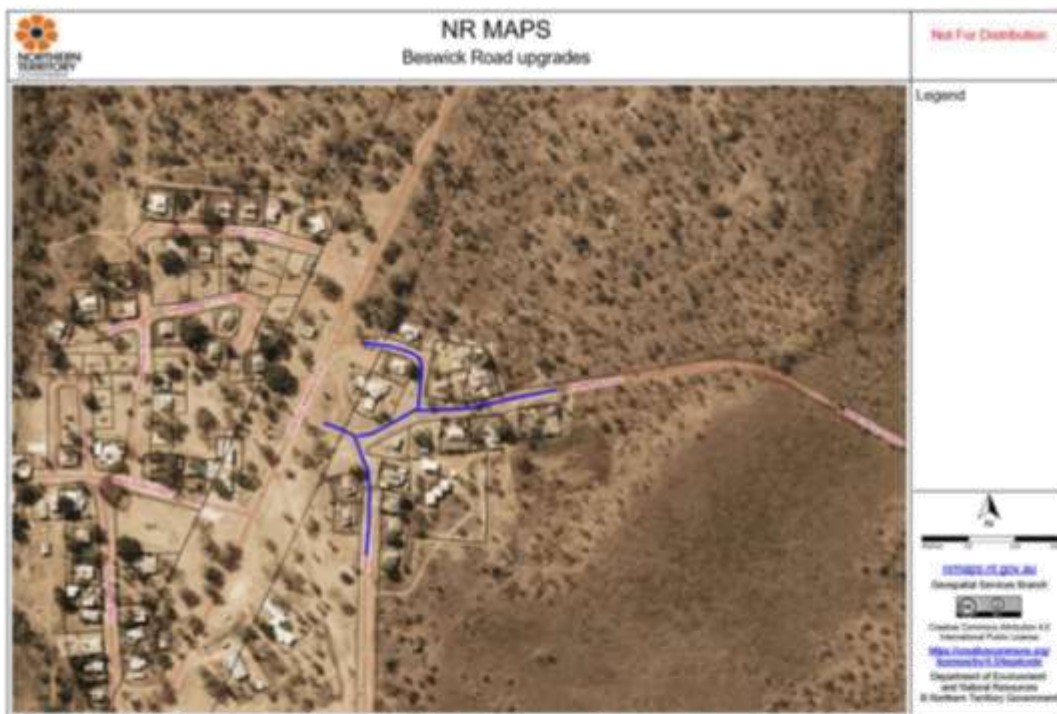


Figure 1: Sites of proposed upgrade

Geotechnical Fee Proposal  
 Beswick Road Upgrades



# WANT Geotechnics Pty Ltd

Serving the Territory

## Scope and Methodology

The ground investigation would comprise:

1. Preparation of a Traffic Control Diagram and completion of a Dial before you dig enquiry.
2. Desktop study of available reports and data in the public domain to assist with geotechnical planning.
3. Scanning of each location for the presence of underground services.
4. Excavation of 4 test pits at approximately 150m intervals in the outer wheel path of the roads to depths up to 1m.
5. In-situ CBR tests of existing road pavement using a Light Falling Weight Deflectometer with CBR extension.
6. Representative sampling of the subsoils to be tested in a Darwin-based NATA accredited laboratory and comprising:
  - a. Determination of particle size distribution for basecourse and subgrade (4 no.);
  - b. Atterberg Limits and linear shrinkage for basecourse and subgrade (4 no.);
  - c. California Bearing Ratio and compaction for basecourse and subgrade (4 no.); and
7. Logging of excavations by an experienced engineering geologist with over 25 years' experience.
8. Dynamic cone penetrometer test below subgrade, to 1.5m, to assist with the assessment of in situ strength and/or density.
9. GPS recording of test locations.
10. Reinstatement of the test holes will comprise:
  - a. Backfilling with excavated subgrade/fill material to top of subgrade level. Add water as required to assist with compaction and place in layers of 200mm loose maximum. Compact with a vertical rammer.
  - b. Pavement layers to be cement stabilised. Prior to placing in test pit, add water and cement to pavement material and mix thoroughly. Compact with a vertical rammer.
  - c. Level finished pavement surface and remove any loose gravel.

The report on the geotechnical investigation will cover:

1. Executive summary outlining all critical points of the investigations, including identification of risks and mitigation strategies
2. Completeness and reliability of the field and laboratory testing
3. For pavement failure investigations, advise of cause/s of failure and remedial options
4. Geotechnical model appropriate for the proposed project, including longitudinal sections, showing test pits, DCP data, correlations of pavement layers, groundwater, and laboratory test results
5. Interpreted rock, soil and groundwater profiles in cuttings
6. Batter slope requirements in proposed cuttings, including stabilisation requirements;
7. Excavatability issues for areas of cut and trenching excavations
8. Extent of topsoil and unsuitable ground, including soft and compressible soil profiles
9. Re-use potential of materials won from cuttings
10. Recommendations on design parameters, including, but not limited to;
  - a. CBR values for supporting subgrade materials
  - b. Batter slopes in cut and fill
  - c. Geotechnical parameters for treatments of soft ground
11. Erosion control advice for cuttings and fill batters
12. Geotechnical risks to be addressed by the designer
13. Appendices presenting photographs, logs, field testing and laboratory testing. GPS coordinates.

# WANT Geotechnics Pty Ltd

Serving the Territory

### Previous Experience

Staff from WANT Geotechnics have extensive experience of similar projects, having completed:

- March 2015: Geotechnical investigation for the upgrade of 8 Sections of the Roper Highway.
- May & September 2015: Geotechnical investigations for the upgrade of Tjukaruru Road from CH181.41km to CH189.80km and CH177.15km and CH181.41km.
- November 2015: Geotechnical investigation for the upgrade of the Tanami Road from CH0km to CH7km and from CH37km to CH45km.
- December 2015: Preliminary geotechnical investigation for the upgrade of 75km of Western Creek Road.
- June 2016: Geotechnical investigation for the upgrade of 88km of roads on the Tiwi Islands.
- August 2019: Geotechnical investigation for the upgrade of roads in Numbulwar.

### Fee

Our fee estimate for carrying out the above work is **\$7,860** (exclusive of GST) as shown in the accompanying schedule of rates.

### Program

If awarded the work we would be on site within 10 working days, subject to approval of the Traffic Control Diagram. Field work will require 1 day to complete, and the report will be completed within 5 working days of the completion of the laboratory testing.

We thank you for your enquiry and look forward to being of service.

Yours faithfully

WANT Geotechnics

*Mary Flux*

Mary Flux

Attachments:

Schedule of Rates

Reviewed by

Stephen Flux



# WANT Geotechnics Pty Ltd

Serving the Territory

## Geotechnical Fee Proposal for Beswick Road Upgrades

### Schedule of Rates

| Item                                  | Estimated Quantity | Unit | Rate    | Amount       |         |
|---------------------------------------|--------------------|------|---------|--------------|---------|
| <b>Project Planning / Management</b>  |                    |      |         |              |         |
| 1 Field Investigation                 | 1                  | day  | \$1,500 | \$1,500      |         |
| 2 Reporting                           | 1                  | item | \$1,850 | \$1,850      |         |
|                                       |                    |      |         | Sub-total    | \$3,350 |
| <b>Testing</b>                        |                    |      |         |              |         |
| 3 Atterberg Limits & Linear Shrinkage | 4                  | no   | \$120   | \$480        |         |
| 4 Particle Size Distribution          | 4                  | no   | \$100   | \$400        |         |
| 5 4 Day soaked CBR at 95% MMDD        | 4                  | no   | \$225   | \$900        |         |
| 6 Dynamic Cone Penetration Testing    | 4                  | no   | \$55    | \$220        |         |
| 7 Light Falling Weight Deflectometer  | 4                  | no   | \$100   | \$400        |         |
|                                       |                    |      |         | Sub-total    | \$2,560 |
| <b>Disbursements</b>                  |                    |      |         |              |         |
| 8 Mobilisation / demobilisation       | 1                  | item | \$500   | \$500        |         |
| 9 Traffic Control Diagram             | 1                  | item | \$350   | \$350        |         |
| 10 Service Clearance                  | 1                  | item | \$200   | \$200        |         |
| 11 Excavator                          | 1                  | item | \$650   | \$650        |         |
| 12 Reinstatement                      | 1                  | item | \$250   | \$250        |         |
|                                       |                    |      |         | Sub-total    | \$1,950 |
|                                       |                    |      |         | Total ex GST | \$7,860 |
|                                       |                    |      |         | GST          | \$786   |
|                                       |                    |      |         | Total+GST    | \$8,646 |

Geotechnical Fee Proposal  
Beswick Road Upgrades

GHD

Level 7, 24 Mitchell Street  
Darwin NT 0800

T: 61 8 8982 0100 F: 61 8 8981 1075 E: drwmail@ghd.com

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9/[https://projectsportal.ghd.com/sites/pp11\\_03/beswickroadupgrade/OppDocs/12527651-PRP\\_Beswick Road Upgrade.docx](https://projectsportal.ghd.com/sites/pp11_03/beswickroadupgrade/OppDocs/12527651-PRP_Beswick Road Upgrade.docx)

Document Status

| Rev No. | Author     | Reviewer         |           | Approved for Issue |           |         |
|---------|------------|------------------|-----------|--------------------|-----------|---------|
|         |            | Name             | Signature | Name               | Signature | Date    |
| 0       | J. Bulseco | D. O'Shaughnessy |           | D. O'Shaughnessy   |           | 6/3/20  |
| 1       | J. Bulseco | D. O'Shaughnessy |           | D. O'Shaughnessy   |           | 11/3/20 |
|         |            |                  |           |                    |           |         |

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**GENERAL BUSINESS**

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|                    |   |
|--------------------|---|
| <b>ITEM NUMBER</b> | 11.6  |
| <b>TITLE</b>       | Bulman Roads and Drainage Designs and Costing Project |
| <b>REFERENCE</b>   | 912341  |
| <b>AUTHOR</b>      | Vikrant JAGARLAMUDI, Roads Coordinator                |

**RECOMMENDATION**

**That the Roads Committee:**

- (a) Receives and notes the update on Bulman roads and drainage designs; and,**
- (b) Supports the project estimate for these works to be added to the Roads Program.**

**BACKGROUND**

Council allocated \$77,533 from the Roads Future Fund to design and estimate an upgrade of roads and drainage in the community. Council engaged Flanagan Consulting to provide designs and construction cost estimates, these have been submitted to Council.

