



WALLACE INFRASTRUCTURE DESIGN PTY LTD

*Prepared
for*

**Gilgandra Shire Council
361 OXLEY HIGHWAY
GILGANDRA**

20 May 2024

WATER & SEWER SERVICING REPORT



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Document Status

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Approval for Issue

Name	Signature	Date
Aaron Sanders		



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Terms and Abbreviations

AHD	Australian Height Datum
DA	Development Application
GSC	Gilgandra Shire Council
RL	Reduced Level
SPS	Sewer Pump Station
WDG	Wallace Design Group Pty Ltd

1.0 Introduction

Wallace Design Group Pty Ltd (WDG) has been engaged by Gilgandra Shire Council (GSC) to prepare a water and sewer servicing report to support the development of a new industrial development at Lot 1 DP 1070081 361 Oxley Highway, Gilgandra.

The proposed industrial subdivision site will be rezoned from its current zoning RU1(Primary Production) to E4 (General Industrial). Prior to rezoning Council requires sufficient information on water and sewer services such that it can conclude that the land can be feasibly and economically serviced. Council requirements are to show that future development will maximise cost-effective and efficient use of infrastructure by focusing development on existing infrastructure or promoting co-location of new infrastructure.

This report addresses the provision of water and sewer services to the proposed development.

1.1 Background

Gilgandra Shire Council is submitting a Planning Proposal to rezone some rural land so that it can be used for employment purposes. Gilgandra Shire Council (GSC) is the proponent with Council intending to purchase part of the subject land for industrial development. The subject land to be zoned for employment purposes is Lot 1 DP 1070081 and part Lot 2 DP 1070081, Oxley Highway, Gilgandra.

The land proposed for rezoning is approximately 52 hectares in total and will be developed in two stages: Council intends to purchase the 21-hectare fronting the Oxley Highway and develop as Stage 1 industrial development, with the balance of approximately 31 hectares to be retained by the landowner and for future potential industrial growth, Stage 2.

The stage 1 is an industrial subdivision which consists of 27 Lots. Stage 2 will be developed as solar farm with possible future industrial subdivision in approximately 35 years. Points of connection to the water and sewer systems will be left for proposed Stage 2.

This project is an initiative of the Gilgandra Shire Council in its aim to show that future development will maximise the cost-effective and efficient use of infrastructure by focusing development on existing infrastructure or promoting co-location of new infrastructure.

1.2 Development

Stage 1:

In stage 1, GSC is preparing for the development of a new industrial subdivision of approximately 20.97ha. The proposed development has a direct frontage of Oxley Highway within an 80km/h zone. The development consisting of 27 lots including the proposed council water treatment plant and the construction of internal roads, drainage structures and reserve for stormwater detention basin.

It is expected, lots in Stage 1 will be constructed immediately and offered for sale in 2025.

Stage 2:

Stage 2 is approximately 31.12h and only for rezoning purpose at this phase. The proposed development of Stage 2 will be a future long term industrial growth and estimated to have 25-30 lots. Industrial purpose on this land may not be for approximately 35 years. In the interim it is expected that Stage 2 will be developed as a solar farm.

A plan of the site is attached at **Appendix 1**.

Methodology

Advice on the existing water and sewer systems servicing the area and the proposed subdivision layout have been provided by GSC. In terms of a proposed connection points, GSC preferred options are to connect sewer into the existing rising main that crosses the Oxley Highway and water into the existing 250mm main that runs along the Oxley Highway.

2.0 Water

The proposed development is within the Gilgandra Shire Council. The closest water connection point is the DN250 main running along the Oxley Highway providing the development site with a full frontage.

The proposed industrial subdivision will be serviced by the extension of a 150mm watermain connecting to the existing 250mm main in the Oxley Highway in two locations thus providing security of supply to the development.

The construction of approximately 928m x 150mm watermain will be required to provide all proposed lots with a point of connection to the reticulated water system.

A plan indicating the existing water infrastructure and the proposed watermain extension for the development site is attached at **Appendix 2**.

The cost of the proposed watermains is estimated to be in the order of **\$200,000.00**.

A copy of the preliminary estimating spreadsheet is attached at **Appendix 5**.

2.1 Design Water Demands

To estimate design flows, values from the Water Services Association of Australia (WSAA) Water Supply Code of Australia WSA03-2002-2.3 Hunter Water Edition Version 2.1 have been adopted. Theoretical loadings have been determined based on KI/Ha/day for light industrial development. The criteria used to determine the theoretical water design flows are summarised below:

Industrial

- Average Demand for new industrial developments – 11.5 KI/Ha/day
- Average Day Demand (L/s) = 2.52
- Peak Day Demand (L/s) = ADD x PDD Factor x Diversity Factor
- Peak Day Factor – Industrial – 1.20
- Diversity Factor – $2.653 \times ET^{0.1067}$
- Extreme Day Demand (L/s) = PDD x 1.15
- Unaccounted Water = 15% of Average Day Demand

Design flows based on the potential lot yield are shown in **Table 1** below:

Table 1 Total Theoretical Water Loadings

Development Type	Area	Average Day Demand (l/s)	Peak Day Demand (l/s)	Extreme Day Demand (l/s)	Unaccounted Water (l/s)
Industrial Lots	18.94	2.52	4.36	5.02	0.38
	Fire Flows	N/A	8.00	N/A	N/A

2.2 Water Modelling

Pipe sizing has been confirmed with computer modelling using 'EPANET 2.2'. The EPANET software has been developed by the Water Supply & Water Resources Division at the National Risk Management Research Laboratory of the US Environmental Protection Agency.

Water modelling has been undertaken based on information provided by GSC. A pressure of 20.41m was observed at 298 Warren Rd (Oxley Hwy).

Modelling of the water flows in the area indicate that the pressure at peak demand (13:30) at Node 3, the highest point in the proposed subdivision would be 23.17m

The modelling indicates that with fireflows of 8 l/s a pressure of 22.71m at Node 3, the highest point in the proposed subdivision.

Details of the modelling network and results are attached at **Appendix 3**.

3.0 Sewer

The proposed development is within the Gilgandra township and the catchment area of the SPS No. SPS0008 located at Naden Drive. GSC is planning to build a new Sewer Pump Station (SPS) within the proposed subdivision site. The survey provided by GSC, has determined that there is 4.5m fall from South-East to North-West on proposed development. The proposed sewer can be drained under gravity sewer system by installing a new sewer pump station (SPS) at south-western corner of the Stage 1. The provision of the gravity reticulation sewer system detailed will adequately service the proposed subdivision.

Information provided by Council; it is expected that there will be a sufficient capacity in the Gilgandra Sewage Treatment Plant to cater for the development. On councils' advice, the sewer loading should be based on 6ET/Ha, for industrial subdivision, which will create 108 ETs in Stage 1 and 186 ETs in Stage 2. It is noted that it is proposed to construct a solar farm on Stage 2 and sewer connection would not be required for approximately 35 years.

It is proposed that the civil works and rising main for the proposed SPS be constructed to service the ultimate development with pumps and electrical being constructed to service Stage 1 only. It is anticipated that both pumps and electrics would need replacement within the 35-year time frame before Stage 2 was connected to the sewer.

