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Independent Estimates Report – Augmentation and Mains Replacement Projects

7 November 2016

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Independent Estimates Report- Augmentation and Mains Replacement Projects


Rev	Description	Author	Review	Advisian Approval	Date
0	Draft Report	<u>John Connell</u>	<u>David Toms</u>	_____	26 Sept. 2016
1	Revised Report	<u>Max Canta</u>	<u>John Connell</u>	_____	20 Oct 2016
2	Final Report	<u>John Connell</u>	<u>John Connell</u>	_____	2 Nov 2016
3	Final Report	<u>Max Canta</u>	<u>John Connell</u>	_____	4 Nov 2016
4	Final Report	<u>Max Canta</u>	<u>John Connell</u>		7 Nov 2016



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Glossary of Terms

AER – Australian Energy Regulator

Cut & cover – conventional trenching method

Dia – diameter

GIS – Geo Spatial Information System

HDD – Horizontal Directional Drilling

MG – Multinet Gas

M - million

m – metre

m/d –metres per day

mm - millimetre

PE Pipes – polyethylene pipes

ST Pipes – steel pipes



Executive Summary

Multinet Gas engaged Advisian to independently estimate twenty one (20) proposed projects.

Estimated projects comprise:

- Low pressure to high pressure mains renewals (6 No.);
- Medium pressure to high pressure mains renewals or replacement (4 No.); and
- Various projects involving renewals and/or augmentation work (10 No.).

The estimated costs of these projects are to be included in the forthcoming access arrangement period report to the AER (2018 – 2022).

Advisian have based all estimates on first principles estimation, benchmarked rates and current market knowledge. The detailed estimates are included in Appendix A and summarised in Table 1 below. Some estimates include allowances for difficult service works; in particular Projects MG-2016-01 to MG-2016-06 and the make of these additional cost allowances are detailed in Appendix B.

Table 1- Estimated Project Costs

Project Number	Project	Construction Cost	Total Length/Dia. of New Mains
MG-2016-01	Dandenong LP – HP Mains Renewal	\$3.77 M	12,256 m / 63 PE
MG-2016-02	St. Kilda LP – HP Mains Renewal	\$4.28 M	6,007 m / 63 PE
MG-2016-03	Southbank LP – HP Mains Renewal	\$2.64 M	6,987 m / 63 PE
MG-2016-04	Toorak LP – HP Mains Renewal	\$2.88 M	5,874 m / 63 PE
MG-2016-05	Elwood LP – HP Mains Renewal	\$17.23 M	25,329 m / 63 PE
MG-2016-06	Graham St, Port Melbourne MP Cast Iron Mains Replacement	\$4.77 M	7,361 m / 63 PE & 180 PE
MG-2016-07	Clancys Road, Korumburra Augmentation Project	\$0.76 M	2,400 m/ 100 ST & 125 PE



Project Number	Project	Construction Cost	Total Length/Dia. of New Mains
MG-2016-08	Old Coach Road, Kalorama Augmentation Project	\$0.73 M	1,700 m / 125 PE
MG-2016-09	Selkirk Ave, Knox Augmentation Project	\$0.20 M	700 m / 63 PE
MG-2016-10	Bedford Road, Ringwood Augmentation Project	\$0.13 M	150 m / 63 PE
MG-2016-11	Colman Road, Warrandyte South Augmentation Project	\$ 0.02 M	20 m / 125 PE
MG-2016-12	Warrandyte- Ringwood Road, Warrandyte South Augmentation Project	\$0.07 M	150m / 63 PE
MG-2016-13	Braden Brae Drive, Warranwood Augmentation Project	\$0.05 M	100 m / 63 PE
MG-2016-14	Oakleigh Augmentation Project	\$11.25 M	6,700 m / 300ST & 800 m / 180 PE
MG-2016-15	Weeden Dr, Vermont MP-HP Renewal	\$7.13 M	17,659 m / 63 PE
MG-2016-16	King Arthur Dr, Glen Waverley MP-HP Renewal	\$8.54 M	22,349 m / 63 PE
MG-2016-17	'Like for Like' MP-HP Cast Iron Replacement	\$6.19 M	8,082 m (diameters range between 63 and 300mm)
MG-2016-18	Clayton South MP-HP Cast Iron Renewal	\$1.47 M	4,100 m / 63 PE
MG-2016-19	Sherbrooke Road, Sassafras Augmentation Project	\$0.89 M	1,500 m / 125 PE
MG-2016-21	Lorimer Street, Docklands Augmentation Project	\$1.20 M	1,400 m / 180 PE

1 Background

1.1 Advisian

Advisian (formerly Evans & Peck) is a global business offering business advisory, cost engineering, financial and decision modelling, policy and regulatory analysis services.

Advisian provides project and business solutions to clients involved in developing, operating and maintaining physical assets in the infrastructure and resources industries.

We support clients throughout the world, drawing on a network of expert consultants from our permanent bases in Australia, Asia, Europe and the Americas. This means that collaboration is at the heart of our operations, and deep collective thinking at the forefront of our services resulting in the best Advisian resources providing innovative, leading-edge solutions for our clients.

As an independent, wholly owned subsidiary of WorleyParsons, Advisian provides clients with a vast advisory network through the Group's combined presence in more than 40 countries worldwide.

Our people focus on seven primary sectors – Power, Transport, Minerals & Metals, Hydrocarbons, Social Infrastructure, Water and Law Firms.

Advisian was acquired by WorleyParsons Limited in 2009 and we continue to operate independently.

Advisian services include independent assessment of capital costs by both top down and bottom up cost assessment for a variety of utility stakeholders in multiple jurisdictions. In addition to Multinet Gas, Advisian also provide independent estimation services to Jemena, SA Water, City West Water, VicRoads and the Level Crossing Removal Authority.

Multinet Gas is operating in a regulated environment under Victorian state based regulatory arrangements, with the Australian Energy Regulator (AER) being the responsible body for the economic regulation of natural gas transmission and distribution in Victoria. Advisian has professional estimators with diverse construction industry experience. We are not a quantity surveying firm and as such provide first principles risk adjusted independent construction estimates. An independent external approach ensures Multinet Gas receive project costs based on current construction estimating cost experience.

1.2 Advisian Service Lines

Our services cover the full suite of strategic advisory services – from concept development through to operational support, and include:

- Policy & Strategy
- Delivery Support



- Economic
- Business Case
- Financial
- Transaction Management and procurement
- Contractual Services and Forensic Analysis
- Portfolio/ Program/ Project Excellence
- Operational Readiness
- Operational Support

1.3 Quality Management System

Advisian has a Quality Management System certified to AS/NZS ISO 9001:2008 Governance Statement.