**ISSUES/OPTIONS/SWOT**

Designs developed by Flanagan Consulting will minimise the drainage issues on the roads. They also addressed the upgrade and resealing of existing roads to improve the pavement life and its structure, in-turn reducing the annual maintenance costs.

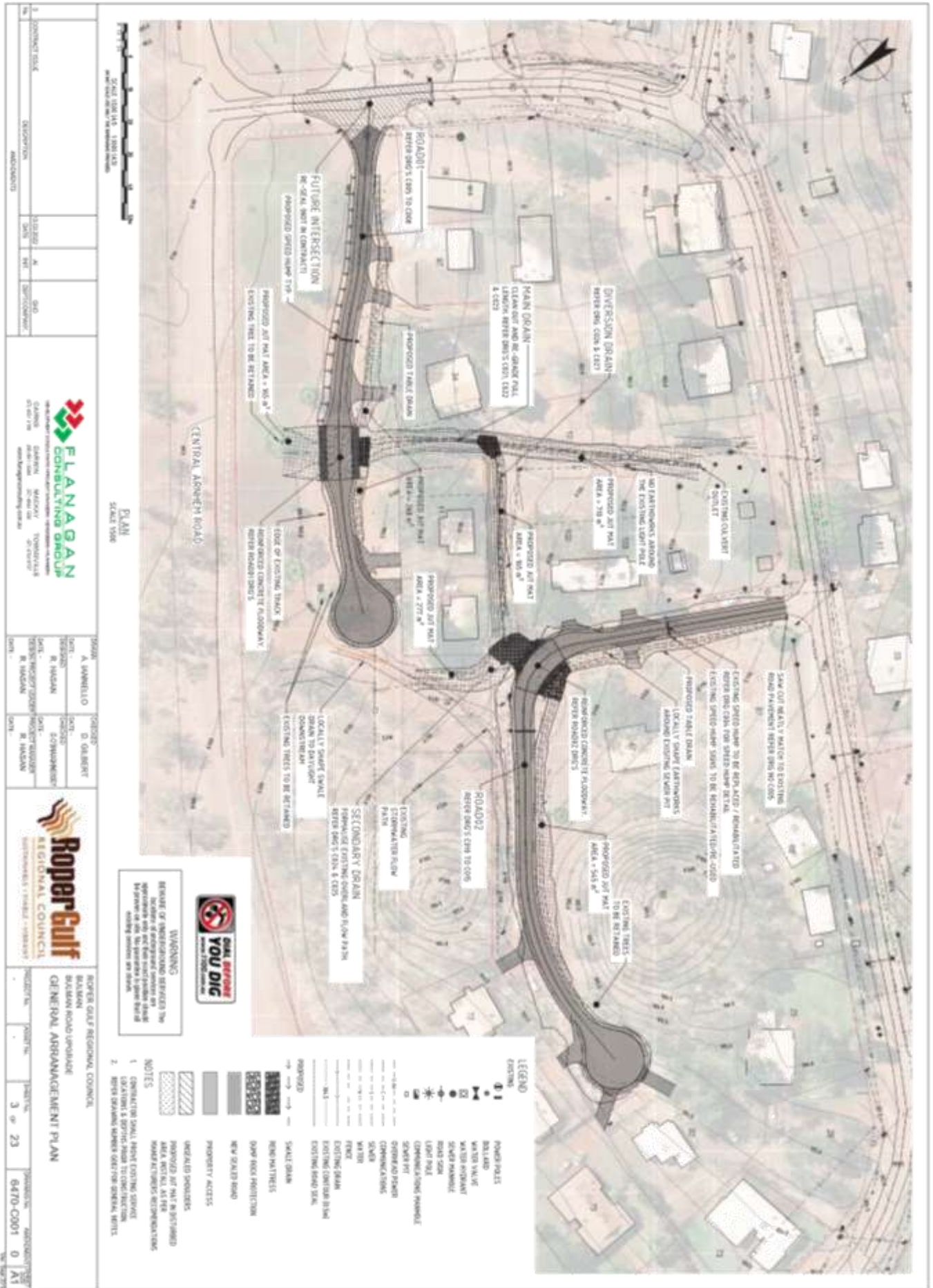
**FINANCIAL CONSIDERATIONS**

Flanagan Consulting has provided the Council cost estimates based on the developed designs. These costs should be regarded as indicative of the end costs as many factors will be influencing the final costs including the site conditions and market prices at the time of procurement.

Council to review the costs and allocate the budget.

**ATTACHMENTS**

- 1** 6470-Drawings\_Contract issue.pdf
- 2** 6470 BOQ\_IFC\_RevA.pdf





## 6470 BULMAN DRAINAGE

## Bill of Quantities &amp; Budget Estimate

## 90% DESIGN

13/03/2020

| ITEM       | DESCRIPTION   | UNIT           | QTY  | RATE         | AMOUNT              |
|------------|---|----------------|------|--------------|---------------------|
| <b>1.0</b> | <b>MISCELLANEOUS PROVISIONS</b>   |                |      |              |                     |
| <b>1.1</b> | <b>Miscellaneous Provisions</b>   |                |      |              |                     |
| a)         | Mobilisation  | Item           | 1    | \$15,000     | \$15,000.00         |
| b)         | Demobilisation  | Item           | 1    | \$7,915      | \$7,914.78          |
| c)         | Ongoing Costs   | Item           | 1    | \$50,000     | \$50,000.00         |
| d)         | Temporary Site Safety Fence (including security fence)  | Item           | 1    | \$5,000      | \$5,000.00          |
| <b>1.2</b> | <b>Environmental Management</b>   |                |      |              |                     |
| a)         | Prepare Environmental Management Plan   | Item           | 1    | \$3,430      | \$3,429.74          |
| b)         | Implement Environmental Management Plan (including maintenance of devices)  | Item           | 1    | \$4,749      | \$4,748.07          |
| <b>1.3</b> | <b>Testing</b>  |                |      |              |                     |
| a)         | Compliance testing in accordance with the project documentation   | Item           | 1    | \$6,859      | \$6,859.48          |
| <b>1.4</b> | <b>As Constructed Information</b>   |                |      |              |                     |
| a)         | Prepare and submit As Constructed Information   | Item           | 1    | \$10,843     | \$10,843.25         |
| <b>2.0</b> | <b>ROAD WORKS AND STORMWATER DRAINAGE</b>   |                |      |              |                     |
| <b>2.1</b> | <b>Provision for Traffic</b>  |                |      |              |                     |
| a)         | Prepare Traffic Management Plan   | Item           | 1    | \$844        | \$844.24            |
| b)         | Implement Traffic Management Plan. Includes detours, temporary connections, traffic guidances, traffic control devices, warning devices, maintenance and restoration.                                 | Item           | 1    | \$12,690     | \$12,690.03         |
| <b>2.2</b> | <b>Clearing, Grubbing and Rehabilitation</b>  |                |      |              |                     |
| a)         | Clearing and grubbing. Includes removing vegetation, stripping and stockpiling top soil, removal of old road surfaces, stockpiles and other obstacles, and disposal of any waste materials or rubble. | m <sup>2</sup> | 6213 | \$2.5        | \$15,531.48         |
| <b>2.3</b> | <b>Earthworks</b>   |                |      |              |                     |
| a)         | Earthworks in cut   | m <sup>3</sup> | 600  | \$13.50      | \$8,100.00          |
| b)         | Earthworks in fill  | m <sup>3</sup> | 184  | \$95.00      | \$17,480.00         |
| c)         | Preparation and maintenance of subgrade surface   | m <sup>2</sup> | 2786 | \$3.50       | \$9,749.45          |
| d)         | Remove and replace unsuitable material (including rock) within subgrade (Provisional Item - Tentative Quantity)   | m <sup>3</sup> | 50   | \$110.00     | \$5,500.00          |
| e)         | Remove and dispose of clean fill in a designated area directed by the superintendent  | m <sup>3</sup> | 416  | \$3.00       | \$1,248.00          |
| f)         | Trim & Compact Unpaved Areas (provisional)  | m <sup>2</sup> | 3427 | \$3.0        | \$10,281.11         |
| <b>2.4</b> | <b>Erosion Control Mesh</b>   |                |      |              |                     |
| a)         | Install Geofabrics Jute Mesh or equivalent in locations indicated on drawings and pin at not less than 1 per sq. m  | m <sup>2</sup> | 2437 | \$5.60       | \$13,646.33         |
| <b>2.5</b> | <b>Pavements and Shoulders</b>  |                |      |              |                     |
| a)         | Gravel Base - 200 mm compacted thickness  | m <sup>2</sup> | 2786 | \$25.00      | \$69,638.93         |
| b)         | Gravel Base - Transition to Existing (as per superintendents direction)   | m <sup>2</sup> | 80   | \$25.00      | \$2,000.00          |
| <b>2.6</b> | <b>Spray Sealing</b>  |                |      |              |                     |
| a)         | Preparation of Pavement Surface   | m <sup>2</sup> | 1806 | \$1.00       | \$1,805.60          |
| b)         | Prime Coat  | m <sup>2</sup> | 1806 | \$4.20       | \$7,563.52          |
| c)         | First Coat S10E Seal/14mm Aggregate   | m <sup>2</sup> | 1806 | \$21.38      | \$38,603.73         |
| d)         | Second Coat S10E Seal/7mm Aggregate   | m <sup>2</sup> | 1806 | \$20.71      | \$37,393.98         |
| <b>2.7</b> | <b>PROTECTION WORKS</b>   |                |      |              |                     |
| a)         | Reno Mattresses 230mm thick (including Geo Fabric)  | m <sup>2</sup> | 122  | \$334.00     | \$40,748.00         |
| b)         | Dump Rock Protection (including Geo Fabric)   | m <sup>2</sup> | 187  | \$133.00     | \$24,871.00         |
| c)         | Gabion Drop Structure   | Item           | 1    | \$3,500      | \$3,500.00          |
| <b>2.8</b> | <b>Road Signs &amp; Furniture's (supply &amp; install)</b>  |                |      |              |                     |
| a)         | No Through Road (G9-18)   | Item           | 2    | \$450        | \$900.00            |
| b)         | Speed Hump (WS-10)  | Item           | 6    | \$400        | \$2,400.00          |
| c)         | Flood Gauge posts (G9-22)   | Item           | 2    | \$1,400      | \$2,800.00          |
| d)         | Floodway (WS-7-1B)  | Item           | 4    | \$450        | \$1,800.00          |
| e)         | Steel Speed Hump  | Item           | 3    | \$250        | \$750.00            |
| <b>2.9</b> | <b>Floodway's</b>   |                |      |              |                     |
| a)         | Concrete Floodway   | m <sup>3</sup> | 254  | \$250        | \$63,502.00         |
| b)         | Concrete margin (250mm x 600mm deep)  | m              | 95   | \$280        | \$26,728.00         |
| <b>3.0</b> | <b>MISCELLANEOUS ITEMS</b>  |                |      |              |                     |
| <b>3.1</b> | <b>Miscellaneous Items</b>  |                |      |              |                     |
| a)         | Sealed property access driveway (including clearing, grubbing, pavement & seal)   | Item           | 12   | \$2,800      | \$33,600.00         |
| b)         | Locate and confirm depth of existing services   | Item           | 1    | \$5,000      | \$5,000.00          |
| c)         | Concrete Protection over underground services (Provisional)   | Item           | 1    | \$8,100      | \$8,100.00          |
| e)         | Contingency   | Item           | 2    | \$20,000     | \$40,000.00         |
|            |   |                |      | <b>TOTAL</b> | <b>\$610,592.30</b> |