The design incorporates a new SPS with rising main connecting to existing SPS0008. The construction of approximately 729.62m x 150mm Rising main connecting to an existing 100mm rising main located in Oxley Highway will be the point of connection to the reticulated sewer system.

Proposed Works Reticulation Sewermain

957.55m x 150mm
200.85m x 450mm

SPS (duty and standby pumps)

1.8 m diameter x 6.30 m deep
Pumps 10 L/s @ 11.30m (2 x 2KW pumps)
Control Volume – 0.90 m³
Control Depth – 0.35 m

Emergency Storage

Wet Well is to be sized accordingly to ensure it can accommodate necessary emergency storage if required.

(Note: During the detailed design stage, if emergency storage is contained within wet wells, the 450mm sewermain may be reduce the size of sewermain.)

Rising Main

729.62m x 150 mm
Velocity – 0.57 m/s
Friction Losses – 2.00m
Static Head – 9.30m
Total Head – 11.30m
Detention Time – 3.24 Hrs – odour control will **not** be required.

Details of the works required to provide the proposed development with sewer services that meet GSC requirements are listed below:

Stage	ET	Cumulative ET	Required Infrastructure
1	108	108	Gravity sewer, construction of SPS in Lot 12 and rising main.
2	186	294	Gravity sewer connecting to SPS in Lot 12.

The capital cost for the required sewer network is estimated to be in the order of **\$1,355,000**.

A copy of the preliminary estimating spreadsheet is attached at **Appendix 5**.

A plan showing the existing sewer infrastructure and the proposed sewer infrastructure options is attached as **Appendix 4**.

3.1 Design Sewerage Loading

Design flows for development have been estimated using values provided by GSC to determine theoretical loadings in equivalent tenements (ET). An ET is the theoretical sewage flow from an average residential lot.

The criteria used to determine theoretical sewer design flows are summarised below:

Sewer loadings for the proposed industrial subdivision have been determined based on 6ET/Ha and are detailed in **Table 2** below.

- Average Dry Weather Flow (ADWF) = 0.011l/s per ET
- Peak Dry Weather Flow (PDWF) = ADWF x 'r'
- Storm Allowance = 0.058 l/s per ET (for gravity systems)
- Peak Wet Weather Flow (PWWF) = PDWF + SA

Note: 'r' factor is from an empirical relationship based on ET.

Table 2 Overall Sewer Loadings

Stage	Yield (ET)	ADWF (L/s)	r	PDW F (L/s)	SA (L/s)	PWWF (L/s)
1	108	1.18	3.21	3.78	6.26	10.04
2	186	2.05	2.94	6.02	10.79	16.81
Total	294	3.23	2.74	8.86	17.05	25.91

4.0 Conclusion

Investigations indicate that there are existing GSC water and sewer systems in the area that can be extended to service the proposed industrial subdivision.

The existing water systems can be extended in a manner to facilitate the future subdivision of the area.

Modelling indicates that water pressures in the area will achieve GSC requirements.

It is noted that it is proposed to construct a water treatment facility within the proposed subdivision and water pressures would be able to be adjusted from this facility.

A sewer network to service the proposed subdivision connecting to existing infrastructure is required to be constructed.

It is noted that existing infrastructure downstream of the proposed sewer connection point has not been analysed and the adequacy of the system will need to be checked during the detail design phase of the project.



Appendix I

Subdivision Site Plan



A 1:2000 HORZ ON ORIGINAL 0 20 40 60 80 100

LEGEND

- SITE BOUNDARY
- STAGE 1
- STAGE 2



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

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A.S.	07.02.2024	WID
APPROVED:	DATE:	COMPANY:
A.S.	07.02.2024	WID

TITLE:
INDUSTRIAL SUBDIVISION AND STAGING PLAN
DEVELOPMENT OF LOT 1 & 2 DP 1070081, 361 OXLEY HIGHWAY, GILGANDRA

VERSION	No.	REVISION DETAILS	V.S.	DATE
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CONSULTANT REFERENCE No. 23403- SERVICE STRATEGY