2 Information Received From Multinet Gas

The following information, received from Multinet Gas, forms the basis for the quantities used in the development of the estimated costs:

- Total length of new mains from Multinet Gas's GIS system,
- Site location for each of the renewal/replacement project,
- Scope drawings indicating tie-ins and cut off locations,
- Street Walk reports where appropriate.

3 Development of Cost Estimates

The Construction Cost Estimate was developed using 'first principles' estimation to the following cost elements:

- Direct costs:
 - Unit rates inclusive of:
 - Labour;
 - Plant;
 - Materials;
 - Subcontractor.
- Indirect costs:
 - Typical industry benchmarking for design and planning, supervision, site establishment and traffic management.
- Overheads and Margin:

Industry values typically vary between 8-14% of the construction cost, depending on the type of project. Advisian have assumed 10% of the construction cost for these projects which is considered the industry percentage allowance for projects of this type.



The Total Construction Cost is the sum of the direct cost, indirect cost and contractor's overheads and margin.

Escalation has not been included in the cost estimates.

4 Costing Assumptions

The estimates have generally been developed using the assumptions indicated in Table 2:

Table 2 - General Assumption

1. Daily work crew	1 Supervisor + 5 man crew (main & service installers)
2. Daily plant	2 excavators, 1 tandem tipper, 1 bobcat
3. Trenching (cut & cover)	Production rates vary depending on location
4. Horizontal Directional Drilling	Production rates vary depending on access/location
5. Design, planning, investigations	8% (Direct) Construction Cost
6. Management & Supervision	12% (Direct) Construction Cost
7. Site Establishment	2% (Direct) Construction Cost
8. Traffic Management	Percentage rates vary depending on location
9. Insurances	0.5% (Direct) Construction Cost
10. As-Built Drawings	0.5% (Direct) Construction Cost

5 Project Specific Cost Assumptions

The assumptions in Table 3 are specific to each project and have been determined in collaboration with senior Multinet Gas personnel, benchmarked rates and from similar projects and experience:

Table 3 - Specific Project Assumptions

Project	Estimated Cost	Specific Assumptions
Dandenong LP – HP Mains Renewal	\$3.77 M	Productivity – Insertion method 60m/d Productivity – HDD 40m/d Complex Services



Project	Estimated Cost	Specific Assumptions
		Traffic Management 7%
St. Kilda LP – HP Mains Renewal	\$4.28 M	Productivity – Insertion method 40m/d Productivity – HDD 30m/d Complex Services Traffic Management 7%
Southbank LP – HP Mains Renewal	\$2.64 M	Productivity – Insertion method 40m/d Productivity – HDD 30m/d Complex Services Traffic Management 7%
Toorak LP – HP Mains Renewal	\$2.88 M	Productivity – Insertion method 50m/d Productivity – HDD 40m/d Complex Services Traffic Management 7%
Elwood LP – HP Mains Renewal	\$17.23 M	Productivity – Insertion method 50m /d Productivity – HDD 30m/d Complex Services Traffic Management 6%
Graham St, Port Melbourne MP Cast Iron Mains Replacement	\$4.77 M	Productivity – Insertion method 50m/d Productivity – HDD 30m/d Productivity – Cut & Cover 20m /d Complex Services New District Regulator cost excluded Traffic Management 7%
Clancys Road, Korumburra Augmentation Project	\$0.76 M	Productivity – Cut & Cover 36m /d (100ST) ; 48m/d (125 PE) 50% trench requires crushed rock backfill Traffic Management 3%



Project	Estimated Cost	Specific Assumptions
		Environmental Allowances 10%
Old Coach Road, Kalorama Augmentation Project	\$0.73 M	Productivity – Cut & Cover 40m /d (125 PE) 100% trench requires crushed rock backfill Traffic Management 3% Environmental Allowances 12%
Selkirk Ave, Knox Augmentation Project	\$0.20 M	Productivity – Cut & Cover 60m /d (63 PE) 30% trench requires crushed rock backfill Traffic Management 3% Environmental Allowances 3%
Bedford Road, Ringwood Augmentation Project	\$0.13 M	Productivity – Cut & Cover 20m /d (63 PE) 100% trench requires crushed rock backfill Crew & plant size reduced Traffic Management 20%
Colman Road, Warrandyte South Augmentation Project	\$ 0.02 M	Productivity – Cut & Cover 20m /d (125 PE) 100% trench requires crushed rock backfill Crew & plant size reduced Traffic Management 8% Environmental Allowances 15%
Warrandyte- Ringwood Road, Warrandyte South Augmentation Project	\$0.07 M	Productivity – Cut & Cover 25m /d (63 PE) 100% trench requires crushed rock backfill Crew & plant size reduced Traffic Management 5% Environmental Allowances 12%
Braden Brae Drive, Warranwood Augmentation Project	\$0.05 M	Productivity – Cut & Cover 25m /d (63 PE) 100% trench requires crushed rock backfill Crew & plant size reduced Traffic Management 8%



Project		Estimated Cost	Specific Assumptions
			Environmental Allowances 5%
Oakleigh Augmentation Project		\$11.25 M	Productivity – Cut & Cover : 12m /d (300ST) ; 18m/d (180 PE) Productivity – HDD: 36m/d (300ST); 40m/d (180 PE) Welder added to crew Larger excavator assumed Traffic Management 8% Environmental Allowances 1%
Weeden Dr, Vermont	MP-HP	\$7.13 M	Productivity – HDD 50m/d Productivity – Cut & Cover 35m /d 100% trench requires crushed rock backfill Traffic Management 5%
King Arthur Dr, Glen Waverley	MP-HP Renewal	\$8.54 M	Productivity – HDD 55m/d Productivity – Cut & Cover 36m /d 100% trench requires crushed rock backfill Traffic Management 5%
'Like for Like' MP-HP Cast Iron Replacement		\$6.19 M	Productivity – HDD 50m/d (63 PE); 40m/d (125 PE); 36m/d (180 PE). Productivity – Cut & Cover 35m/d (63 PE); 24m/d (150ST); 30m/d (180 PE); 18m/d (300ST). 100% trench requires crushed rock backfill Traffic Management 5%
Clayton South MP-HP Cast Iron Renewal		\$1.47 M	Productivity – Insertion 80m/d Productivity – HDD 40m/d Productivity – Cut & Cover 25m /d Traffic Management 5%



Project	Estimated Cost	Specific Assumptions
Sherbrooke Road, Sassafras Augmentation Project	\$0.89 M	Productivity – Cut & Cover 30m /d (125 PE) – Assumes 10% Rock excavation. Assumes 10% contaminated 100% trench requires crushed rock backfill Traffic Management 7% Environmental Allowances etc. 14%
Lorimer Street, Docklands Augmentation Project	\$1.20 M	Productivity – Cut & Cover 25m/d (180 PE) – Assumes 10% Rock excavation. Assumes 10% contaminated 100% trench requires crushed rock backfill Traffic Management 7%

6 Conclusion

Advisian have produced high level cost estimates for the 20 projects based on information received from Multinet Gas.