Quantities illustrated herein are estimates for Tenderer's information only. Tenderers are reminded that this is a lump sum contract and all quantities must be confirmed by the tenderer in their tender submission. No claims for additional payment due to omitted items or discrepancies of the quantities presented in the Bill of Quantities will be accepted by the Superintendent.



**GENERAL BUSINESS**

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|                    |   |
|--------------------|---|
| <b>ITEM NUMBER</b> | 11.7  |
| <b>TITLE</b>       | Numbulwar Roads and Drainage Upgrade Design Project (Stage 1) |
| <b>REFERENCE</b>   | 912460  |
| <b>AUTHOR</b>      | Vikrant JAGARLAMUDI, Roads Coordinator                        |

**RECOMMENDATION**

**That the Roads Committee receives and notes the update on designs and construction cost estimates.**

**BACKGROUND**

Council allocated \$149,076.00 from the Roads Future Fund towards the Numbulwar internal roads and drainage upgrade designs and estimates. Council engaged GHD Consulting to survey the area and develop design options. GHD submitted final designs and documentation that were presented at the Local Authority meeting on 19 February 2020.

**ISSUES/OPTIONS/SWOT**

Designs developed by GHD Consulting will enable the strengthening of pavement, improve traffic conditions and minimise drainage issues on existing roads. The designs aims to:

- Provide safe thoroughfare access to all road users, being motor vehicles and pedestrians
- Provide on speed limits
- Provide convenient locations for services
- Provide sealed driveways to existing properties
- Allow for parking where appropriate
- Comply with relevant AUSTRROADS standards and other Road Authorities Guidelines'.

**FINANCIAL CONSIDERATIONS**

GHD consulting has provided the Council cost estimates based on the developed designs. A cost estimate of \$7,752,900.00 has been submitted to complete the works. Priorities for road works will be consulted with the Local Authority at future meetings. Council will be requested to consider future budget for prioritised road works in the Budget Review process.

**ATTACHMENTS**

- 1 NT08378 Numbulwar Roads and Drainage\_Stage1\_ cost estimates.pdf

# QS SERVICES

QUANTITY SURVEYORS & COST CONSULTANTS

5 Whitfield Street Darwin  
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 Darwin NT 001  
 Telephone : (08) 8941 0116  
 Facsimile: (08) 8941 0864  
 Email: info@qsservices.com.au  
 www.qsservices.com.au

12 December 2019  
 (Revised on 10 January 2020)

Technical Director - Civil Engineer  
 GHD Pty. Ltd.  
 GPO Box 351  
 DARWIN NT 0801



Attention : Mr. Jon Bulseco

Dear Mr. Bulseco,

## Re : Proposed Numbulwar Road and Stormwater - Civil Works

Further to your instruction we attached a Preliminary Estimate for the above which is summarised below.

| Description                   | \$                    |
|-------------------------------|-----------------------|
| Road 01                       | \$391,000.00          |
| Road 02                       | \$1,057,000.00        |
| Road 03                       | \$428,000.00          |
| Road 04                       | \$893,000.00          |
| Road 05                       | \$2,126,000.00        |
| Road 06                       | \$929,000.00          |
| Road 08                       | \$1,215,000.00        |
| Total Excluding GST           | \$7,039,000.00        |
| Consultant's Fees and Charges | Excl.                 |
| DSEP and WASSEF Fees          | \$2,000.00            |
| Subtotal                      | \$7,041,000.00        |
| GST                           | \$704,100.00          |
| NT Build Levy                 | 7,800.00              |
| <b>Total Including GST</b>    | <b>\$7,752,900.00</b> |

The above estimates assumes commencement in February 2020 with a total construction period of 9 (nine) months and excludes the Client's project delivery costs and Consultant's Fees and Charges

This estimate has been based on Preliminary drawings noted on the last page of the Estimate and should be regarded as indicative of the end cost as many items will influence the final cost including developed engineering design solutions, conditions found on site and market conditions at the time the project is to be procured.

This estimate has been set against the backdrop of an extremely depressed construction industry within the Northern Territory and therefore it is of prime importance to understand that any upswing in activity will have a detrimental affect on the reliability of the cost estimate.

We trust that the above and attached is suitable for your present needs and please feel free to contact the undersigned should you wish to discuss this.

Yours faithfully  
 QS Services

Charles Wright  
 AAIQS, CQS, ICECA

Construction Estimating Pty Ltd  
 trading as - QS Services  
 ABN 74 009 643 574

*1990 - 2015 Celebrating 25 Years*

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.   | Description  | Unit | Qty | Rate     | Extension | Total     |
|--|--|------|-----|----------|-----------|-----------|
| <b>ROAD 1</b>  |  |      |     |          |           |           |
| <b><u>Environmental Management</u></b>                     |  |      |     |          |           |           |
| a  | Environmental Management Plan  | item | 1   | 1,000.00 | 1,000.00  |           |
| b  | Dust Control   | item | 1   | 2,000.00 | 2,000.00  |           |
| c  | Erosion and Sediment Control   | item | 1   | 2,000.00 | 2,000.00  | 5,000.00  |
| <b><u>Miscellaneous Provisions</u></b>                     |  |      |     |          |           |           |
| a  | Establishment:   |      |     |          |           |           |
|  | (i) Mobilisation   | item | 1   |          | Incl.     |           |
|  | (ii) Demobilisation  | item | 1   |          | Incl.     |           |
|  | (iii) On-Going Cost  | item | 1   |          | Incl.     |           |
| b  | Locate In-Ground Services  | item | 1   | 3,000.00 | 3,000.00  |           |
| c  | Survey and Setting Out   | item | 1   | 5,000.00 | 5,000.00  |           |
| d  | As-Constructed Drawings  | item | 1   | 4,500.00 | 4,500.00  | 12,500.00 |
| <b><u>Traffic Management Plan</u></b>                      |  |      |     |          |           |           |
| a  | Traffic Management Plan  | item | 1   | 1,250.00 | 1,250.00  |           |
| b  | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1   | 1,500.00 | 1,500.00  | 2,750.00  |
| <b><u>Clearing &amp; Grubbing &amp; Rehabilitation</u></b> |  |      |     |          |           |           |
| a  | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles   | item | 1   | 4,017.00 | 4,017.00  | 4,017.00  |
| <b><u>Earthworks</u></b>                                   |  |      |     |          |           |           |
| a  | Earthworks in Cut (include disposal of surplus materials)  | m3   | 306 | 14.00    | 4,284.00  |           |
| b  | Earthworks in Fill (include proof roll and removing soft spots prior to filling)   | m3   | 49  | 16.00    | 784.00    |           |
| c  | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3  | m3   | 50  | 62.00    | 3,100.00  |           |
| d  | Imported select fill provisional (if required)   | m3   | 25  | 50.00    | 1,250.00  |           |
| e  | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)  | m2   | 695 | 2.00     | 1,390.00  |           |
| f  | Trim and compact unpaved areas (included as cut / fill above)  | m2   | 645 | 3.00     | 1,935.00  | 12,743.00 |
| <b><u>Road Pavements</u></b>                               |  |      |     |          |           |           |
| a  | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)  | m2   | 695 | 10.00    | 6,950.00  |           |
| b  | 150mm Type 3 gravel sub-base compacted to 98% MMDD   | m2   | 695 | 28.00    | 19,460.00 |           |
| c  | 150mm Type 2 gravel sub-base compacted to 100% MMDD  | m2   | 695 | 33.00    | 22,935.00 |           |
| d  | Prime S10E   | m2   | 695 | 12.00    | 8,340.00  |           |
| e  | Double/double 14/7mm seal  | m2   | 695 | 30.00    | 20,850.00 | 78,535.00 |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.  | Description   | Unit | Qty | Rate      | Extension | Total     |
|---|---|------|-----|-----------|-----------|-----------|
| <b><u>Signs and pavement marking</u></b>  |   |      |     |           |           |           |
| a   | Allow for Linemarkings  | item | 1   | 3,000.00  | 3,000.00  |           |
| b   | W5-10 (Speed Hump)  | no   | 2   | 435.00    | 870.00    |           |
| c   | Allow for other signage   | item | 1   | 1,500.00  | 1,500.00  | 5,370.00  |
| <b><u>Concrete works</u></b>  |   |      |     |           |           |           |
| <b><u>Kerbs</u></b>   |   |      |     |           |           |           |
| a   | Gap Kerb  | m    | 150 | 80.00     | 12,000.00 |           |
| <b><u>Concrete Paving:</u></b>  |   |      |     |           |           |           |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)                         | m2   | 225 | 10.00     | 2,250.00  |           |
| b   | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement) | m2   | 225 | 150.00    | 33,750.00 |           |
| <b><u>Concrete Hump</u></b>   |   |      |     |           |           |           |
| a   | Speed hump  | no   | 1   | 4,810.00  | 4,810.00  | 52,810.00 |
| <b><u>Drainage</u></b>  |   |      |     |           |           |           |
| <b><u>Excavate, supply, load, transport, bed, lay and backfill culverts</u></b> |   |      |     |           |           |           |
| a   | 600mm Dia / 1 Pipe  | m    | 16  | 800.00    | 12,800.00 |           |
| <b><u>Concrete headwalls</u></b>  |   |      |     |           |           |           |
| a   | Concrete headwalls  | no   | 1   | 3,200.00  | 3,200.00  |           |
| <b><u>Main Channel</u></b>  |   |      |     |           |           |           |
| a   | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6                   | m3   | 61  | 25.00     | 1,525.00  |           |
| b   | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6                    | m3   | 13  | 25.00     | 325.00    |           |
| c   | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6                    | m3   | 9   | 25.00     | 225.00    |           |
| d   | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8        | m3   | 66  | 25.00     | 1,650.00  |           |
| e   | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                       | m3   | 48  | 25.00     | 1,200.00  |           |
| f   | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 368 | 10.00     | 3,680.00  |           |
| <b><u>Overflow Channels</u></b>   |   |      |     |           |           |           |
| a   | Overflow channels - Base 2m, Depth 0.3m, SS 1:8                           | m3   | 134 | 25.00     | 3,350.00  |           |
| b   | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 687 | 10.00     | 6,870.00  | 34,825.00 |
| <b><u>Landscape</u></b>   |   |      |     |           |           |           |
| a   | Top soil and grassing to road shoulders                                   | m2   | 150 | 15.00     | 2,250.00  | 2,250.00  |
| <b><u>Relocation of services</u></b>  |   |      |     |           |           |           |
| a   | Allow to relocate services  | item | 1   | 10,000.00 | 10,000.00 | 10,000.00 |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.           | Description                                  | Unit | Qty | Rate | Extension | Total                |
|----------------|--|------|-----|------|-----------|----------------------|
| <b>SUMMARY</b> |  |      |     |      |           |                      |
|                | Total Net Cost                               |      |     |      |           | 220,800.00           |
| a              | Preliminaries                                |      |     |      | 45%       | 99,360.00            |
|                | Sub-Total                                    |      |     |      |           | 320,160.00           |
| b              | Contractor's Overheads & Margins             |      |     |      | 10%       | 32,016.00            |
|                | Sub-Total                                    |      |     |      |           | 352,176.00           |
| c              | Design / Construction Contingency            |      |     |      | 10%       | 35,218.00            |
|                | Sub-Total                                    |      |     |      |           | 387,394.00           |
| d              | Escalation to Commencement February 2020     |      |     |      |           | 1,418.00             |
| e              | Escalation During Construction 9 Months      |      |     |      | 0.93%     | 2,188.00             |
|                | <b>Total Construction Cost Excluding GST</b> |      |     |      |           | <b>\$ 391,000.00</b> |