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Appendix 2

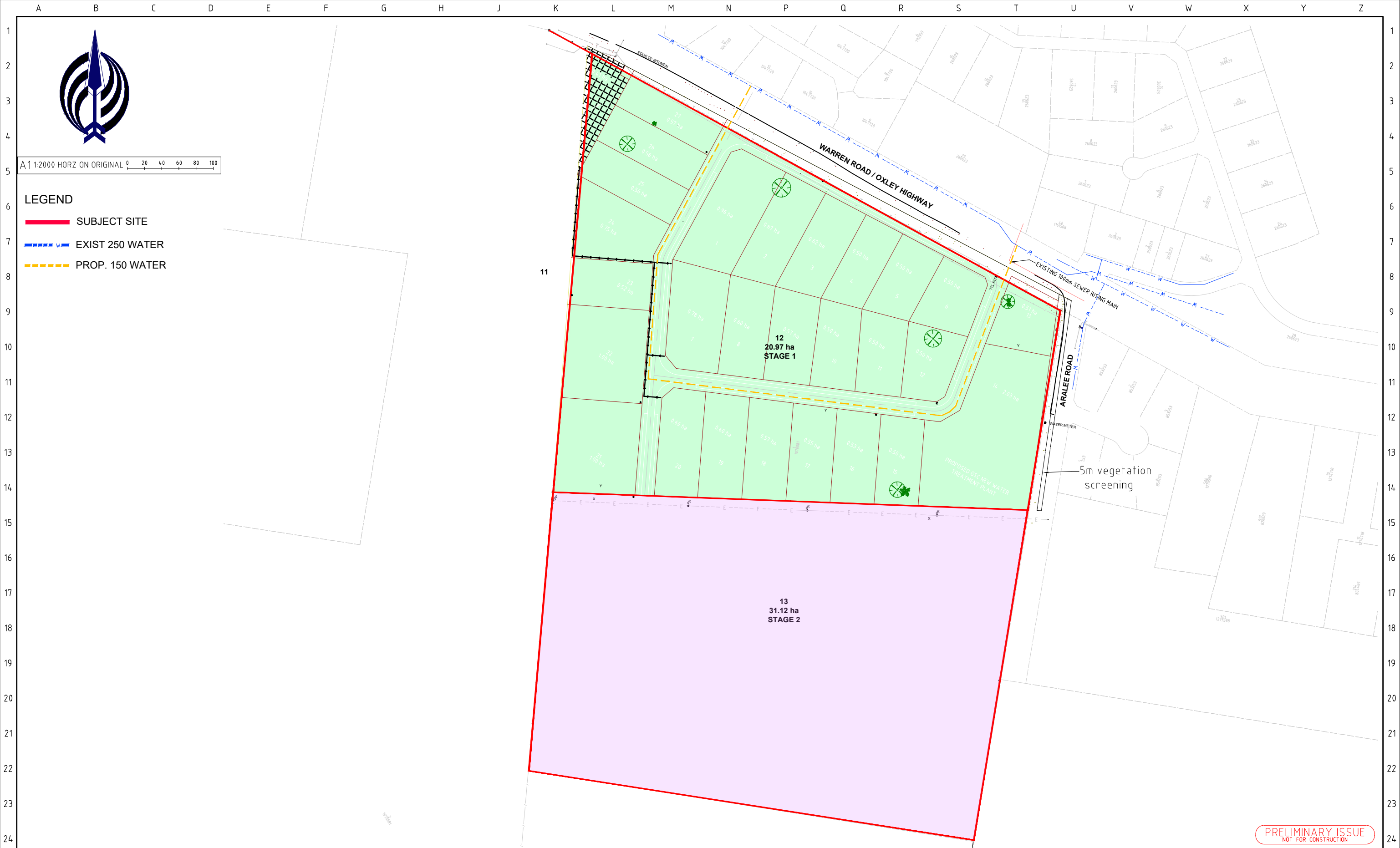
Water Infrastructure



A1 1:2000 HORZ ON ORIGINAL 0 20 40 60 80 100

LEGEND

- SUBJECT SITE
- - - EXIST 250 WATER
- - - PROP. 150 WATER



PRELIMINARY ISSUE
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CONSULTANT DETAILS: Wallace Infrastructure Design Pty Ltd Part of Wallace Design Group Pty Ltd ABN: 99 652 518 739 Suite 10, Level 1, 87 King Street Warners Bay, NSW Australia 2282 PO Box 850, Warners Bay, NSW 2282 T: (02) 4929 4109 E: mail@wdegroupp.com.au W: www.wdegroupp.com.au				DESIGNED: V.S. DATE: 07.02.2024 COMPANY: WID		TITLE: WATER SERVICING CONCEPT DEVELOPMENT OF LOT 1 DP 1070081, 361 OXLEY HIGHWAY, GILGANDRA					
				DRAWN: V.S. DATE: 07.02.2024 COMPANY: WID							
CHECKED: A.S. DATE: 07.02.2024 COMPANY: WID		APPROVED: A.S. DATE: 07.02.2024 COMPANY: WID		SIZE: A1	SCALE: 1:2000			INDEX No.	DRAWING No.	SHEET	REV No.
CONSULTANT REFERENCE No. 23403- SERVICE STRATEGY										002	0A



Appendix 3

Water Modelling Outputs



NETWORK LAYOUT

Average Day Flows

Network Table - Nodes at 3:00 Hrs

Node ID	Elevation m	Base Dem _z LPS	Demand LPS	Head m	Pressure m
Resvr 1	312	#N/A	-1.88	312	0
Junc 2	289.5	0	0	311.99	22.49
Junc 3	288.7	0.82	0.61	311.98	23.28
Junc 6	288	0	0	311.99	23.99
Junc 4	286.2	0.84	0.63	311.98	25.78
Junc 7	286	0	0	311.99	25.99
Junc 5	285.7	0.84	0.63	311.98	26.28

Peak Day Flows

Network Table - Nodes at 13:30 Hrs

Node ID	Elevation m	Base Dema LPS	Demand LPS	Head m	Pressure m
Resvr 1	312	#N/A	-5.67	312	0
Junc 2	289.5	0	0	311.96	22.46
Junc 3	288.7	1.453	1.89	311.87	23.17
Junc 6	288	0	0	311.94	23.94
Junc 4	286.2	1.453	1.89	311.85	25.65
Junc 7	286	0	0	311.94	25.94
Junc 5	285.7	1.453	1.89	311.85	26.15

Fire Flows @ Node 3

Network Table - Nodes at 13:30 Hrs

Node ID	Elevation m	Base Dema LPS	Demand LPS	Head m	Pressure m
Resvr 1	312	#N/A	-11.77	312	0
Junc 2	289.5	0	0	311.83	22.33
Junc 3	288.7	6.15	8	311.41	22.71
Junc 6	288	0	0	311.79	23.79
Junc 4	286.2	1.453	1.89	311.44	25.24
Junc 7	286	0	0	311.79	25.79
Junc 5	285.7	1.453	1.89	311.52	25.82