Advisian have calculated the construction estimates using 'first principles' cost estimation techniques together with an extensive knowledge of industry market costs.

The estimates used are 2016 rates and, as previously noted, exclude escalation.



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Appendix A Project Cost Estimates



MULTINET GAS (MG 2016-01) Dandenong LP - HP Mains Renewal - INDEPENDENT ESTIMATE
Approximately 12.3kms of LP to HP renewal with 63P10

Revision: 3/ 04.11.2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 90% by Insertion Method	11,030	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 60 m per day main isolated at any one time	184	Days					
	> Isolate main / excavate and prepare cut in							
	> Install new high pressure main inside low pressure main							
	> Test new supply main							
	> Tap services offtakes							
2	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 10% by Horizontal Directional Drilling	1,226	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 40 m per day main isolated at any one time (generally in short sections across the road)	31	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
	Number of services = 491 (171 single services, 149 Unit developments, 171 Commercial developments)							
	No. of Upstands = 1342							
	Number of single services = 171	171	No.					
	Assume 4 No single services are replaced and tested per day	43	Days					
	For unit development main service lines (149 no.) assume 3 No. are replaced and tested per day	50	Days					
	EO for multi services (851 no. extra upstands) assume 12 No. are replaced and tested per day	71	Days					
	For Commercial sites (171 no.) Assume 3 replaced and tested per day	57	Days					
	LOST TIME							
	Assume 10 days inclement weather and other unforeseen delays	10	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	230	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 230 working days)							
	1 No Supervisor	230	days	\$ 720.00		\$ 165,840		
	5 No. Gas main installers	1,152	days	\$ 600.00		\$ 691,000		
	Service Proving - assume Supervisor/Backhoe 200m/d	62	days	\$ 1,520.00		\$ 93,480		
	Specialist Works							
	Horizontal Directional Drilling by Specialist Contractor	1,226	m	\$ 60.00		\$ 73,560		
	(Provision of entry/exit holes required is included in the Plant Working Days calculation)							
	WT Tie in (100mm)	4	No.	\$ 4,000.00		\$ 16,000		
	WT Tie in (50mm)	5	No.	\$ 3,000.00		\$ 15,000		
	Tie In (125mm)	2	No.	\$ 3,000.00		\$ 6,000		
	Tie In (63mm)	9	No.	\$ 2,200.00		\$ 19,800		
	CI cutoffs (100mm)	1	No.	\$ 2,000.00		\$ 2,000		
	CI cutoffs (150mm)	2	No.	\$ 2,500.00		\$ 5,000		
	CI cutoffs - TDW (150mm)	1	No.	\$ 5,000.00		\$ 5,000		
	CI cutoffs - TDW (200mm)	1	No.	\$ 6,000.00		\$ 6,000		
	Subtotal: Labour Cost							\$ 1,098,680
1.2	Plant (based on 230 working days)							
	2 No. Mini excavator	460	days	\$ 960.00			\$ 441,600	
	1 No. Bobcat	230	days	\$ 720.00			\$ 165,840	
	1 No. Tip Truck	230	days	\$ 680.00			\$ 156,627	
	Subtotal: Plant Cost							\$ 764,067
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	12,869	m	\$ 6.00	\$ 77,212.80			
	Supply of Regulators	1,342	No	\$ 50.00	\$ 67,100.00			
	Supply of Service Pipes & fittings	491	No.	\$ 100.00	\$ 49,100.00			
	E.O Service upstands	851	No.	\$ 30.00	\$ 25,530.00			
	E.O Meter Room installations	2	No.	\$ 5,000.00	\$ 10,000.00			
	Subtotal: Materials Cost							\$ 228,943
1.4	Reinstatement							
	Reinstate Mains - insertion method section	11,030	m	\$ 7.00		\$ 77,210		
	Reinstate Mains - horizontal drilling section	1,226	m	\$ 12.00		\$ 14,712		
	Reinstate Services	491	each	\$ 100.00		\$ 49,100		
	Subtotal: Reinstatement Costs							\$ 141,022
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 228,943	\$ 1,239,702	\$ 764,067	\$ 2,232,711
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	E.O cost associated with service location (connection) difficulties (refer attached calc. sheet)	1	Item	\$ 293,000.00		\$ 293,000		
3.2	E.O cost allowance associated with system operation difficulties (such as pressure reductions in commercial areas)	1	Item	\$ 50,000.00		\$ 50,000		
3.3	Decommission & demolish District Regulator Pits	3	no.	\$ 10,000.00		\$ 30,000		
	Subtotal: Miscellaneous Works				\$ -	\$ 373,000	\$ -	\$ 373,000
	TOTAL CAPITAL COST				\$ 228,943	\$ 1,612,702	\$ 764,067	\$ 2,605,711
4	Design and Planning	8%	On capital cost					\$ 216,274.05
5	Management and Supervision	12%	On capital cost					\$ 320,502.51
6	Site Establishment	2%	On capital cost					\$ 59,931.36
7	Traffic Management	7%	On capital cost					\$ 192,822.65
8	Insurances	0.5%	On capital cost					\$ 14,070.84
9	As-Built Drawings	0.5%	On capital cost					\$ 14,070.84
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 3,423,384
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	h Construction Cost					\$ 342,440.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 3,765,824

MULTINET GAS (MG-2016-02) - St. Kilda LP - HP Mains Renewal - INDEPENDENT ESTIMATE
Approximately 6 kms of LP to HP renewal with 63P10