**ROAD 2****Environmental Management**

|   |                               |      |   |          |          |          |
|---|-------------------------------|------|---|----------|----------|----------|
| a | Environmental Management Plan | item | 1 | 1,000.00 | 1,000.00 |          |
| b | Dust Control                  | item | 1 | 2,000.00 | 2,000.00 |          |
| c | Erosion and Sediment Control  | item | 1 | 2,000.00 | 2,000.00 | 5,000.00 |

**Miscellaneous Provisions**

|   |                           |      |   |          |          |           |
|---|---------------------------|------|---|----------|----------|-----------|
| a | Establishment:            |      |   |          |          |           |
|   | (i) Mobilisation          | item | 1 |          | Incl.    |           |
|   | (ii) Demobilisation       | item | 1 |          | Incl.    |           |
|   | (iii) On-Going Cost       | item | 1 |          | Incl.    |           |
| b | Locate In-Ground Services | item | 1 | 3,000.00 | 3,000.00 |           |
| c | Survey and Setting Out    | item | 1 | 5,000.00 | 5,000.00 |           |
| d | As-Constructed Drawings   | item | 1 | 4,500.00 | 4,500.00 | 12,500.00 |

**Traffic Management Plan**

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Traffic Management Plan  | item | 1 | 1,250.00 | 1,250.00 |          |
| b | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1 | 1,500.00 | 1,500.00 | 2,750.00 |

**Clearing & Grubbing & Rehabilitation**

|   |  |      |   |           |           |           |
|---|--|------|---|-----------|-----------|-----------|
| a | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles | item | 1 | 12,156.00 | 12,156.00 | 12,156.00 |
|---|--|------|---|-----------|-----------|-----------|

**Earthworks**

|   |   |    |      |       |           |  |
|---|---|----|------|-------|-----------|--|
| a | Earthworks in Cut (include disposal of surplus materials)   | m3 | 924  | 14.00 | 12,936.00 |  |
| b | Earthworks in Fill (include proof roll and removing soft spots prior to filling)                                  | m3 | 147  | 16.00 | 2,352.00  |  |
| c | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3 | m3 | 50   | 62.00 | 3,100.00  |  |
| d | Imported select fill provisional (if required)  | m3 | 74   | 50.00 | 3,700.00  |  |
| e | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)   | m2 | 2103 | 2.00  | 4,206.00  |  |



GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.  | Description   | Unit | Qty  | Rate     | Extension  | Total      |
|---|---|------|------|----------|------------|------------|
| f   | Trim and compact unpaved areas (included as cut / fill above)             | m2   | 1950 | 3.00     | 5,850.00   | 32,144.00  |
| <b><u>Road Pavements</u></b>  |   |      |      |          |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)                         | m2   | 2103 | 10.00    | 21,030.00  |            |
| b   | 150mm Type 3 gravel sub-base compacted to 98% MMDD                        | m2   | 2103 | 28.00    | 58,884.00  |            |
| c   | 150mm Type 2 gravel sub-base compacted to 100% MMDD                       | m2   | 2103 | 33.00    | 69,399.00  |            |
| d   | Prime S10E  | m2   | 2103 | 12.00    | 25,236.00  |            |
| e   | Double/double 14/7mm seal   | m2   | 2103 | 30.00    | 63,090.00  | 237,639.00 |
| <b><u>Signs and pavement marking</u></b>  |   |      |      |          |            |            |
| a   | Allow for Linemarkings  | item | 1    | 3,000.00 | 3,000.00   |            |
| b   | W5-10 (Speed Hump)  | no   | 4    | 435.00   | 1,740.00   |            |
| c   | R1-2A (Giveaway sign)   | no   | 3    | 435.00   | 1,305.00   |            |
| d   | Allow for other signage   | item | 1    | 1,500.00 | 1,500.00   | 7,545.00   |
| <b><u>Concrete works</u></b>  |   |      |      |          |            |            |
| <b><u>Kerbs</u></b>   |   |      |      |          |            |            |
| a   | Gap Kerb  | m    | 473  | 80.00    | 37,840.00  |            |
| <b><u>Concrete Paving:</u></b>  |   |      |      |          |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)                         | m2   | 710  | 10.00    | 7,100.00   |            |
| b   | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement) | m2   | 710  | 150.00   | 106,500.00 |            |
| <b><u>Concrete Hump</u></b>   |   |      |      |          |            |            |
| a   | Speed hump  | no   | 2    | 4,810.00 | 9,620.00   | 161,060.00 |
| <b><u>Drainage</u></b>  |   |      |      |          |            |            |
| <b><u>Stormwater Pits</u></b>   |   |      |      |          |            |            |
| a   | 900x600 GIP   | no   | 2    | 2,700.00 | 5,400.00   |            |
| <b><u>Excavate, supply, load, transport, bed, lay and backfill culverts</u></b> |   |      |      |          |            |            |
| a   | 600mm Dia / 1 Pipe  | m    | 20   | 800.00   | 16,000.00  |            |
| b   | 600mm Dia / 2 Pipes   | m    | 15   | 1,600.00 | 24,000.00  |            |
| <b><u>Concrete headwalls</u></b>  |   |      |      |          |            |            |
| a   | Concrete headwalls  | no   | 2    | 3,200.00 | 6,400.00   |            |
| <b><u>Main Channel</u></b>  |   |      |      |          |            |            |
| a   | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6                   | m3   | 182  | 25.00    | 4,550.00   |            |
| b   | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6                    | m3   | 46   | 25.00    | 1,150.00   |            |
| c   | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6                    | m3   | 34   | 25.00    | 850.00     |            |
| d   | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8        | m3   | 198  | 25.00    | 4,950.00   |            |
| e   | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                       | m3   | 156  | 25.00    | 3,900.00   |            |
| f   | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 1158 | 10.00    | 11,580.00  |            |



GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                          | Description  | Unit | Qty  | Rate      | Extension | Total      |
|-------------------------------|--|------|------|-----------|-----------|------------|
| <u>Overflow Channels</u>      |  |      |      |           |           |            |
| a                             | Overflow channels - Base 2m, Depth 0.3m, SS 1:8    | m3   | 399  | 25.00     | 9,975.00  |            |
| b                             | Re-spread 100mm site won topsoil and dryland grass | m2   | 2054 | 10.00     | 20,540.00 | 109,295.00 |
| <u>Landscape</u>              |  |      |      |           |           |            |
| a                             | Top soil and grassing to road shoulders            | m2   | 473  | 15.00     | 7,095.00  | 7,095.00   |
| <u>Relocation of services</u> |  |      |      |           |           |            |
| a                             | Allow to relocate services                         | item | 1    | 10,000.00 | 10,000.00 | 10,000.00  |