Appendix 4

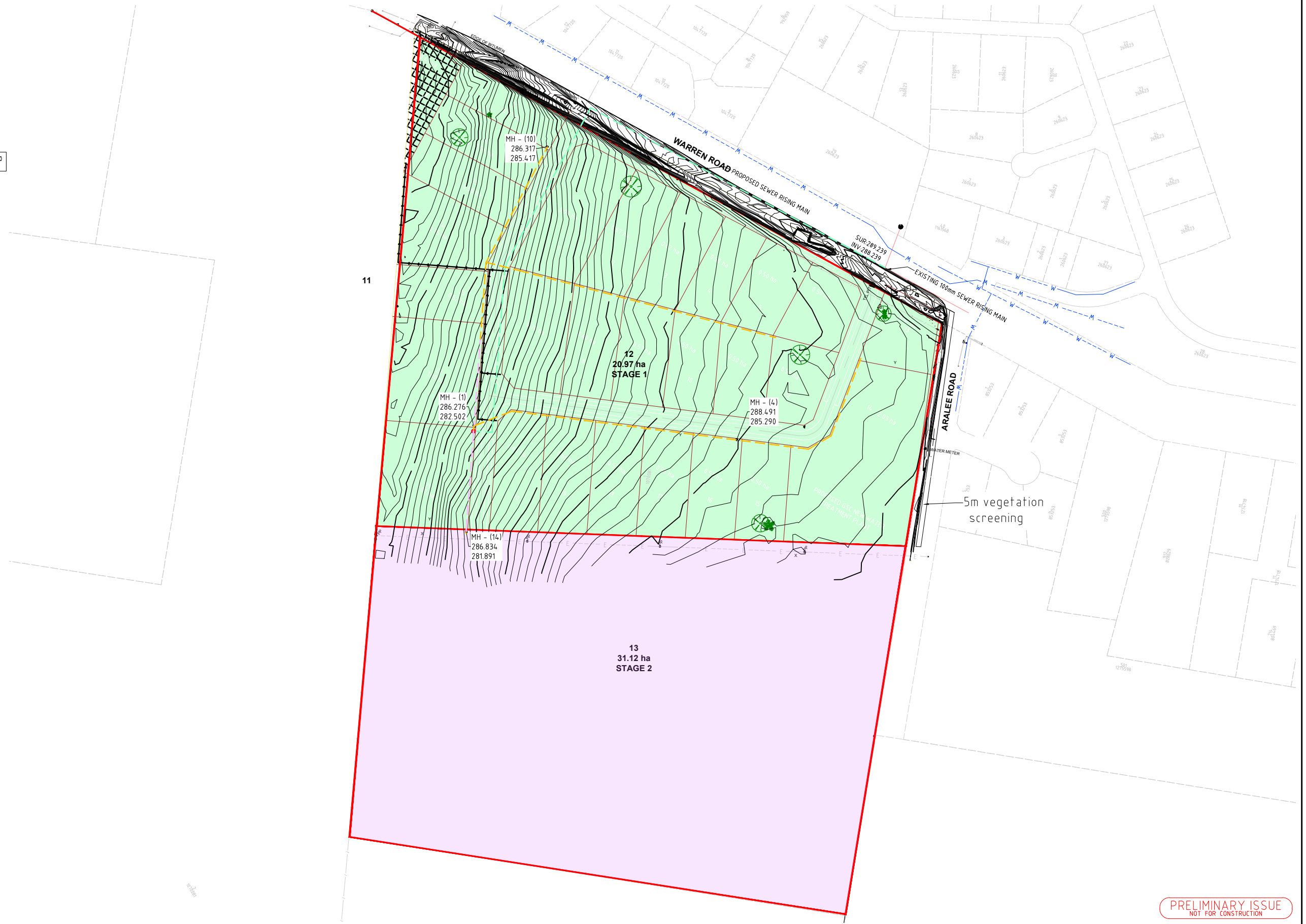
Sewer Infrastructure



A1:2000 HORZ ON ORIGINAL 0 20 40 60 80 100

LEGEND

- ▬ SUBJECT SITE
- ▬ EXISTING RISING MAIN
- ▬ PROPOSED 150 SEWER
- ▬ PROPOSED 450 SEWER
- ▬ PROPOSED RISING MAIN
- EXISTING SPS
- PROPOSED SPS



PRELIMINARY ISSUE
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		CONSULTANT DETAILS: Wallace Infrastructure Design Pty Ltd Part of Wallace Design Group Pty Ltd ABN: 99 652 518 739 Suite 10, Level 1, 87 King Street Warners Bay, NSW Australia 2282 PO Box 850, Warners Bay, NSW 2282 T: (02) 4929 4109 E: mail@wdegroupp.com.au W: www.wdegroupp.com.au				DESIGNED: V.S.	DATE: 07.02.2024	COMPANY: WID	TITLE: SEWER SERVICING CONCEPT DEVELOPMENT OF LOT 1 DP 1070081, 361 OXLEY HIGHWAY, GILGANDRA		
						DRAWN: V.S.	DATE: 07.02.2024	COMPANY: WID			
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VERSION 4 No. ORIGINAL ISSUE		V.S.	07.02.2024	CONSULTANT REFERENCE No. 23403- SERVICE STRATEGY		SIZE: A1	SCALE: 1:2000	INDEX No.	DRAWING No.	SHEET 002	REV No. 0A



Appendix 5

Estimating Spreadsheets

**PRELIMINARY ESTIMATING FORM
SEWER PUMPING STATIONS**

PROJECT DESCRIPTION:



Preliminary Estimate	
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Item No.	Item Description	Qty	Unit	Rate \$/unit	Amount \$
1	Preliminary Items				
	(a)Site Establishment and Disestablishment (Refer Table 8)	Item	Lump Sum		15000
	(b)Preparation and implementation of the Construction EMP, undertake environmental induction of all employees and proposed sub-contractors. (Refer Table 7)	Item	Lump Sum		3000
	(c)Preparation and implementation of the Safety Management Plan. (Refer Table 7)	Item	Lump Sum		5000
	(d)Preparation and implementation of the Traffic Control Plan. (Refer Table 7)	Item	Lump Sum		NA
2	Civil Works - Sewage Pump Station (1.5m dia to 8m dia.) (Table 1) Clear, excavate and backfill in OTR conditions and construct pipework and pump station wet well (depth measured from top roof to top floor slab) complete with aluminium hatch covers, screens and ancillary metal work and fittings. Supply and place concrete formwork, steel reinforcement, concrete for pump station, roof slab, and concrete thrust blocks.	Item	Lump Sum		258000
3	Pumps for Sewage Pumping Stations - Supply and install pumps and associated fittings, connection to pipework, testing and commissioning. (Refer Table 2)	Item	Lump Sum		25650
4	Electrical Switchboards for Sewage Pumping stations - Supply, fabrication and complete installation of electrical switchboard kiosk for sewage pump stations including connection to pumps, supply and install up to 25m of consumer mains from point of attachment(Refer Table 2)	Item	Lump Sum		60300
5	Telemetry for Sewage Pump Stations - Supply and install separate cabinet and controls in switchboard at pump station and connect, test and commission to enable control of the pump station operation as part of the HWC telemetry network. (Refer Table 2)	Item	Lump Sum		28400
6	Restoration of Surfaces (refer Table 3):				NA
7	Area Allowances - Extra over Item 2 for Sewage pump station area classification (Refer Table 4):	Item	Lump Sum		NA
8	Terrain Allowances - Extra over Item 2 for sewer pump station area classification. (Refer Table 5):	Item	Lump Sum		NA
9	Extra over Item 2 for Excavation below design depth including disposal of excavated material in the relevant area classification (Refer Table 6):		m3		NA
10	Extra over Item 2 for Excavation in rock (Refer Table 6)		m3		NA
11	Extra over Item 2 for Cut and fill earthworks including compaction (Refer Table 6):		m3		NA
12	Extra over Item 2 for Supply & place ballast (Refer Table 6)		tonne		NA
13	Extra over Item 2 for Importing and placement of select fill including compaction (Refer Table 6):		m3		NA
14	Supply all material and labour to undertake the access road(min 4m wide) and hardstand (Refer table 6):				
	(a) Prepare subgrade	40	m2	4.2	168
	(b) Supply, place and compact 150mm thick basecourse	40	m2	31	1240
	(e) Supply, place and compact two coat bitumen seal	40	m2	19	760
15	Dewatering for the following: (Table 6):				NA
16	Supply all plant, material and labour to undertake the following Piling works (Refer table 6):				NA
17	Supply al plant, material and labour to undertake the following Retaining Wall works (Refer table 6):				NA
18	Acid Sulphate soil and contaminated soil (Refer Table 6)				NA

19	Supply and Install valve pit concrete formwork, steel reinforced	Item	Lump Sum		7280
20	Supply and Install additional pipe Items outside station(Refer Table 6)	Item	Lump Sum		NA
21	Supply and install additional pipework items inside station (Refer table)		Lump Sum		NA
22	Supply and install Type 2 or 4 flow relief structures in accordance with Drgs SCP-502 and SCP-505 (Refer Table 6)	Item	Lump Sum		NA
23	Supply and install emergency storage structures (Refer Table 6)		L/m		NA
24	Supply and install fan forced ventilation (Refer Table 7)	Item	Lump Sum		NA
25	Supply and install Soil Bed Filter (Refer Table 7)	Item	Lump Sum		NA
26	Supply and install Odour Control - Iron Salts Dosing (Refer Table 7)	Item	Lump Sum		NA
27	Supply all power to the site(point of attachment) by Energy Aust (Refer Table 7)	Item	Lump Sum		NA
28	Pre commissioning and commissioning (Refer Table 7)	Item	Lump Sum		8000
29	Work as Executed Drawings (Refer Table 7)	Item	Lump Sum		6000
30	Preparation and submission of Operation and Maintenance Manuals (Refer Table 7)	Item	Lump Sum		4000
31	Land Matters (Refer Table 12)	Item	Lump Sum		NA
TOTAL FINAL ESTIMATED COST - SEWAGE PUMP STATION					
A. TOTAL ESTIMATED CONTRACT AWARD SUM					422798