Revision: 2/ 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 90% by Insertion Method	5,400	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 40 m per day main isolated at any one time	135	Days					
	> Isolate main / excavate and prepare cut in							
	> Install new high pressure main inside low pressure main							
	> Test new supply main							
	> Tap services offtakes							
2	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 10% by Horizontal Directional Drilling	607	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 30 m per day main isolated at any one time (generally in short sections across the road)	21	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
	Number of services = 415 (283 single services, 132 Unit developments)	283	No.					
	Number of single services = 283							
	Assume 2 No single services (high density) are replaced and tested per day	142	Days					
	Number of upstands = 1470							
	Number of Unit developments = 132.							
	For unit development main service lines (132 no.) assume 2 No. are replaced and tested per day	44	Days					
	EO for multi services (1055 no.), assume 9 No. are replaced and tested per day	117	Days					
	LOST TIME							
	Assume 10 days inclement weather and other unforeseen delays	12	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	315	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 315 working days)							
	1 No Supervisor	315	days	\$ 720.00		\$ 226,600		
	5 No. Gas main installers	1,574	days	\$ 600.00		\$ 944,167		
	Service Proving - assume included in productivity							
	Specialist Works							
	Horizontal Directional Drilling by Specialist Contractor	607	m	\$ 60.00		\$ 36,420		
	(Provision of entry/exit holes required is included in the Plant Working Days calculation)							
	Tie in (125mm)	6	No.	\$ 3,500.00		\$ 21,000		
	Tie In (63mm)	8	No.	\$ 2,200.00		\$ 17,600		
	CI cutoffs (100mm)	7	No.	\$ 2,000.00		\$ 14,000		
	CI cutoffs (150mm)	4	No.	\$ 5,000.00		\$ 20,000		
	CI cutoffs (450mm)	1	No.	\$ 20,000.00		\$ 20,000		
	Subtotal: Labour Cost							\$ 1,299,787
1.2	Plant (based on 315working days)							
	2 No. Mini excavator	630	days	\$ 880.00			\$ 554,400	
	1 No. Bobcat	315	days	\$ 720.00			\$ 226,600	
	1 No. Tip Truck	315	days	\$ 680.00			\$ 214,011	
	Subtotal: Plant Cost							\$ 995,011
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	6,307	m	\$ 6.00	\$ 37,844.10			
	Supply of Regulators	1,470	No	\$ 50.00	\$ 73,500.00			
	Supply of Service Pipes & fittings	415	No	\$ 100.00	\$ 41,500.00			
	E.O Service upstands	1,055	No.	\$ 50.00	\$ 52,750.00			
	Subtotal: Materials Cost							\$ 205,594
1.4	Reinstatement							
	Reinstate Mains - insertion method section	5,400	m	\$ 8.00		\$ 43,200		
	Reinstate Mains - horizontal drilling section	607	m	\$ 12.00		\$ 7,284		
	Reinstate Services	415	each	\$ 200.00		\$ 83,000		
	Subtotal: Reinstatement Costs							\$ 133,484
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 205,594	\$ 1,433,271	\$ 995,011	\$ 2,633,876
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	E.O cost associated with service location (connection) difficulties (refer attached calc. sheet)	1	Item	\$ 306,750.00		\$ 306,750		
	Subtotal:Miscellaneous Works				\$ -	\$ 306,750	\$ -	\$ 306,750
	TOTAL CAPITAL COST				\$ 205,594	\$ 1,740,021	\$ 995,011	\$ 2,940,626
4	Design and Planning	8%	On capital cost					\$ 247,012.57
5	Management and Supervision	12%	On capital cost					\$ 364,637.61
6	Site Establishment	2%	On capital cost					\$ 70,575.02
7	Traffic Management	7%	On capital cost					\$ 219,076.63
8	Insurances	0.5%	On capital cost					\$ 15,879.38
9	As-Built Drawings	0.5%	On capital cost					\$ 15,879.38
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 3,873,686
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10%	h Construction Cost					\$ 402,850.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 4,276,536

MULTINET GAS (MG-2016-03) - Southbank LP - HP Mains Renewal - INDEPENDENT ESTIMATE
Approximately 7 kms of LP to HP renewal with 63P10

Revision: 3 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 90% by Insertion Method	6,288	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 40 m per day main isolated at any one time > Isolate main / excavate and prepare cut in > Install new high pressure main inside low pressure main > Test new supply main > Tap services offtakes	158	Days					
2	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 10% by Horizontal Directional Drilling	699	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 30 m per day main isolated at any one time (generally in short sections across the road) > Bore/excavate, install main > Test new supply main > Tap services offtakes	24	Days					
	Number of services = 162 (67 single services, 6 Unit developments, 89 Commercial developments) Number of service upstands = 277 Number of single services = 67 Assume 3 No single services are replaced and tested per day	67 22	No. Days					
	Number of Unit developments = 6. For unit development main service lines (9 no.) assume 2 No. are replaced and tested per day	5	Days					
	EO for multi services (115 no.), assume 12 No. are replaced and tested per day	10	Days					
	For Commercial sites (89 no.) Assume 1 replaced and tested perday	89	Days					
	LOST TIME Assume 4 days inclement weather and other unforeseen delays	4	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	186	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 186 working days)							
	1 No Supervisor	186	days	\$ 720.00		\$ 133,920		
	5 No. Gas main installers	930	days	\$ 600.00		\$ 558,000		
	Service Proving - assume Supervisor, Backhoe 200m/day	35	days	\$ 1,520.00		\$ 53,200		
	Specialist Works							
	Horizontal Directional Drilling by Specialist Contractor (Provision of entry/exit holes required is included in the Plant Working Days calculation)	699	m	\$ 80.00		\$ 55,920		
	WT Tie in (100mm)	6	No.	\$ 4,000.00		\$ 24,000		
	WT Tie in (50mm)	6	No.	\$ 3,000.00		\$ 18,000		
	Tie In (63mm)	15	No.	\$ 2,500.00		\$ 37,500		
	CI cutoffs (100mm)	5	No.	\$ 2,000.00		\$ 10,000		
	CI cutoffs (150mm)	3	No.	\$ 3,000.00		\$ 9,000		
	CI cutoffs (300mm)	1	No.	\$ 10,000.00		\$ 10,000		
	Subtotal: Labour Cost							\$ 909,540
1.2	Plant (based on 186 working days)							
	2 No. Mini excavator	372	days	\$ 880.00			\$ 327,360	
	1 No. Bobcat	186	days	\$ 720.00			\$ 133,920	
	1 No. Tip Truck	186	days	\$ 680.00			\$ 126,480	
	Subtotal: Plant Cost							\$ 587,760
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	7,336	m	\$ 6.00	\$ 44,018.10			
	Supply of Regulators	277	No	\$ 50.00	\$ 13,850.00			
	Supply of Service Pipes & fittings	162	No.	\$ 100.00	\$ 16,200.00			
	E.O Service upstands	115	No.	\$ 50.00	\$ 5,750.00			
	E.O Meter Room setups	2	No.	\$ 4,000.00	\$ 8,000.00			
	Subtotal: Materials Cost							\$ 87,818
1.4	Reinstatement							
	Reinstate Mains - insertion method section	6,288	m	\$ 5.00		\$ 31,440		
	Reinstate Mains - horizontal drilling section	699	m	\$ 12.00		\$ 8,388		
	Reinstate Services	162	each	\$ 200.00		\$ 32,400		
	Subtotal: Reinstatement Costs							\$ 72,228
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 87,818	\$ 981,768	\$ 587,760	\$ 1,657,346
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	E.O cost associated with service location (connection) refer calc. sheet.	1	Item	\$ 112,000.00		\$ 112,000		
3.2	E.O cost allowance associated with system operation difficulties (particularly with pressure reductions in commercial areas)	1	Item	\$ 50,000.00		\$ 50,000		
	Subtotal:Miscellaneous Works				\$ -	\$ 162,000	\$ -	\$ 162,000
	TOTAL CAPITAL COST				\$ 87,818	\$ 1,143,768	\$ 587,760	\$ 1,819,346
4	Design and Planning	8%	On capital cost					\$ 152,825.07
5	Management and Supervision	12%	On capital cost					\$ 225,598.92
6	Site Establishment	2%	On capital cost					\$ 43,664.31
7	Traffic Management	7%	On capital cost					\$ 134,631.61
8	Insurances	0.5%	On capital cost					\$ 9,824.47
9	As-Built Drawings	0.5%	On capital cost					\$ 9,824.47
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 2,395,715
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	h Construction Cost					\$ 247,041.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 2,642,756