**SUMMARY**

|   |  |  |  |  |       |                        |
|---|--|--|--|--|-------|------------------------|
|   | Total Net Cost                               |  |  |  |       | 597,184.00             |
| a | Preliminaries                                |  |  |  | 45%   | 268,733.00             |
|   | Sub-Total                                    |  |  |  |       | 865,917.00             |
| b | Contractor's Overheads & Margins             |  |  |  | 10%   | 86,592.00              |
|   | Sub-Total                                    |  |  |  |       | 952,509.00             |
| c | Design / Construction Contingency            |  |  |  | 10%   | 95,251.00              |
|   | Sub-Total                                    |  |  |  |       | 1,047,760.00           |
| d | Escalation to Commencement February 2020     |  |  |  |       | 3,327.00               |
| e | Escalation During Construction 9 Months      |  |  |  | 0.88% | 5,913.00               |
|   | <b>Total Construction Cost Excluding GST</b> |  |  |  |       | <b>\$ 1,057,000.00</b> |

**ROAD 3**Environmental Management

|   |                               |      |   |          |          |          |
|---|-------------------------------|------|---|----------|----------|----------|
| a | Environmental Management Plan | item | 1 | 1,000.00 | 1,000.00 |          |
| b | Dust Control                  | item | 1 | 2,000.00 | 2,000.00 |          |
| c | Erosion and Sediment Control  | item | 1 | 2,000.00 | 2,000.00 | 5,000.00 |

Miscellaneous Provisions

|   |                           |      |   |          |          |           |
|---|---------------------------|------|---|----------|----------|-----------|
| a | Establishment:            |      |   |          |          |           |
|   | (i) Mobilisation          | item | 1 |          | Incl.    |           |
|   | (ii) Demobilisation       | item | 1 |          | Incl.    |           |
|   | (iii) On-Going Cost       | item | 1 |          | Incl.    |           |
| b | Locate In-Ground Services | item | 1 | 3,000.00 | 3,000.00 |           |
| c | Survey and Setting Out    | item | 1 | 5,000.00 | 5,000.00 |           |
| d | As-Constructed Drawings   | item | 1 | 4,500.00 | 4,500.00 | 12,500.00 |

Traffic Management Plan

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Traffic Management Plan  | item | 1 | 1,250.00 | 1,250.00 |          |
| b | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1 | 1,500.00 | 1,500.00 | 2,750.00 |

Clearing & Grubbing & Rehabilitation

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles | item | 1 | 4,871.00 | 4,871.00 | 4,871.00 |
|---|--|------|---|----------|----------|----------|

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                                     | Description   | Unit | Qty | Rate     | Extension | Total     |
|--|---|------|-----|----------|-----------|-----------|
| <b><u>Earthworks</u></b>                 |   |      |     |          |           |           |
| a  | Earthworks in Cut (include disposal of surplus materials)   | m3   | 370 | 14.00    | 5,180.00  |           |
| b  | Earthworks in Fill (include proof roll and removing soft spots prior to filling)                                  | m3   | 59  | 16.00    | 944.00    |           |
| c  | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3 | m3   | 50  | 62.00    | 3,100.00  |           |
| d  | Imported select fill provisional (if required)  | m3   | 30  | 50.00    | 1,500.00  |           |
| e  | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)   | m2   | 843 | 2.00     | 1,686.00  |           |
| f  | Trim and compact unpaved areas (included as cut / fill above)   | m2   | 781 | 3.00     | 2,343.00  | 14,753.00 |
| <b><u>Road Pavements</u></b>             |   |      |     |          |           |           |
| a  | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)   | m2   | 843 | 10.00    | 8,430.00  |           |
| b  | 150mm Type 3 gravel sub-base compacted to 98% MMDD  | m2   | 843 | 28.00    | 23,604.00 |           |
| c  | 150mm Type 2 gravel sub-base compacted to 100% MMDD   | m2   | 843 | 33.00    | 27,819.00 |           |
| d  | Prime S10E  | m2   | 843 | 12.00    | 10,116.00 |           |
| e  | Double/double 14/7mm seal   | m2   | 843 | 30.00    | 25,290.00 | 95,259.00 |
| <b><u>Signs and pavement marking</u></b> |   |      |     |          |           |           |
| a  | Allow for Linemarkings  | item | 1   | 3,000.00 | 3,000.00  |           |
| b  | R1-2A (Giveaway sign)   | no   | 1   | 435.00   | 435.00    |           |
| c  | Allow for other signage   | item | 1   | 1,500.00 | 1,500.00  | 4,935.00  |
| <b><u>Concrete works</u></b>             |   |      |     |          |           |           |
| <b><u>Kerbs</u></b>                      |   |      |     |          |           |           |
| a  | Gap Kerb  | m    | 206 | 80.00    | 16,480.00 |           |
| <b><u>Concrete Paving:</u></b>           |   |      |     |          |           |           |
| a  | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)   | m2   | 309 | 10.00    | 3,090.00  |           |
| b  | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement)   | m2   | 309 | 150.00   | 46,350.00 | 65,920.00 |
| <b><u>Drainage</u></b>                   |   |      |     |          |           |           |
| <b><u>Main Channel</u></b>               |   |      |     |          |           |           |
| a  | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6   | m3   | 72  | 25.00    | 1,800.00  |           |
| b  | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6  | m3   | 20  | 25.00    | 500.00    |           |
| c  | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6  | m3   | 17  | 25.00    | 425.00    |           |
| d  | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8  | m3   | 66  | 25.00    | 1,650.00  |           |
| e  | Prismatic main channels - Base 6m, Depth 1m, SS 1:6   | m3   | 60  | 25.00    | 1,500.00  |           |
| f  | Re-spread 100mm site won topsoil and dryland grass  | m2   | 450 | 10.00    | 4,500.00  |           |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                          | Description  | Unit | Qty | Rate      | Extension | Total     |
|-------------------------------|--|------|-----|-----------|-----------|-----------|
| <u>Overflow Channels</u>      |  |      |     |           |           |           |
| a                             | Overflow channels - Base 2m, Depth 0.3m, SS 1:8    | m3   | 160 | 25.00     | 4,000.00  |           |
| b                             | Re-spread 100mm site won topsoil and dryland grass | m2   | 823 | 10.00     | 8,230.00  | 22,605.00 |
| <u>Landscape</u>              |  |      |     |           |           |           |
| a                             | Top soil and grassing to road shoulders            | m2   | 206 | 15.00     | 3,090.00  | 3,090.00  |
| <u>Relocation of services</u> |  |      |     |           |           |           |
| a                             | Allow to relocate services                         | item | 1   | 10,000.00 | 10,000.00 | 10,000.00 |

**SUMMARY**

|   |  |  |  |  |       |                      |
|---|--|--|--|--|-------|----------------------|
|   | Total Net Cost                               |  |  |  |       | 241,683.00           |
| a | Preliminaries                                |  |  |  | 45%   | 108,758.00           |
|   | Sub-Total                                    |  |  |  |       | 350,441.00           |
| b | Contractor's Overheads & Margins             |  |  |  | 10%   | 35,045.00            |
|   | Sub-Total                                    |  |  |  |       | 385,486.00           |
| c | Design / Construction Contingency            |  |  |  | 10%   | 38,549.00            |
|   | Sub-Total                                    |  |  |  |       | 424,035.00           |
| d | Escalation to Commencement February 2020     |  |  |  |       | 1,570.00             |
| e | Escalation During Construction 9 Months      |  |  |  | 0.94% | 2,395.00             |
|   | <b>Total Construction Cost Excluding GST</b> |  |  |  |       | <b>\$ 428,000.00</b> |

**ROAD 4**Environmental Management

|   |                               |      |   |          |          |          |
|---|-------------------------------|------|---|----------|----------|----------|
| a | Environmental Management Plan | item | 1 | 1,000.00 | 1,000.00 |          |
| b | Dust Control                  | item | 1 | 2,000.00 | 2,000.00 |          |
| c | Erosion and Sediment Control  | item | 1 | 2,000.00 | 2,000.00 | 5,000.00 |

Miscellaneous Provisions

|   |                           |      |   |          |          |           |
|---|---------------------------|------|---|----------|----------|-----------|
| a | Establishment:            |      |   |          |          |           |
|   | (i) Mobilisation          | item | 1 |          | Incl.    |           |
|   | (ii) Demobilisation       | item | 1 |          | Incl.    |           |
|   | (iii) On-Going Cost       | item | 1 |          | Incl.    |           |
| b | Locate In-Ground Services | item | 1 | 3,000.00 | 3,000.00 |           |
| c | Survey and Setting Out    | item | 1 | 5,000.00 | 5,000.00 |           |
| d | As-Constructed Drawings   | item | 1 | 4,500.00 | 4,500.00 | 12,500.00 |

Traffic Management Plan

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Traffic Management Plan  | item | 1 | 1,250.00 | 1,250.00 |          |
| b | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1 | 1,500.00 | 1,500.00 | 2,750.00 |

Clearing & Grubbing & Rehabilitation

|   |   |      |   |           |           |           |
|---|---|------|---|-----------|-----------|-----------|
| a | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil resspreading, old road surfaces, old footpaths and other obstacles | item | 1 | 10,158.00 | 10,158.00 | 10,158.00 |
|---|---|------|---|-----------|-----------|-----------|