B. PRE-CONSTRUCTION COST (Table 10)

Design	50735.76
Project management of Design	6088.2912
Sub Total(B1)	56824.0512
Pre-Construction Contingency (30% of B1)	17047.21536

TOTAL PRE-CONSTRUCTION COST (B)	\$73,871.27
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C. CONSTRUCTION COST

Total Estimated Contract Award Sum (A)	422798
Construction Management (Table 11)	42279.8
Sub Total (C1)	465077.8
Construction contingency (Table 12) (30% of C1)	139523.34

TOTAL CONSTRUCTION COST (C)	\$604,601.14
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TOTAL PRELIMINARY PROJECT ESTIMATE (B+C)	\$678,472.41
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SAY \$680,000.00

SEWER GRAVITY & RISING MAINS – PRELIMINARY

PROJECT DESCRIPTION: 361 Oxley Highway, Gilgandra

Detailed Estimate

Item No.	Item Description	Qty	Unit	Rate \$/unit	Amount \$
1	Site Establishment (Refer Table 9)	Item	Lump Sum		15,000
2	Site Disestablishment (Refer Table 9)	Item	Lump Sum		15,000
3	Preparation and implementation of the Construction EMP, undertake environmental induction of all employees and proposed sub-contractors.	Item	Lump Sum		
4	OHS&R Management				3000
4.1	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum		5000
4.2	Extra over item 4.1 above for preparation and implementation of the Traffic Control Plan.	Item	Lump Sum		3000
5	Construction of Sewer Gravity Mains (Refer Table 1)				
5.1	Field investigation and verification of depth and location of services along pipeline route including liaison with relevant authorities and arranging relocation and adjustment where required	Item	Lump Sum		3000
5.2	Supply all pipe materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes (Refer Table 1):				
	PVC Sewer Gravity Main Class SN8:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm	958	m	11	10538
	c) Nominal DN 225 mm				
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	Flowtite GRP Sewer Gravity mains				
	g) Nominal DN 450 mm	201	m	320	64320
	h) Nominal DN 525 mm		m		0
	i) Nominal DN 600 mm		m		0
	j) Nominal DN 675 mm		m		0
	k) Nominal DN 750 mm		m		0
	RC Sewer Gravity Mains				
	l) Nominal DN 900 mm		m		0
	m) Nominal DN 1050 mm		m		0
	n) Nominal DN 1200 mm		m		0
5.3	Supply all pipe fittings including gaskets and ss bolts (Refer table 1):	Item	Lump Sum		NA
5.4	Clear, excavate and backfill in OTR conditions at nominal depth up to 1.5m depth to invert for sewer gravity pipelines with pipe support Type 1 or 3 & Drawing SCP-200, trench support and disposal of excess excavated material including environmental erosion and sediment control. Includes lay, bed, compact, joint and test. Includes initial cleanup of disturbed areas of disturbed areas. Supply of materials, including construction of bulkheads and trenchstops for following pipe sizes:				
	PVC Sewer Gravity Main Class SN8:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm	958	m	75	71850
	c) Nominal DN 225 mm		m		0
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	Sewer Gravity mains				
	g) Nominal DN 450 mm	201	m	139	27939
	h) Nominal DN 525 mm		m		0
	i) Nominal DN 600 mm		m		0
	j) Nominal DN 675 mm		m		0
	k) Nominal DN 750 mm		m		0
	RC Sewer Gravity Mains				
	l) Nominal DN 900 mm				0
	m) Nominal DN 1050 mm				0
	n) Nominal DN 1200 mm				0
5.5	Extra over Item 5.3 for clearing of heavily tree covered areas including disposal of trees and rubbish from site		m2		NA
5.6	Extra over Item 5.3 for constructing pipelines under high voltage powerlines for the following pipe sizes:				NA

	PVC Sewer Gravity Main Class SN8:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm		m		0
	c) Nominal DN 225 mm		m		0
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	Sewer Gravity mains				
	g) Nominal DN 450 mm		m		0
	h) Nominal DN 525 mm		m		0
	i) Nominal DN 600 mm		m		0
	j) Nominal DN 675 mm		m		0
	k) Nominal DN 750 mm		m		0
	RC Sewer Gravity Mains				
	l) Nominal DN 900 mm		m		0
	m) Nominal DN 1050 mm		m		0
	n) Nominal DN 1200 mm		m		0
5.7	Extra over Item 5.3 for constructing pipelines in close proximity to existing underground power, gas and telecommunications/optic fibre cables for the following pipe sizes:				NA
	PVC Sewer Gravity Main Class SN8:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm		m		0
	c) Nominal DN 225 mm		m		0
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	Sewer Gravity mains				
	g) Nominal DN 450 mm		m		0
	h) Nominal DN 525 mm		m		0
	i) Nominal DN 600 mm		m		0
	j) Nominal DN 675 mm		m		0
	k) Nominal DN 750 mm		m		0
	RC Sewer Gravity Mains				
	l) Nominal DN 900 mm				
	m) Nominal DN 1050 mm				
	n) Nominal DN 1200 mm				
5.8	Extra over rate to Item 5.3 for Terrain allowance (Refer Table 6) for the following pipe sizes:				NA
	(a) Nominal DN 100		m		0
	(b) Nominal DN 150		m		0
	(c) Nominal DN 225		m		0
	(d) Nominal DN 300		m		0
	(e) Nominal DN 375		m		0
	(f) Nominal DN 450		m		0
	(g) Nominal DN 525		m		0
	(h) Nominal DN 600		m		0
	(i) Nominal DN 675		m		0
	(j) Nominal DN 750		m		0
	(k) Nominal DN 900		m		0
	(l) Nominal DN 1050		m		0
	(m) Nominal DN 1200		m		0
5.9	Extra over rate to Item 5.3 for additional excavation at depths to invert greater than 1.5m for the following pipe sizes for relevant area classification and and range of depth (Refer Table 2):				
	(a) Nominal DN 150 - >(1.5-3.00)	480	m	28	13440
	(b) Nominal DN 150 - >(3.5-4.0)	278	m	68	18904
	(c) Nominal DN 225		m		0
	(d) Nominal DN 300		m		0
	(e) Nominal DN 375		m		0
	(f) Nominal DN 450	201	m	127	25527
	(g) Nominal DN 525		m		0
	(h) Nominal DN 600		m		0
	(i) Nominal DN 675		m		0
	(j) Nominal DN 750		m		0
	(k) Nominal DN 900		m		0
	(l) Nominal DN 1050		m		0
	(m) Nominal DN 1200		m		0