MULTINET GAS- MG -2016-04 Toorak LP - HP Mains Renewal - INDEPENDENT ESTIMATE
Approximately 5.87 kms of LP to HP renewal with 63P10

Revision: 3/ 04.11.2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 90% by Insertion Method	5,285	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 50 m per day main isolated at any one time	106	Days					
	> Isolate main / excavate and prepare cut in							
	> Install new high pressure main inside low pressure main							
	> Test new supply main							
	> Tap services offtakes							
2	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 10% of 25,329 m by Horizontal Directional Drilling	589	m					
	Reticulation - Main and Service Replacement							
	MAINS / SERVICES							
	Assume productivity is 40 m per day main isolated at any one time (generally in short sections across the road)	15	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
	Number of services = 450 (357 single services, 93 Unit developments)	357	No.					
	Number of single services = 357	119	Days					
	Assume 3 No single services are replaced and tested per day							
	Number of service upstands = 1055							
	Number of Unit developments = 93.							
	For unit development main service lines (93 no.) assume 3 No. are replaced and tested per day	31	Days					
	EO for multi services (605 no.), assume 10 No. are replaced and tested per day	61	Days					
	LOST TIME							
	Assume 7 days inclement weather and other unforeseen delays	7	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	218	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 218 working days)							
	1 No Supervisor	218	days	\$ 720.00		\$ 156,600		
	5 No. Gas main installers	750	days	\$ 600.00		\$ 450,000		
	Service Proving - assume included in productivity							
	Specialist Works							
	Horizontal Directional Drilling by Specialist Contractor	589	m	\$ 60.00		\$ 35,340		
	(Provision of entry/exit holes required is included in the Plant Working Days calculation)							
	Tie in (125mm)	1	No.	\$ 3,000.00		\$ 3,000		
	Tie In (63mm)	7	No.	\$ 2,200.00		\$ 15,400		
	CI cutoffs (100 - 125mm)	7	No.	\$ 1,800.00		\$ 12,600		
	Subtotal: Labour Cost							\$ 672,940
1.2	Plant (based on 218 working days)							
	2 No. Mini excavator	436	days	\$ 880.00			\$ 383,680	
	1 No. Bobcat	218	days	\$ 720.00			\$ 156,600	
	1 No. Tip Truck	218	days	\$ 680.00			\$ 147,900	
	Subtotal: Plant Cost							\$ 688,180
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	6,168	m	\$ 6.00	\$ 37,006.20			
	Supply of Regulators	1,055	No	\$ 50.00	\$ 52,750.00			
	Supply of Service Pipes & fittings	450	No	\$ 80.00	\$ 36,000.00			
	E.O Service upstands	605	No.	\$ 30.00	\$ 18,150.00			
	Subtotal: Materials Cost							\$ 143,906
1.4	Reinstatement							
	Reinstate Mains - insertion method section	5,285	m	\$ 5.00		\$ 26,425		
	Reinstate Mains - horizontal drilling section	589	m	\$ 12.00		\$ 7,068		
	Reinstate Services	1,055	each	\$ 200.00		\$ 211,000		
	Subtotal: Reinstatement Costs							\$ 244,493
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 143,906	\$ 917,433	\$ 688,180	\$ 1,749,519
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	E.O cost associated with service location (connection) difficulties (say 20 No.)	1	Item	\$ 263,000.00		\$ 263,000		
	Subtotal:Miscellaneous Works				\$ -	\$ 263,000	\$ -	\$ 263,000
	TOTAL CAPITAL COST				\$ 143,906	\$ 1,180,433	\$ 688,180	\$ 2,012,519
4	Design and Planning	8%	On capital cost					\$ 161,001.54
5	Management and Supervision	12%	On capital cost					\$ 241,502.30
6	Site Establishment	2%	On capital cost					\$ 40,250.38
7	Traffic Management	7%	On capital cost					\$ 140,876.34
8	Insurances	0.5%	On capital cost					\$ 10,062.60
9	As-Built Drawings	0.5%	On capital cost					\$ 10,062.60
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 2,616,275
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	h Construction Cost					\$ 262,916.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 2,879,191

MULTINET GAS (MG-2016-05) - Elwood LP - HP Mains Renewal - INDEPENDENT ESTIMATE
Approximately 25.3 kms of LP to HP renewal with 63P10