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.  | Description   | Unit | Qty  | Rate     | Extension | Total      |
|---|---|------|------|----------|-----------|------------|
| <b><u>Earthworks</u></b>  |   |      |      |          |           |            |
| a   | Earthworks in Cut (include disposal of surplus materials)   | m3   | 772  | 14.00    | 10,808.00 |            |
| b   | Earthworks in Fill (include proof roll and removing soft spots prior to filling)                                  | m3   | 123  | 16.00    | 1,968.00  |            |
| c   | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3 | m3   | 50   | 62.00    | 3,100.00  |            |
| d   | Imported select fill provisional (if required)  | m3   | 62   | 50.00    | 3,100.00  |            |
| e   | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)   | m2   | 1758 | 2.00     | 3,516.00  |            |
| f   | Trim and compact unpaved areas (included as cut / fill above)   | m2   | 1629 | 3.00     | 4,887.00  | 27,379.00  |
| <b><u>Road Pavements</u></b>  |   |      |      |          |           |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)   | m2   | 1758 | 10.00    | 17,580.00 |            |
| b   | 150mm Type 3 gravel sub-base compacted to 98% MMDD  | m2   | 1758 | 28.00    | 49,224.00 |            |
| c   | 150mm Type 2 gravel sub-base compacted to 100% MMDD   | m2   | 1758 | 33.00    | 58,014.00 |            |
| d   | Prime S10E  | m2   | 1758 | 12.00    | 21,096.00 |            |
| e   | Double/double 14/7mm seal   | m2   | 1758 | 30.00    | 52,740.00 | 198,654.00 |
| <b><u>Signs and pavement marking</u></b>  |   |      |      |          |           |            |
| a   | Allow for Linemarkings  | item | 1    | 3,000.00 | 3,000.00  |            |
| b   | W5-10 (Speed Hump)  | no   | 4    | 435.00   | 1,740.00  |            |
| c   | R1-2A (Giveaway sign)   | no   | 3    | 435.00   | 1,305.00  |            |
| d   | Allow for other signage   | item | 1    | 1,500.00 | 1,500.00  | 7,545.00   |
| <b><u>Concrete works</u></b>  |   |      |      |          |           |            |
| <b><u>Kerbs</u></b>   |   |      |      |          |           |            |
| a   | Gap Kerb  | m    | 389  | 80.00    | 31,120.00 |            |
| <b><u>Concrete Paving:</u></b>  |   |      |      |          |           |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)   | m2   | 583  | 10.00    | 5,830.00  |            |
| b   | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement)   | m2   | 583  | 150.00   | 87,450.00 |            |
| <b><u>Concrete Hump</u></b>   |   |      |      |          |           |            |
| a   | Speed hump  | no   | 2    | 4,810.00 | 9,620.00  | 134,020.00 |
| <b><u>Drainage</u></b>  |   |      |      |          |           |            |
| <b><u>Stormwater Pits</u></b>   |   |      |      |          |           |            |
| a   | 900x600 GIP   | no   | 2    | 2,700.00 | 5,400.00  |            |
| <b><u>Excavate, supply, load, transport, bed, lay and backfill culverts</u></b> |   |      |      |          |           |            |
| a   | 600mm Dia / 1 Pipe  | m    | 44   | 800.00   | 35,200.00 |            |
| <b><u>Main Channel</u></b>  |   |      |      |          |           |            |
| a   | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6   | m3   | 154  | 25.00    | 3,850.00  |            |
| b   | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6  | m3   | 39   | 25.00    | 975.00    |            |
| c   | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6  | m3   | 34   | 25.00    | 850.00    |            |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                          | Description  | Unit | Qty  | Rate      | Extension | Total        |
|-------------------------------|--|------|------|-----------|-----------|--------------|
| d                             | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8 | m3   | 176  | 25.00     | 4,400.00  |              |
| e                             | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                | m3   | 132  | 25.00     | 3,300.00  |              |
| f                             | Re-spread 100mm site won topsoil and dryland grass                 | m2   | 1006 | 10.00     | 10,060.00 |              |
| <u>Overflow Channels</u>      |  |      |      |           |           |              |
| a                             | Overflow channels - Base 2m, Depth 0.3m, SS 1:8                    | m3   | 346  | 25.00     | 8,650.00  |              |
| b                             | Re-spread 100mm site won topsoil and dryland grass                 | m2   | 1782 | 10.00     | 17,820.00 | \$ 90,505.00 |
| <u>Landscape</u>              |  |      |      |           |           |              |
| a                             | Top soil and grassing to road shoulders                            | m2   | 389  | 15.00     | 5,835.00  | 5,835.00     |
| <u>Relocation of services</u> |  |      |      |           |           |              |
| a                             | Allow to relocate services   | item | 1    | 10,000.00 | 10,000.00 | 10,000.00    |

**SUMMARY**

|   |  |  |  |  |       |                      |
|---|--|--|--|--|-------|----------------------|
|   | Total Net Cost                               |  |  |  |       | 504,346.00           |
| a | Preliminaries                                |  |  |  | 45%   | 226,956.00           |
|   | Sub-Total                                    |  |  |  |       | 731,302.00           |
| b | Contractor's Overheads & Margins             |  |  |  | 10%   | 73,131.00            |
|   | Sub-Total                                    |  |  |  |       | 804,433.00           |
| c | Design / Construction Contingency            |  |  |  | 10%   | 80,444.00            |
|   | Sub-Total                                    |  |  |  |       | 884,877.00           |
| d | Escalation to Commencement February 2020     |  |  |  |       | 3,127.00             |
| e | Escalation During Construction 9 Months      |  |  |  | 0.92% | 4,996.00             |
|   | <b>Total Construction Cost Excluding GST</b> |  |  |  |       | <b>\$ 893,000.00</b> |

**ROAD 5**Environmental Management

|   |                               |      |   |          |          |          |
|---|-------------------------------|------|---|----------|----------|----------|
| a | Environmental Management Plan | item | 1 | 1,000.00 | 1,000.00 |          |
| b | Dust Control                  | item | 1 | 2,000.00 | 2,000.00 |          |
| c | Erosion and Sediment Control  | item | 1 | 2,000.00 | 2,000.00 | 5,000.00 |

Miscellaneous Provisions

|   |                           |      |   |          |          |           |
|---|---------------------------|------|---|----------|----------|-----------|
| a | Establishment:            |      |   |          |          |           |
|   | (i) Mobilisation          | item | 1 |          |          | Incl.     |
|   | (ii) Demobilisation       | item | 1 |          |          | Incl.     |
|   | (iii) On-Going Cost       | item | 1 |          |          | Incl.     |
| b | Locate In-Ground Services | item | 1 | 3,000.00 | 3,000.00 |           |
| c | Survey and Setting Out    | item | 1 | 5,000.00 | 5,000.00 |           |
| d | As-Constructed Drawings   | item | 1 | 4,500.00 | 4,500.00 | 12,500.00 |

Traffic Management Plan

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Traffic Management Plan  | item | 1 | 1,250.00 | 1,250.00 |          |
| b | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1 | 1,500.00 | 1,500.00 | 2,750.00 |



GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.  | Description  | Unit | Qty  | Rate      | Extension  | Total      |
|---|--|------|------|-----------|------------|------------|
| <b><u>Clearing &amp; Grubbing &amp; Rehabilitation</u></b>                      |  |      |      |           |            |            |
| a   | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles | item | 1    | 22,814.00 | 22,814.00  | 22,814.00  |
| <b><u>Earthworks</u></b>  |  |      |      |           |            |            |
| a   | Earthworks in Cut (include disposal of surplus materials)  | m3   | 867  | 14.00     | 12,138.00  |            |
| b   | Earthworks in Fill (include proof roll and removing soft spots prior to filling)   | m3   | 1064 | 16.00     | 17,024.00  |            |
| c   | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3  | m3   | 50   | 62.00     | 3,100.00   |            |
| d   | Imported select fill provisional (if required)   | m3   | 532  | 50.00     | 26,600.00  |            |
| e   | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)  | m2   | 3947 | 2.00      | 7,894.00   |            |
| f   | Trim and compact unpaved areas (included as cut / fill above)  | m2   | 3658 | 3.00      | 10,974.00  | 77,730.00  |
| <b><u>Road Pavements</u></b>  |  |      |      |           |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)  | m2   | 3947 | 10.00     | 39,470.00  |            |
| b   | 150mm Type 3 gravel sub-base compacted to 98% MMDD   | m2   | 3947 | 28.00     | 110,516.00 |            |
| c   | 150mm Type 2 gravel sub-base compacted to 100% MMDD  | m2   | 3947 | 33.00     | 130,251.00 |            |
| d   | Prime S10E   | m2   | 3947 | 12.00     | 47,364.00  |            |
| e   | Double/double 14/7mm seal  | m2   | 3947 | 30.00     | 118,410.00 | 446,011.00 |
| <b><u>Signs and pavement marking</u></b>  |  |      |      |           |            |            |
| a   | Allow for Linemarkings   | item | 1    | 3,000.00  | 3,000.00   |            |
| b   | W5-10 (Speed Hump)   | no   | 8    | 435.00    | 3,480.00   |            |
| c   | R1-2A (Giveaway sign)  | no   | 2    | 435.00    | 870.00     |            |
| d   | Allow for other signage  | item | 1    | 1,500.00  | 1,500.00   | 8,850.00   |
| <b><u>Concrete works</u></b>  |  |      |      |           |            |            |
| <b><u>Kerbs</u></b>   |  |      |      |           |            |            |
| a   | Gap Kerb   | m    | 963  | 80.00     | 77,040.00  |            |
| <b><u>Concrete Paving:</u></b>  |  |      |      |           |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)  | m2   | 1444 | 10.00     | 14,440.00  |            |
| b   | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement)  | m2   | 1444 | 150.00    | 216,600.00 |            |
| <b><u>Concrete Hump</u></b>   |  |      |      |           |            |            |
| a   | Speed hump   | no   | 4    | 4,810.00  | 19,240.00  | 327,320.00 |
| <b><u>Drainage</u></b>  |  |      |      |           |            |            |
| <b><u>Stormwater Pits</u></b>   |  |      |      |           |            |            |
| a   | 900x600 GIP  | no   | 5    | 2,700.00  | 13,500.00  |            |
| <b><u>Excavate, supply, load, transport, bed, lay and backfill culverts</u></b> |  |      |      |           |            |            |
| a   | 600mm Dia / 1 Pipe   | m    | 78   | 800.00    | 62,400.00  |            |
| b   | 600mm Dia / 2 Pipes  | m    | 27   | 1,600.00  | 43,200.00  |            |
| c   | 675mm Dia / 2 Pipes  | m    | 10   | 1,900.00  | 19,000.00  |            |



GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref. | Description  | Unit | Qty  | Rate      | Extension | Total      |
|------|--|------|------|-----------|-----------|------------|
|      | <u>Concrete headwalls</u>  |      |      |           |           |            |
| a    | Concrete headwalls   | no   | 6    | 3,200.00  | 19,200.00 |            |
|      | <u>Mitre Drain</u>   |      |      |           |           |            |
| a    | Mitre drain  | m3   | 81   | 25.00     | 2,025.00  |            |
| b    | Re-spread 100mm site won topsoil and dryland grass                 | m2   | 414  | 10.00     | 4,140.00  |            |
|      | <u>Main Channel</u>  |      |      |           |           |            |
| a    | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6            | m3   | 352  | 25.00     | 8,800.00  |            |
| b    | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6             | m3   | 85   | 25.00     | 2,125.00  |            |
| c    | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6             | m3   | 68   | 25.00     | 1,700.00  |            |
| d    | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8 | m3   | 374  | 25.00     | 9,350.00  |            |
| e    | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                | m3   | 300  | 25.00     | 7,500.00  |            |
| f    | Re-spread 100mm site won topsoil and dryland grass                 | m2   | 2224 | 10.00     | 22,240.00 |            |
|      | <u>Overflow Channels</u>   |      |      |           |           |            |
| a    | Overflow channels - Base 2m, Depth 0.3m, SS 1:8                    | m3   | 771  | 25.00     | 19,275.00 |            |
| b    | Re-spread 100mm site won topsoil and dryland grass                 | m2   | 3972 | 10.00     | 39,720.00 | 274,175.00 |
|      | <u>Landscape</u>   |      |      |           |           |            |
| a    | Top soil and grassing to road shoulders                            | m2   | 963  | 15.00     | 14,445.00 | 14,445.00  |
|      | <u>Relocation of services</u>                                      |      |      |           |           |            |
| a    | Allow to relocate services   | item | 1    | 10,000.00 | 10,000.00 | 10,000.00  |

**SUMMARY**

|   |  |  |  |  |       |                       |
|---|--|--|--|--|-------|-----------------------|
|   | Total Net Cost                               |  |  |  |       | 1,201,595.00          |
| a | Preliminaries                                |  |  |  | 45%   | 540,718.00            |
|   | Sub-Total                                    |  |  |  |       | 1,742,313.00          |
| b | Contractor's Overheads & Margins             |  |  |  | 10%   | 174,232.00            |
|   | Sub-Total                                    |  |  |  |       | 1,916,545.00          |
| c | Design / Construction Contingency            |  |  |  | 10%   | 191,655.00            |
|   | Sub-Total                                    |  |  |  |       | 2,108,200.00          |
| d | Escalation to Commencement February 2020     |  |  |  |       | 5,908.00              |
| e | Escalation During Construction 9 Months      |  |  |  | 0.84% | 11,892.00             |
|   | <b>Total Construction Cost Excluding GST</b> |  |  |  |       | <b>\$2,126,000.00</b> |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.   | Description  | Unit | Qty  | Rate      | Extension | Total      |
|--|--|------|------|-----------|-----------|------------|
| <b>ROAD 6</b>  |  |      |      |           |           |            |
| <b><u>Environmental Management</u></b>                     |  |      |      |           |           |            |
| a  | Environmental Management Plan  | item | 1    | 1,000.00  | 1,000.00  |            |
| b  | Dust Control   | item | 1    | 2,000.00  | 2,000.00  |            |
| c  | Erosion and Sediment Control   | item | 1    | 2,000.00  | 2,000.00  | 5,000.00   |
| <b><u>Miscellaneous Provisions</u></b>                     |  |      |      |           |           |            |
| a  | Establishment:   |      |      |           |           |            |
|  | (i) Mobilisation   | item | 1    |           | Incl.     |            |
|  | (ii) Demobilisation  | item | 1    |           | Incl.     |            |
|  | (iii) On-Going Cost  | item | 1    |           | Incl.     |            |
| b  | Locate In-Ground Services  | item | 1    | 3,000.00  | 3,000.00  |            |
| c  | Survey and Setting Out   | item | 1    | 5,000.00  | 5,000.00  |            |
| d  | As-Constructed Drawings  | item | 1    | 4,500.00  | 4,500.00  | 12,500.00  |
| <b><u>Traffic Management Plan</u></b>                      |  |      |      |           |           |            |
| a  | Traffic Management Plan  | item | 1    | 1,250.00  | 1,250.00  |            |
| b  | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1    | 1,500.00  | 1,500.00  | 2,750.00   |
| <b><u>Clearing &amp; Grubbing &amp; Rehabilitation</u></b> |  |      |      |           |           |            |
| a  | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles   | item | 1    | 11,307.00 | 11,307.00 | 11,307.00  |
| <b><u>Earthworks</u></b>                                   |  |      |      |           |           |            |
| a  | Earthworks in Cut (include disposal of surplus materials)  | m3   | 1131 | 14.00     | 15,834.00 |            |
| b  | Earthworks in Fill (include proof roll and removing soft spots prior to filling)   | m3   | 136  | 16.00     | 2,176.00  |            |
| c  | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3  | m3   | 50   | 62.00     | 3,100.00  |            |
| d  | Imported select fill provisional (if required)   | m3   | 68   | 50.00     | 3,400.00  |            |
| e  | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)  | m2   | 1957 | 2.00      | 3,914.00  |            |
| f  | Trim and compact unpaved areas (included as cut / fill above)  | m2   | 1813 | 3.00      | 5,439.00  | 33,863.00  |
| <b><u>Road Pavements</u></b>                               |  |      |      |           |           |            |
| a  | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)  | m2   | 1957 | 10.00     | 19,570.00 |            |
| b  | 150mm Type 3 gravel sub-base compacted to 98% MMDD   | m2   | 1957 | 28.00     | 54,796.00 |            |
| c  | 150mm Type 2 gravel sub-base compacted to 100% MMDD  | m2   | 1957 | 33.00     | 64,581.00 |            |
| d  | Prime S10E   | m2   | 1957 | 12.00     | 23,484.00 |            |
| e  | Double/double 14/7mm seal  | m2   | 1957 | 30.00     | 58,710.00 | 221,141.00 |

GHD PTY. LTD.

Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                                     | Description   | Unit | Qty  | Rate      | Extension  | Total      |
|--|---|------|------|-----------|------------|------------|
| <b><u>Signs and pavement marking</u></b> |   |      |      |           |            |            |
| a  | Allow for Linemarkings  | item | 1    | 3,000.00  | 3,000.00   |            |
| b  | W5-10 (Speed Hump)  | no   | 2    | 435.00    | 870.00     |            |
| c  | R1-2A (Giveaway sign)   | no   | 2    | 435.00    | 870.00     |            |
| d  | R1-2A (R) (Turn)  | no   | 2    | 435.00    | 870.00     |            |
| e  | Allow for other signage   | item | 1    | 1,500.00  | 1,500.00   | 7,110.00   |
| <b><u>Concrete works</u></b>             |   |      |      |           |            |            |
| <b><u>Kerbs</u></b>                      |   |      |      |           |            |            |
| a  | Gap Kerb  | m    | 478  | 80.00     | 38,240.00  |            |
| <b><u>Concrete Paving:</u></b>           |   |      |      |           |            |            |
| a  | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)                         | m2   | 716  | 10.00     | 7,160.00   |            |
| b  | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement) | m2   | 716  | 150.00    | 107,400.00 |            |
| <b><u>Concrete Hump</u></b>              |   |      |      |           |            |            |
| a  | Speed hump  | no   | 1    | 4,810.00  | 4,810.00   | 157,610.00 |
| <b><u>Drainage</u></b>                   |   |      |      |           |            |            |
| <b><u>Mitre Drain</u></b>                |   |      |      |           |            |            |
| a  | Mitre drain   | m3   | 39   | 25.00     | 975.00     |            |
| b  | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 197  | 10.00     | 1,970.00   |            |
| <b><u>Main Channel</u></b>               |   |      |      |           |            |            |
| a  | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6                   | m3   | 171  | 25.00     | 4,275.00   |            |
| b  | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6                    | m3   | 39   | 25.00     | 975.00     |            |
| c  | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6                    | m3   | 34   | 25.00     | 850.00     |            |
| d  | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8        | m3   | 176  | 25.00     | 4,400.00   |            |
| e  | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                       | m3   | 144  | 25.00     | 3,600.00   |            |
| f  | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 1066 | 10.00     | 10,660.00  |            |
| <b><u>Overflow Channels</u></b>          |   |      |      |           |            |            |
| a  | Overflow channels - Base 2m, Depth 0.3m, SS 1:8                           | m3   | 373  | 25.00     | 9,325.00   |            |
| b  | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 1918 | 10.00     | 19,180.00  | 56,210.00  |
| <b><u>Landscape</u></b>                  |   |      |      |           |            |            |
| a  | Top soil and grassing to road shoulders                                   | m2   | 478  | 15.00     | 7,170.00   | 7,170.00   |
| <b><u>Relocation of services</u></b>     |   |      |      |           |            |            |
| a  | Allow to relocate services  | item | 1    | 10,000.00 | 10,000.00  | 10,000.00  |

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Prepared : 12 December 2019

**PROPOSED NUMBULWAR ROAD AND STORMWATER WORKS  
NUMBULWAR - NT**

Prepared by : **QS Services**  
Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.           | Description                                  | Unit | Qty | Rate | Extension | Total                |
|----------------|--|------|-----|------|-----------|----------------------|
| <b>SUMMARY</b> |  |      |     |      |           |                      |
|                | Total Net Cost                               |      |     |      |           | 524,661.00           |
| a              | Preliminaries                                |      |     |      | 45%       | 236,098.00           |
|                | Sub-Total                                    |      |     |      |           | 760,759.00           |
| b              | Contractor's Overheads & Margins             |      |     |      | 10%       | 76,076.00            |
|                | Sub-Total                                    |      |     |      |           | 836,835.00           |
| c              | Design / Construction Contingency            |      |     |      | 10%       | 83,684.00            |
|                | Sub-Total                                    |      |     |      |           | 920,519.00           |
| d              | Escalation to Commencement February 2020     |      |     |      |           | 3,284.00             |
| e              | Escalation During Construction 9 Months      |      |     |      | 0.92%     | 5,197.00             |
|                | <b>Total Construction Cost Excluding GST</b> |      |     |      |           | <b>\$ 929,000.00</b> |