5.1	Restoration of Surfaces (refer Table 5):			NA
	(a) Concrete kerb & gutter		m2	0
	(b) Concrete driveway		m2	0
	(c) Exposed aggregate & stamped driveway		m2	0
	(d) Concrete footpath		m2	0
	(e) Bitumen footpath		m2	0
	(f) Gravel pavement		m2	0
	(g) Standard bitumen pavement		m2	0
	(h) High-class bitumen pavement		m2	0
	(i) Pavers		m2	0
	(j) Turf		m2	0
	(k) Grass seeding		m2	0
5.11	Excavate, backfill, supply and install access chambers including base, chamber, cover & surround and access ladder for the following nominal diameter access chambers:			NA
	(a) Nominal DN 1000		each	0
	(b) Nominal DN 1500		each	0
	(c) Nominal DN 1800		each	0
5.12	Supply and install geotextile for the following pipe diameters:			NA
	(a) Nominal DN 100		m	0
	(b) Nominal DN 150		m	0
	(c) Nominal DN 200		m	0
	(d) Nominal DN 225		m	0
	(e) Nominal DN 300		m	0
	(f) Nominal DN 375		m	0
	(g) Nominal DN 450		m	0
	(h) Nominal DN 525		m	0
	(i) Nominal DN 600		m	0
	(j) Nominal DN 675		m	0
	(k) Nominal DN 750		m	0
	(l) Nominal DN 900		m	0
	(m) Nominal DN 1050		m	0
	(n) Nominal DN 1200		m	0
	(o) Nominal DN 1350		m	0
5.13	Extra over item 5.3 for Excavation in rock and disposal of excess excavated material(Refer Table 7)		m3	NA
5.14	Extra over rate to Item 5.3 for Additional compaction (Refer Table 7)		m3	NA
5.15	Extra over rate to Item 5.3 for Excavate below specified design depth where directed including disposal of excess excavated material(Refer Table 7)		m3	NA
5.16	Extra over Item 5.3 to Supply & place & compact sand (Refer Table 7)		m3	NA
5.17	Extra over Item 5.3 for supply, place and compact stabilised sand cement (14:1) backfill			NA
5.18	Extra over rate to Item 5.3 for Supply & place ballast including disposal of excess excavated material (Refer Table 7)		m3	NA
5.19	Extra over Item 5.3 for Supply, place and compact aggregate (Refer Table 7)		m3	NA
5.2	Dewatering of trench including establishment & disestablishment (Table 7)		m	NA
5.21	Acid sulphate and Contaminated soil (Table 7)			
	(a) Testing, Handling and treatment of acid sulphate soils		m3	NA
	(b) Initial testing for acid sulphate soils and prepare and submit report		each test	NA
	(c) Disposal off site of contaminated soil		m3	NA
5.22	Road crossing (refer Table 7)			
	(a) Thrust bore/directional drilling		m	NA
	(b) Road pavement backfill, compaction and surface restoration		m	NA
5.23	Extra over item 5.21 for thrust boring/directional drifting under existing rail line (refer table 7, note 7)		m	NA
5.24	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge(if required) excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes: (Refer Table 7)			NA
	(a) Nominal DN 300 MSCL		m	0
	(b) Nominal DN 375 MSCL		m	0

	(c) Nominal DN 450 MSCL		m		0
	(d) Nominal DN 500 MSCL		m		0
	(e) Nominal DN 600 MSCL		m		0
5.25	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds for the following MSCL pipe sizes: (Refer Table 7)				NA
	(a) Nominal DN 300 MSCL		m		0
	(b) Nominal DN 375 MSCL		m		0
	(c) Nominal DN 450 MSCL		m		0
	(d) Nominal DN 500 MSCL		m		0
	(e) Nominal DN 600 MSCL		m		0
5.26	Preparation of line sheets (Refer Table 8)	16	each	92	1472
5.27	Acceptance testing - gravity main (Refer Table 8)	1158	m	1.3	1505.4
5.28	Land Matters (Refer Table 13)	Item	Lump Sum		NA
Sub Total Sewer Gravity Mains					279495.4
6	Construction of Sewer Rising Mains (Table 1)				
6.1	Field investigation and verification of depth and location of services along pipeline route including liaison with relevany authorities and arranging relocation and adjustment where required	Item	Lump Sum		3000
6.2	Supply all pipes materials, including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes (Refer Table 1):				3000
	PVC Sewer Rising Main Class 12:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm	730	m	26	18980
	c) Nominal DN 200 mm		m		0
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	DICL Sewer Rising mains Class 9				
	g) Nominal DN 100 mm		m		0
	h) Nominal DN 150 mm		m		0
	i) Nominal DN 200 mm		m		0
	j) Nominal DN 250 mm		m		0
	k) Nominal DN 300 mm		m		0
	l) Nominal DN 375 mm		m		0
	m) Nominal DN 450 mm		m		0
	n) Nominal DN 500 mm		m		0
	o) Nominal DN 600 mm		m		0
	p) Nominal DN 750 mm		m		0
	MSCL Sewer Rising Mains				
	q) Nominal DN 900 mm		m		0
6.3	Supply all pipe fittings including gaskets and ss bolts (Refer table 1):	Item	Lump Sum		
6.4	Clear, excavate and backfill in OTR conditions at nominal depth up to 1.5m depth to invert for sewer rising mains with pipe support Type 1 or 3 & Drawing SCP-200, trench support and disposal of excess excavated material including environmental erosion and sediment control. For steel pipes internal and external welding and testing of welds. Includes lay, bed, compact, joint and test. Includes initial cleanup of disturbed areas of disturbed areas. Supply of materials, including construction of bulkheads and trenchstops for following pipe sizes:		m		NA
	PVC Sewer Rising Main Class 12:				
	a) Nominal DN 100 mm		m		0
	b) Nominal DN 150 mm	730	m	68	49640
	c) Nominal DN 200 mm		m		0
	d) Nominal DN 250 mm		m		0
	e) Nominal DN 300 mm		m		0
	f) Nominal DN 375 mm		m		0
	DICL Sewer Rising Mains Class K9				NA
	g) Nominal DN 100 mm		m		0
	h) Nominal DN 150 mm		m		0
	i) Nominal DN 200 mm		m		0
	j) Nominal DN 250 mm		m		0
	k) Nominal DN 300 mm		m		0
	l) Nominal DN 375 mm		m		0