Revision 3: 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 90% of 25,329 m by Insertion Method	22,800	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 50 m per day main isolated at any one time > Isolate main / excavate and prepare cut in > Install new high pressure main inside low pressure main > Test new supply main > Tap services oftakes	456	Days					
2	Replace low pressure main with 63mm P10 main operating at High Pressure - assume 10% of 25,329 m by Horizontal Directional Drilling	2,529	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 30 m per day main isolated at any one time (generally in short sections across the road) > Bore/excavate, install main > Test new supply main > Tap services oftakes	85	Days					
	Number of services = 2708 (2116 single services, 592 Unit developments) Number of single services = 2116 Assume 3 No single services are replaced and tested per day	2,116 705	No. Days					
	Number of service upstands = 6633 Number of Unit developments = 592. For unit development main service lines (592 no.) assume 3 No. are replaced and tested per day	197	Days					
	EO for multi services (3925 no.), assume 12 No. are replaced and tested per day	327	Days					
	LOST TIME Assume 16 days inclement weather and other unforeseen delays	16	(DELAYS)					
	Adopt days highlighted in yellow TOTAL NUMBER OF CONSTRUCTION DAYS	1,246	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 1246 working days)							
	1 No Supervisor	1,246	days	\$ 720.00		\$ 896,940		
	5 No. Gas main installers/construction workers	6,229	days	\$ 600.00		\$ 3,737,250		
	Service Proving - assume included in productivity							
	Specialist Works Horizontal Directional Drilling by Specialist Contractor (Provision of entry/exit holes required is included in the Plant Working Days calculation) 100 WT Tie in Tie In	2,529 1 30	m No. No.	\$ 60.00 \$ 4,500.00 \$ 2,800.00		\$ 151,740 \$ 4,500 \$ 84,000		
	Subtotal: Labour Cost							\$ 4,874,430
1.2	Plant (based on 1246 working days)							
	2 No. Mini excavator	2,492	days	\$ 880.00			\$ 2,192,520	
	1 No. Bobcat	1,246	days	\$ 720.00			\$ 896,940	
	1 No. Tip Truck	1,246	days	\$ 680.00			\$ 847,110	
	Subtotal: Plant Cost							\$ 3,936,570
1.3	Materials Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance Supply of Regulator Supply of Service Pipes & fittings E.O Service upstands	26,595 6,633 2,708 3,925	m No No No.	\$ 6.00 \$ 50.00 \$ 80.00 \$ 30.00	\$ 159,572.70 \$ 331,650.00 \$ 216,640.00 \$ 117,750.00			
	Subtotal: Materials Cost							\$ 825,613
1.4	Reinstatement Reinstate Mains - insertion method section Reinstate Mains - horizontal drilling section Reinstate Services	22,800 2,529 2,708	m m each	\$ 5.00 \$ 12.00 \$ 200.00		\$ 114,000 \$ 30,348 \$ 541,600		
	Subtotal: Reinstatement Costs							\$ 685,948
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 825,613	\$ 5,560,378	\$ 3,936,570	\$ 10,322,561
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	E.O cost associated with service location (connection) difficulties (refer attached calc. sheet)	1	Item	\$ 1,599,000		\$ 1,599,000		
	Subtotal:Miscellaneous Works				\$ -	\$ 1,599,000	\$ -	\$ 1,599,000
	TOTAL CAPITAL COST				\$ 825,613	\$ 7,159,378	\$ 3,936,570	\$ 11,921,561
4	Design and Planning	8%	On capital cost					\$ 1,001,411.10
5	Management and Supervision	12%	On capital cost					\$ 1,484,234.31
6	Site Establishment	2%	On capital cost					\$ 292,078.24
7	Traffic Management	7%	On capital cost					\$ 834,509.25
8	Insurances	0.5%	On capital cost					\$ 64,376.43
9	As-Built Drawings	0.5%	On capital cost					\$ 64,376.43
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 15,662,546
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	n Construction Cost					\$ 1,569,780.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 17,232,326

MULTINET GAS (MG-2016-06) - Graham St, Port Melbourne MP Cast Iron Mains Replacement - INDEPENDENT ESTIMATE
3,102m 180PE Grid Main, 4,259m 63PE Renewal

Revision: 3/ 04.11.2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace main with 63mm P10 main operating at High Pressure (4,259m) - assume 90% by Insertion Method	3,833	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES							
	Assume productivity is 50 m (high density) per day main isolated at any one time	77	Days					
	> Isolate main / excavate and prepare cut in							
	> Install new high pressure main inside low pressure main							
	> Test new supply main							
	> Tap services offtakes							
2	Replace main with 63mm P10 main operating at High Pressure - assume 10% by Horizontal Directional Drilling	426	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES							
	Assume productivity is 30 m per day main isolated at any one time (generally in short sections across the road)	15	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
3	Install new 180P10 Grid Main 3,102m (assume 50% open cut , 50% Bored)	1,550	m					
	Grid Main - Open Cut MAINS / SERVICES							
	Assume productivity is 20 m per day main isolated at any one time	78	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
	Grid Main - Horizontal Directional Drilling MAINS / SERVICES	1,552	m					
	Assume productivity is 30m per day main isolated at any one time	52	Days					
	> Bore/excavate, install main							
	> Test new supply main							
	> Tap services offtakes							
	SERVICES							
	Number of services = 477 (441 single services, 19 Unit developments, 17 Commercial developments)							
	No. of upstands = 557							
	Number of single services = 441	441	No.					
	Assume 4 No single services are replaced and tested per day	110	Days					
	For unit development main service lines (19 no.) assume 3 No. are replaced and tested per day	7	Days					
	EO for multi services (80 no. upstands) assume 12 No. are replaced and tested per day	7	Days					
	For Commercial sites (17 no.) Assume 3 replaced and tested per day	6	Days					
	LOST TIME							
	Assume 10 days inclement weather and other unforeseen delays	10	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	232	W.days					

PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 232 working days)							
	1	No Supervisor	232	days	\$ 720.00		\$ 167,040	
	5	No. Gas main installers	1,160	days	\$ 600.00		\$ 696,000	
		Service Proving - assume Supervisor/Backhoe 200m/d	18	days	\$ 1,520.00		\$ 26,600	
	Specialist Works							
		Horizontal Directional Drilling by Specialist Contractor (for 63mm PE)	426	m	\$ 60.00		\$ 25,560	
		Horizontal Directional Drilling by Specialist Contractor (for 180mm PE)	1,552	m	\$ 250.00		\$ 388,000	
		(Provision of entry/exit holes required is included in the Plant Working Days calculation)						
		Tie In (180mm)	5	No.	\$ 3,500.00		\$ 17,500	
		Tie In (63mm)	5	No.	\$ 2,500.00		\$ 12,500	
		CI cutoffs (100mm)	10	No.	\$ 2,000.00		\$ 20,000	
	Subtotal: Labour Cost							\$ 1,353,200
1.2	Plant (based on 232 working days)							
	2	No. Mini excavator	464	days	\$ 960.00		\$ 445,440	
	1	No. Bobcat	232	days	\$ 720.00		\$ 167,040	
	1	No. Tip Truck	232	days	\$ 680.00		\$ 157,760	
	Subtotal: Plant Cost							\$ 770,240
1.3	Materials							
		Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	4,472	m	\$ 6.00	\$ 26,831.70		
		Supply of 180mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	3,257	m	\$ 25.00	\$ 81,427.50		
		Supply of Regulators	557	No	\$ 50.00	\$ 27,850.00		
		Supply of Service Pipes & fittings	477	No.	\$ 100.00	\$ 47,700.00		
		E.O Service upstands	80	No.	\$ 30.00	\$ 2,400.00		
		E.O Meter Room installations	2	No.	\$ 5,000.00	\$ 10,000.00		
		Sawcut trench	3,100	m	\$ 8.00	\$ 24,800.00		
		Supply bedding sand	600	m3	\$ 30.00	\$ 18,000.00		
		Supply crushed rock trench backfill	2,500	t	\$ 28.00	\$ 70,000.00		
		Supply and place asphalt	120	t	\$ 350.00	\$ 42,000.00		
		Tip fees	250	loads (tandem)	\$ 100.00	\$ 25,000.00		
	Subtotal: Materials Cost							\$ 376,009
1.4	Reinstatement							
		Reinstate Mains - insertion method section	3,833	m	\$ 7.00	\$ 26,831		
		Reinstate Mains - cut & cover	1,550	m	\$ 18.00	\$ 27,900		
		Reinstate Mains - horizontal drilling section	1,978	m	\$ 12.00	\$ 23,736		
		Reinstate Services	477	each	\$ 80.00	\$ 38,160		
	Subtotal: Reinstatement Costs							\$ 116,627
	SUBTOTAL: MAINS AND SERVICES RENEWAL					\$ 376,009	\$ 1,469,827	\$ 770,240 \$ 2,616,076

2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing					\$ -	\$ -	\$ - \$ -
3	Miscellaneous Works							
3.1		E.O cost associated with service location (connection) difficulties (say 10 No.)	1	Item	\$ 67,250.00	\$ 67,250		
3.2		E.O cost allowance associated with system operation difficulties (such as pressure reductions in commercial areas)	1	Item	\$ 5,000.00	\$ 5,000		
3.3		New District Regulator Pit (Cost estimate not included in Advisian scope)	1	no.	\$ -	\$ -		
3.4		Upgrade Medium Pressure mains to HP	17,789	m	\$ 25.00	\$ 444,725		
3.5		Upgrade Supply points	1,552	no.	\$ 100.00	\$ 155,200		
	Subtotal:Miscellaneous Works					\$ -	\$ 672,175	\$ - \$ 672,175

TOTAL CAPITAL COST						\$ 376,009	\$ 2,142,002	\$ 770,240 \$ 3,288,251
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4	Design and Planning	8%	On capital cost				\$ 276,213.10
5	Management and Supervision	12%	On capital cost				\$ 407,743.15
6	Site Establishment	2%	On capital cost				\$ 78,918.03
7	Traffic Management	7%	On capital cost				\$ 243,330.59
8	Insurances	0.5%	On capital cost				\$ 17,756.56
9	As-Built Drawings	0.5%	On capital cost				\$ 17,756.56
	CONSTRUCTION COST (DIRECT + INDIRECT COST)						\$ 4,329,969
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	h Construction Cost				\$ 444,907.00
PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 4,774,876

MULTINET GAS (MG-2016-07) - CLANCYS ROAD, KORUMBURRA AUGMENTATION PROJECT - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 100 steel main in Clancys Road - by Conventional Trenching (open cut)	500	m					
	36 m/day Assume productivity is 36 m per day main	14	Days					
	> Excavate, install main							
	> Test new supply main							
2	Install 125mm P10 main - by Conventional Trenching (open cut)	1,900	m					
	48 m/day Assume productivity is 48m per day	40	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Allow 2 days inclement weather and other unforeseen delays	2	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	42	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 42 working days)							
	1 No Supervisor	42	days	\$ 720.00		\$ 30,240		
	5 No. Gas main installers/construction workers	210	days	\$ 600.00		\$ 126,000		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Specialist Works							
	Inline Tie In (125*63)	1	No.	\$ 3,000.00		\$ 3,000		
	WT Tie In (100 * 150mm)	1	No.	\$ 5,500.00		\$ 5,500		
	Subtotal: Labour Cost							\$ 164,740
1.2	Plant (based on 42 working days)							
	2 No. Mini excavator	84	days	\$ 880.00			\$ 73,920	
	1 No. Bobcat	42	days	\$ 720.00			\$ 30,240	
	1 No. Tip Truck	42	days	\$ 680.00			\$ 28,560	
	Subtotal: Plant Cost							\$ 132,720
1.3	Materials							
	Supply of 100mm steel Pipe and fittings - including 5% wastage allowance	525	m	\$ 80.00	\$ 42,000			
	Supply of 125mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	1,995	m	\$ 18.00	\$ 35,910			
	Miscellaneous materials allowance for inline items	2	No	\$ 500.00	\$ 1,000			
	Supply of bedding sand	2,400	m	\$ 8.00	\$ 19,200			
	Supply of crushed rock backfill (assume 50% crushed rock backfill)	1,200	m	\$ 30.00	\$ 36,000			
	Subtotal: Materials Cost							\$ 134,110
1.4	Reinstatement							
	Tipping Fees	2,400	m	\$ 7.00		\$ 16,800		
	Reinstate trenching section	2,400	m	\$ 20.00		\$ 48,000		
	Subtotal: Reinstatement Costs							\$ 64,800
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 134,110	\$ 229,540	\$ 132,720	\$ 496,370
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 134,110.00	\$ 229,540.00	\$ 132,720.00	\$ 496,370.00
4	Design and Planning	8%	On capital cost					\$ 41,695.08
5	Management and Supervision	12%	On capital cost					\$ 61,549.88
6	Site Establishment	2%	On capital cost					\$ 11,912.88
7	Traffic Management	3%	On capital cost					\$ 16,876.58
8	Insurances	0%	On capital cost					\$ -
9	Environmental Allowances including planning for Flora & Fauna, Fire Management & Cultural Heritage	10%	On capital cost					\$ 51,622.48
10	As-Built Drawings	2%	On capital cost					\$ 11,912.88
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 691,940
11	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10%	On Const. Cost					\$ 66,916.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 758,856