**ROAD 8****Environmental Management**

|   |                               |      |   |          |          |          |
|---|-------------------------------|------|---|----------|----------|----------|
| a | Environmental Management Plan | item | 1 | 1,000.00 | 1,000.00 |          |
| b | Dust Control                  | item | 1 | 2,000.00 | 2,000.00 |          |
| c | Erosion and Sediment Control  | item | 1 | 2,000.00 | 2,000.00 | 5,000.00 |

**Miscellaneous Provisions**

|   |                           |      |   |          |          |           |
|---|---------------------------|------|---|----------|----------|-----------|
| a | Establishment:            |      |   |          |          |           |
|   | (i) Mobilisation          | item | 1 |          | Incl.    |           |
|   | (ii) Demobilisation       | item | 1 |          | Incl.    |           |
|   | (iii) On-Going Cost       | item | 1 |          | Incl.    |           |
| b | Locate In-Ground Services | item | 1 | 3,000.00 | 3,000.00 |           |
| c | Survey and Setting Out    | item | 1 | 5,000.00 | 5,000.00 |           |
| d | As-Constructed Drawings   | item | 1 | 4,500.00 | 4,500.00 | 12,500.00 |

**Traffic Management Plan**

|   |  |      |   |          |          |          |
|---|--|------|---|----------|----------|----------|
| a | Traffic Management Plan  | item | 1 | 1,250.00 | 1,250.00 |          |
| b | Provision for traffic includes, detours, temporary connections, access to adjacent properties, traffic guidance, traffic control devices, temporary bridging, warning devices, maintenance and restoration | item | 1 | 1,500.00 | 1,500.00 | 2,750.00 |

**Clearing & Grubbing & Rehabilitation**

|   |  |      |   |           |           |           |
|---|--|------|---|-----------|-----------|-----------|
| a | Clearing and Grubbing Including removing of vegetation stripping and stockpiling, top soil respreading, old road surfaces, old footpaths and other obstacles | item | 1 | 14,263.00 | 14,263.00 | 14,263.00 |
|---|--|------|---|-----------|-----------|-----------|

**Earthworks**

|   |   |    |      |       |           |  |
|---|---|----|------|-------|-----------|--|
| a | Earthworks in Cut (include disposal of surplus materials)   | m3 | 1427 | 14.00 | 19,978.00 |  |
| b | Earthworks in Fill (include proof roll and removing soft spots prior to filling)                                  | m3 | 172  | 16.00 | 2,752.00  |  |
| c | Unsuitable material beneath fill (provisional) (include removal and disposal of unsuitable material) - Allow 50m3 | m3 | 50   | 62.00 | 3,100.00  |  |
| d | Imported select fill provisional (if required)  | m3 | 86   | 50.00 | 4,300.00  |  |
| e | Preparation and maintenance of subgrade (150mm thick layer, min cbr 10)   | m2 | 2468 | 2.00  | 4,936.00  |  |

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Quantity Surveyors & Cost Consultants

**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.  | Description   | Unit | Qty  | Rate     | Extension  | Total      |
|---|---|------|------|----------|------------|------------|
| f   | Trim and compact unpaved areas (included as cut / fill above)             | m2   | 2287 | 3.00     | 6,861.00   | 41,927.00  |
| <b><u>Road Pavements</u></b>  |   |      |      |          |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 10)                         | m2   | 2468 | 10.00    | 24,680.00  |            |
| b   | 150mm Type 3 gravel sub-base compacted to 98% MMDD                        | m2   | 2468 | 28.00    | 69,104.00  |            |
| c   | 150mm Type 2 gravel sub-base compacted to 100% MMDD                       | m2   | 2468 | 33.00    | 81,444.00  |            |
| d   | Prime S10E  | m2   | 2468 | 12.00    | 29,616.00  |            |
| e   | Double/double 14/7mm seal   | m2   | 2468 | 30.00    | 74,040.00  | 278,884.00 |
| <b><u>Signs and pavement marking</u></b>  |   |      |      |          |            |            |
| a   | Allow for Linemarkings  | item | 1    | 3,000.00 | 3,000.00   |            |
| b   | W5-10 (Speed Hump)  | no   | 4    | 435.00   | 1,740.00   |            |
| c   | R1-2A (Giveaway sign)   | no   | 1    | 435.00   | 435.00     |            |
| d   | R1-2A (R) (Turn)  | no   | 2    | 435.00   | 870.00     |            |
| e   | Allow for other signage   | item | 1    | 1,500.00 | 1,500.00   | 7,545.00   |
| <b><u>Concrete works</u></b>  |   |      |      |          |            |            |
| <b><u>Kerbs</u></b>   |   |      |      |          |            |            |
| a   | Gap Kerb  | m    | 582  | 80.00    | 46,560.00  |            |
| <b><u>Concrete Paving:</u></b>  |   |      |      |          |            |            |
| a   | 150mm Subgrade Compacted to 95% MMDD (Min cbr 15)                         | m2   | 873  | 10.00    | 8,730.00   |            |
| b   | 100mm Thick Broom finish Concrete Footpath (with SL82 mesh reinforcement) | m2   | 873  | 150.00   | 130,950.00 |            |
| <b><u>Concrete Hump</u></b>   |   |      |      |          |            |            |
| a   | Speed hump  | no   | 2    | 4,810.00 | 9,620.00   | 195,860.00 |
| <b><u>Drainage</u></b>  |   |      |      |          |            |            |
| <b><u>Stormwater Pits</u></b>   |   |      |      |          |            |            |
| a   | 900x600 GIP   | no   | 2    | 2,700.00 | 5,400.00   |            |
| <b><u>Excavate, supply, load, transport, bed, lay and backfill culverts</u></b> |   |      |      |          |            |            |
| a   | 600mm Dia / 1 Pipe  | m    | 31   | 800.00   | 24,800.00  |            |
| <b><u>Mitre Drain</u></b>   |   |      |      |          |            |            |
| a   | Mitre drain   | m3   | 146  | 25.00    | 3,650.00   |            |
| b   | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 751  | 10.00    | 7,510.00   |            |
| <b><u>Main Channel</u></b>  |   |      |      |          |            |            |
| a   | Prismatic main channels - Base 8m, Depth 0.5m D, SS 1:6                   | m3   | 215  | 25.00    | 5,375.00   |            |
| b   | Prismatic main channels - Base 10m, Depth 0.5m, SS 1:6                    | m3   | 52   | 25.00    | 1,300.00   |            |
| c   | Prismatic main channels - Base 14m, Depth 0.5m, SS 1:6                    | m3   | 43   | 25.00    | 1,075.00   |            |
| d   | Prismatic main channels - Base 14m, Depth 1m, SS L.B 1:6 & R.B 1:8        | m3   | 220  | 25.00    | 5,500.00   |            |
| e   | Prismatic main channels - Base 6m, Depth 1m, SS 1:6                       | m3   | 180  | 25.00    | 4,500.00   |            |
| f   | Re-spread 100mm site won topsoil and dryland grass                        | m2   | 1344 | 10.00    | 13,440.00  |            |



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**PRELIMINARY ESTIMATE**

(Revised on 10 January 2020)

| Ref.                          | Description  | Unit | Qty  | Rate      | Extension | Total                  |
|-------------------------------|--|------|------|-----------|-----------|------------------------|
| <u>Overflow Channels</u>      |  |      |      |           |           |                        |
| a                             | Overflow channels - Base 2m, Depth 0.3m, SS 1:8    | m3   | 480  | 25.00     | 12,000.00 |                        |
| b                             | Re-spread 100mm site won topsoil and dryland grass | m2   | 2469 | 10.00     | 24,690.00 | 109,240.00             |
| <u>Landscape</u>              |  |      |      |           |           |                        |
| a                             | Top soil and grassing to road shoulders            | m2   | 582  | 15.00     | 8,730.00  | 8,730.00               |
| <u>Relocation of services</u> |  |      |      |           |           |                        |
| a                             | Allow to relocate services                         | item | 1    | 10,000.00 | 10,000.00 | 10,000.00              |
| <b>SUMMARY</b>                |  |      |      |           |           |                        |
|                               | Total Net Cost                                     |      |      |           |           | 686,699.00             |
| a                             | Preliminaries                                      |      |      |           | 45%       | 309,015.00             |
|                               | Sub-Total  |      |      |           |           | 995,714.00             |
| b                             | Contractor's Overheads & Margins                   |      |      |           | 10%       | 99,572.00              |
|                               | Sub-Total  |      |      |           |           | 1,095,286.00           |
| c                             | Design / Construction Contingency                  |      |      |           | 10%       | 109,529.00             |
|                               | Sub-Total  |      |      |           |           | 1,204,815.00           |
| d                             | Escalation to Commencement February 2020           |      |      |           |           | 3,388.00               |
| e                             | Escalation During Construction 9 Months            |      |      |           | 0.85%     | 6,797.00               |
|                               | <b>Total Construction Cost Excluding GST</b>       |      |      |           |           | <b>\$ 1,215,000.00</b> |

*The following documents have been used to prepare the above Budget Estimate:*

- Preliminary drawings issued by GHD ref. G001, G002, G004, G005, G006, G007, G008, G009, G010, G011, G012, G013 and G014, All rev. A dated 13.12.2019
- Preliminary drawings issued by GHD ref. C001, C002, C003, C004, C005, C006, C007, C008, C010, C011, C012, C013, C014, C015, C016, C017, C018, C019, C020, C021, C022, C023, C024, C025, C026, C027 and C028, All rev. A dated 13.12.2019
- Reference to drainage works quantity schedule and marked-up drawing refer to email dated 12 December 2019 issued by GHD