	m) Nominal DN 450 mm			m		0
	n) Nominal DN 500 mm			m		0
	o) Nominal DN 600 mm			m		0
	p) Nominal DN 750 mm			m		
	MSCL Sewer Rising Mains					
	q) Nominal DN 900 mm			m		0
6.5	Extra over Item 6.5 for clearing of heavily tree covered areas including disposal of trees and rubbish from site			m2		NA
6.6	Extra over Item 6.5 for constructing pipelines under high voltage powerlines for the following pipe sizes:					NA
	PVC Sewer Rising Main Class 12:					
	a) Nominal DN 100 mm			m		0
	b) Nominal DN 150 mm			m		0
	c) Nominal DN 200 mm			m		0
	d) Nominal DN 250 mm			m		0
	e) Nominal DN 300 mm			m		0
	f) Nominal DN 375 mm			m		0
	DICL Sewer Rising Mains Class K9					NA
	g) Nominal DN 100 mm			m		0
	h) Nominal DN 150 mm			m		0
	i) Nominal DN 200 mm			m		0
	j) Nominal DN 250 mm			m		0
	k) Nominal DN 300 mm			m		0
	l) Nominal DN 375 mm			m		0
	m) Nominal DN 450 mm			m		0
	n) Nominal DN 500 mm			m		0
	o) Nominal DN 600 mm			m		0
	p) Nominal DN 750 mm			m		0
	MSCL Sewer Rising Mains					NA
	q) Nominal DN 900 mm			m		0
6.7	Extra over Item 6.5 for constructing pipelines in close proximity to existing underground power, gas and telecommunications/optic fibre cables for the following pipe sizes:					NA
	PVC Sewer Rising Main Class 12:					
	a) Nominal DN 100 mm			m		0
	b) Nominal DN 150 mm			m		0
	c) Nominal DN 200 mm			m		0
	d) Nominal DN 250 mm			m		0
	e) Nominal DN 300 mm			m		0
	f) Nominal DN 375 mm			m		0
	DICL Sewer Rising Mains Class K9					NA
	g) Nominal DN 100 mm			m		0
	h) Nominal DN 150 mm			m		0
	i) Nominal DN 200 mm			m		0
	j) Nominal DN 250 mm			m		0
	k) Nominal DN 300 mm			m		0
	l) Nominal DN 375 mm			m		0
	m) Nominal DN 450 mm			m		0
	n) Nominal DN 500 mm			m		0
	o) Nominal DN 600 mm			m		0
	p) Nominal DN 750 mm			m		0
	MSCL Sewer Rising Mains					NA
	q) Nominal DN 900 mm			m		0
6.8	Extra over rate to Item 6.5 for Terrain allowance (Refer Table 6) for the following pipe sizes:					NA
	a) Nominal DN 100 mm			m		0
	b) Nominal DN 150 mm	350		m	90	31500
	c) Nominal DN 200 mm			m		0
	d) Nominal DN 250 mm			m		0
	e) Nominal DN 300 mm			m		0
	f) Nominal DN 375 mm			m		0
	g) Nominal DN 450 mm			m		0
	h) Nominal DN 500 mm			m		0
	i) Nominal DN 600 mm			m		0
	j) Nominal DN 750 mm			m		0
	k) Nominal DN 900 mm			m		0

6.9	Extra over rate to Item 6.5 for additional excavation at depths to invert greater than 1.5m for the following pipe sizes in the relevant area classification (Refer Table 2):				
	a) Nominal DN 100 mm		m		0
	a) Nominal DN 150 mm		m		0
	a) Nominal DN 200 mm		m		0
	b) Nominal DN 250 mm		m		0
	c) Nominal DN 300 mm		m		0
	d) Nominal DN 375 mm		m		0
	e) Nominal DN 450 mm		m		0
	f) Nominal DN 500 mm		m		0
	g) Nominal DN 600 mm		m		0
	h) Nominal DN 750 mm		m		0
	i) Nominal DN 900 mm		m		0
6.1	Restoration of Surfaces (refer Table 5):				
	(a) Concrete kerb & gutter		m2		0
	(b) Concrete driveway		m2		0
	(c) Exposed aggregate & stamped driveway		m2		0
	(d) Concrete footpath		m2		0
	(e) Bitumen footpath		m2		0
	(f) Gravel pavement		m2		0
	(g) Standard bitumen pavement		m2		0
	(h) High-class bitumen pavement		m2		0
	(i) Pavers		m2		0
	(j) Turf		m2		0
	(k) Grass seeding		m2		0
6.11	Supply and install geotextile for the following pipe diameters:				NA
	(a) Nominal DN 100		m		0
	(b) Nominal DN 150		m		0
	(c) Nominal DN 200		m		0
	(d) Nominal DN 225		m		0
	(e) Nominal DN 300		m		0
	(f) Nominal DN 375		m		0
	(g) Nominal DN 450		m		0
	(h) Nominal DN 525		m		0
	(i) Nominal DN 600		m		0
	(j) Nominal DN 675		m		0
	(k) Nominal DN 750		m		0
	(l) Nominal DN 900		m		0
	(m) Nominal DN 1050		m		0
	(n) Nominal DN 1200		m		0
	(o) Nominal DN 1350		m		0
6.12	Extra over item 6.5 for Excavation in rock and disposal of excess excavated material(Refer Table 7)		m3		NA
6.13	Extra over rate to Item 6.5 for Additional compaction (Refer Table 7)		m3		NA
6.14	Extra over rate to Item 6.5 for Excavate below specified design depth where directed including disposal of excess excavated material(Refer Table 7)		m3		NA
6.15	Extra over Item 6.5 to Supply & place & compact sand (Refer Table 7)		m3		NA
6.16	Extra over Item 6.5 for supply, place and compact stabilised sand cement (14:1) backfill		m3		NA
6.17	Extra over Item 6.5 for Supply, place and compact aggregate (Refer Table 7)		m3		NA
6.18	Extra over rate to Item 6.5 for Supply & place ballast including disposal of excess excavated material (Refer Table 7)		m3		NA
6.19	Dewatering of trench including establishment & disestablishment (Table 7)		m		NA
6.2	Acid sulphate and Contaminated soil				NA
	(a) Testing, Handling and treatment of acid sulphate soils		m3		NA
	(b) Initial testing for acid sulphate soils and prepare and submit report		each test		NA
	(c) Disposal off site of contaminated soil		m3		NA
6.21	Supply and place treated timber piling for pipe support	Item	Lump Sum		NA
6.22	Road crossing (refer Table 7)				

	(a) Trust bore/directional drilling		m		0
	(b) Road pavement backfill, compaction and surface restoration		m		0
6.23	Extra over item 6.23 for thrust boring/directional drilling under existing rail line (refer table 7, note 7)		m		0
6.24	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge(if required) excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes: (Refer Table 7)				NA
	(a) Nominal DN 300 MSCL		m		0
	(b) Nominal DN 375 MSCL		m		0
	(c) Nominal DN 450 MSCL		m		0
	(d) Nominal DN 500 MSCL		m		0
	(e) Nominal DN 600 MSCL		m		0
6.25	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds for the following MSCL pipe sizes: (Refer Table 7)				NA
	(a) Nominal DN 300 MSCL		m		0
	(b) Nominal DN 375 MSCL		m		0
	(c) Nominal DN 450 MSCL		m		0
	(d) Nominal DN 500 MSCL		m		0
	(e) Nominal DN 600 MSCL		m		0
6.26	Supply and install additional pipe items (Refer Table 8)	Item	Lump Sum		
6.27	Supply and install additional DI/CL fittings (Refer Table 8)	Item	Lump Sum		NA
6.28	Supply and install valve pits (Refer table 8)	Item	Lump Sum		NA
6.29	Supply and construct vent stacks (Refer Table 8)	1	each	8500	8500
6.3	Preconstruction record (Refer Table 8)				
	(a) Photographic	730	m	0.6	438
	(b) Video		m		0
6.31	Work as Executed Drawings (Refer Table 8)	Item	Lump Sum		17200
6.32	Preparation of line sheets (Refer Table 8)		m		0
6.33	Acceptance testing - gravity main (Refer Table 8)		each		0
6.34	Land Matters (Refer Table 13)	Item	Lump Sum		NA
Sub Total Sewer Rising Mains					132258
Sub Total Sewer Gravity Mains & Sewer Rising Mains					411753.4
A. TOTAL ESTIMATED CONTRACT AWARD SUM					411753.4

B. PRE-CONSTRUCTION COST (Table 10)

Design	49410.408
Project management of Design	9882.0816
Sub Total(B1)	59292.4896
Pre-Construction Contingency (20% of B1)	11858.49792

TOTAL PRE-CONSTRUCTION COST (B)	\$130,443.48
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C. CONSTRUCTION COST

Total Estimated Contract Award Sum (A)	411753.4
Construction Management (Table 11)	41175.34
Sub Total (C1)	452928.74
Construction contingency (Table 12) (20% of C1)	90585.748

TOTAL CONSTRUCTION COST (C)	\$543,514.49
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TOTAL PRELIMINARY PROJECT ESTIMATE (B+C)	\$673,957.97
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SAY \$675,000.00

WATER RETICULATION & TRUNK MAINS – PRELIMINARY

PROJECT DESCRIPTION:

361 Oxley Highway, Gilgandra

Item No.	Item Description	Qty	Unit	Preliminary Estimate	
				Rate \$/unit	Amount \$
1	Site Establishment (Refer Table 9)	Item	Lump Sum		6000
2	Site Disestablishment (Refer Table 9)	Item	Lump Sum		6000
3	Preparation and implementation of the Construction EMP, undertake environmental induction of all employees and proposed sub-contractors.	Item	Lump Sum		3000
4	OHS&R Management				
4.1	Preparation and implementation of the Safety Management Plan.	Item	Lump Sum		5000
4.2	Extra over item 4.1 above for preparation and implementation of the Traffic Control Plan.	Item	Lump Sum		3000
5	Construction of Reticulation Watermains (Refer Table 1)				
5.1	Field Investigation and verification of depth and location of services along pipeline route including liaison with relevant authorities and arranging relocation and adjustment where required	Item	Lump Sum		2,500
5.2	Supply all pipes materials including detector tape, pipe protection wrapping, rubber rings and lubricant for following pipe sizes (Refer Table 1):				
	a) Nominal DN 150 mm PVC class 16 pipe.	928	m	26	24128
5.3	Supply all pipe fittings including gaskets and ss bolts (Refer Table 1):	Item	Lump		
5.4	Clear, excavate and backfill in OTR conditions at nominal depth up to 1.5m depth to invert for reticulation pipelines with pipe support Type B or D & Drawing WCP-202 and disposal of excess excavated material including environmental erosion and sediment control. Includes Lay, bed, joint and test. Includes initial cleanup of disturbed areas and consumer service connections. Supply of materials, including detector tape, pipe protection wrapping and construction of thrust restraints, bulkheads and trenchstops for following pipe sizes (Refer Table 1):				
	a) Nominal DN 150 mm PVC class 16 pipe.	928	m	59	54752
5.5	Extra over Item 5.5 for constructing pipelines under high voltage powerlines for the following pipe sizes:				na
5.6	Extra over Item 5.5 for constructing pipelines in close proximity to existing underground power, gas and telecommunications/optic fibre cables for the following pipe sizes:				na
5.7	Extra over Item 5.5 for clearing of heavily tree covered areas including disposal of trees and rubbish from site		m2		na
5.8	Supply additional service connection pipe and fittings and install (Refer Table 4)	Item	Lump Sum		na
5.9	Extra over rate to Item 5.5 for Terrain allowance (Refer Table 6) for the following pipe sizes:				na

5.10	Extra over rate to Item 5.5 for additional excavation at depths to invert greater than 1.5m including disposal of excess excavated material for the following pipe sizes in the relevant area classification (Refer Table 3):				na
5.11	Restoration of Surfaces (refer Table 5):				na
5.12	Extra over item 5.5 for Excavation in rock and disposal of excess excavated material(Refer Table 7)		m3		na
5.13	Extra over rate to Item 5.5 for Additional compaction (Refer Table 7)		m3		na
5.14	Extra over rate to Item 5.5 for Excavate below specified design depth where directed including disposal of excess excavated material(Refer Table 7)		m3		na
5.15	Extra over Item 5.5 to Supply & place & compact sand (Refer Table 7)		m3		na
5.16	Extra over Item 5.5 for supply, place and compact stabilised sand cement (14:1) backfill		m3		na
5.17	Extra over Item 5.5 for supply, place and compact aggregate (Refer Table 7)		m3		na
5.18	Extra over rate to Item 5.5 for Supply & place ballast including disposal of excess excavated material (Refer Table 7)		m3		na
5.19	Dewatering of trench including establishment and disestablishment (Table 7)		m		na
5.2	Acid Sulphate Soil and Contamination (Refer Table 7)				na
5.21	Supply and place treated timber piling for pipe support	Item	Lump Sum		na
5.22	Road crossing (refer Table 7)				na
5.23	Extra over item 5.23 (a) for thrust boring/directional drilling under existing rail line (Refer table 7, note 7)		m		na
5.24	Supply and installation of pipe river crossing including supply of MSCL pipe, internal and external welding, testing of welds and 150 thick concrete encasement. Also includes mobilisation and demobilisation of dredge(if required) excavation & disposal of excavated material, backfilling, lay, bed and test for the following MSCL pipe sizes: (Refer Table 7)				na
5.25	Supply and installation of pipe aerial creek crossing including supply of MSCL pipe with protection coating, internal and external welding, testing of welds. For the following MSCL pipe sizes: (Refer Table 7)				na
5.26	Supply and Install additional pipe Items (Refer Table 8) (Note: show all items for detailed estimate)	Item	Lump Sum		na
5.27	Supply and install additional DICL fittings (Refer Table 8) (Note: show all fittings for detailed estimate)	Item	Lump Sum		na
5.28	Supply and Install valve pits (Refer table 8) (Note: show all pit sizes for detailed estimate)	Item	Lump Sum		na
5.29	Supply and install a complete single flowmeter including in-ground concrete pit with aluminium covers and separate in-ground isolating stop valves upstream of flowmeter with bypass. (Refer Table 8)	Item	Lump Sum		na
5.30	Preconstruction record (Refer Table 8)				
	(a) Photographic	928	m	0.6	556.8
	(b) Video		m		0
5.31	Work as Executed Drawings (Refer Table 8)	928	m	8	7424
5.32	Preparation of line sheets (Refer Table 8)	10	m	92	920
5.33	Land Matters (Refer Table 13)	Item	Lump Sum		na

5.34	Sub Total Reticulation Mains				113280.8
TOTAL ESTIMATED CONTRACT AWARD SUM (PRELIMINARY OR DETAILED)					113280.8

PRE-CONSTRUCTION COST (Table 10)

Design	16992.12
Project management of Design	2039.0544
Sub Total(B1)	19031.1744
Pre-Construction Contingency (30% of B1)	5709.35232

TOTAL PRE-CONSTRUCTION COST (B)	\$24,740.53
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CONSTRUCTION COST

Total Estimated Contract Award Sum (A)	113280.8
Construction Management (Table 11)	20000
Sub Total (C1)	133280.8
Construction contingency (Table 12) (30% of C1)	39984.24

TOTAL CONSTRUCTION COST (C)	\$173,265.04
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TOTAL PRELIMINARY PROJECT ESTIMATE (B+C) (PRELIMINARY OR DETAILED)	\$198,005.57
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say \$200,000.00