MULTINET GAS (MG-2016-08) - OLD COACH ROAD, KALORAMA AUGMENTATION PROJECT - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 125mm P10 main - by Conventional trenching (open cut)	1,700	m					
	40 m/day Assume productivity is 40m per day (rock possible)	43	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Allow 2 days inclement weather and other unforeseen delays	2	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	45	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 45 working days)							
	1 No Supervisor	45	days	\$ 720.00		\$ 32,400		
	5 No. Gas main installers/construction workers	225	days	\$ 600.00		\$ 135,000		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	Tie In (125*50)	1	No.	\$ 2,500.00		\$ 2,500		
	Tie In (125 *100)	1	No.	\$ 3,000.00		\$ 3,000		
	Subtotal: Labour Cost							\$ 172,900
1.2	Plant (based on 45 working days)							
	2 No. Mini excavator	90	days	\$ 880.00			\$ 79,200	
	1 No. Bobcat	45	days	\$ 720.00			\$ 32,400	
	1 No. Tip Truck	45	days	\$ 680.00			\$ 30,600	
	Subtotal: Plant Cost							\$ 142,200
1.3	Materials							
	Supply of 125mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	1,785	m	\$ 18.00	\$ 32,130			
	Miscellaneous materials allowance for inline items	2	No	\$ 250.00	\$ 500			
	Supply of bedding sand	1,700	m	\$ 8.00	\$ 13,600			
	Supply crushed rock (assume 100% of trench depth)	1,700	m	\$ 30.00	\$ 51,000			
	Subtotal: Materials Cost							\$ 97,230
1.4	Reinstatement							
	Tipping Fees	1,700	m	\$ 12		\$ 20,400		
	Reinstate trenching section	1,700	m	\$ 20.00		\$ 34,000		
	Subtotal: Reinstatement Costs							\$ 54,400
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 97,230	\$ 227,300	\$ 142,200	\$ 466,730
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 97,230.00	\$ 227,300.00	\$ 142,200.00	\$ 466,730.00
4	Design and Planning	8%	On capital cost					\$ 39,205.32
5	Management and Supervision	12%	On capital cost					\$ 57,874.52
6	Site Establishment	2%	On capital cost					\$ 11,201.52
7	Traffic Management	3%	On capital cost					\$ 15,868.82
8	Insurances	0.5%	On capital cost					\$ 2,520.34
9	Environmental Allowances including planning for Flora & Fauna, Fire Management & Cultural Heritage	12%	On capital cost					\$ 57,874.52
10	As-Built Drawings	2%	On capital cost					\$ 11,201.52
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 662,477
11	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10%	On Const. Cost					\$ 64,086.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 726,563

MULTINET GAS (MG-2016-09) - SELKIRK AVE, KNOX AUGMENTATION PROJECT - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 63mm P10 main - by Conventional trenching (open cut)	700	m					
	60 m/day Assume productivity is 60m per day	12	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Allow 1 day inclement weather and other unforeseen delays	1	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	13	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 13 working days)							
	1 No Supervisor	13	days	\$ 720.00		\$ 9,360		
	5 No. Gas main installers/construction workers	65	days	\$ 600.00		\$ 39,000		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	Inline Tie In (63*40)	1	No.	\$ 3,500.00		\$ 3,500		
	Tie In (63*40)	1	No.	\$ 2,200.00		\$ 2,200		
	Subtotal: Labour Cost							\$ 54,060
1.2	Plant (based on 13 working days)							
	2 No. Mini excavator	26	days	\$ 880.00			\$ 22,880	
	1 No. Bobcat	13	days	\$ 720.00			\$ 9,360	
	1 No. Tip Truck	13	days	\$ 680.00			\$ 8,840	
	Subtotal: Plant Cost							\$ 41,080
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	735	m	\$ 6.00	\$ 4,410			
	Miscellaneous materials allowance for inline items	2	No	\$ 100.00	\$ 200			
	Supply of bedding sand	700	m	\$ 8.00	\$ 5,600			
	Supply crushed rock (assume 30% of trench depth)	700	m	\$ 13.00	\$ 9,100			
	Subtotal: Materials Cost							\$ 19,310
1.4	Reinstatement							
	Tipping Fees	700	m	\$ 5		\$ 3,500		
	Reinstate trenching section	700	m	\$ 20.00		\$ 14,000		
	Subtotal: Reinstatement Costs							\$ 17,500
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 19,310	\$ 71,560	\$ 41,080	\$ 131,950
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 19,310.00	\$ 71,560.00	\$ 41,080.00	\$ 131,950.00
3	Design and Planning (including Title search and Easement preparation)	12%	On capital cost					\$ 16,361.80
4	Management and Supervision	12%	On capital cost					\$ 16,361.80
5	Site Establishment	2%	On capital cost					\$ 3,166.80
6	Traffic Management	3%	On capital cost					\$ 4,486.30
7	Insurances	0%	On capital cost					\$ -
8	Environmental Allowances	3%	On capital cost					\$ 4,486.30
9	As-Built Drawings	2%	On capital cost					\$ 3,166.80
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 179,980
10	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	On Const. Cost					\$ 17,329.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 197,309

MULTINET GAS (MG-2016-10) - Bedford Road, Ringwood Augmentation Project - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 63mm P10 main - by Conventional trenching (open cut)	150	m					
	20 m/day Assume productivity is 20m per day	8	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Allow 1day inclement weather and other unforeseen delays	1	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	9	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 9 working days)							
	1 No Supervisor	9	days	\$ 720.00		\$ 6,480		
	3 No. Gas main installers/construction workers	27	days	\$ 600.00		\$ 16,200		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	Inline Tie In (63*40)	1	No.	\$ 3,500.00		\$ 3,500		
	Inline Tie In (63*50)	1	No.	\$ 2,500.00		\$ 2,500		
	Subtotal: Labour Cost							\$ 28,680
1.2	Plant (based on 9 working days)							
	1 No. Mini excavator	9	days	\$ 880.00			\$ 7,920	
	1 No. Bobcat	9	days	\$ 720.00			\$ 6,480	
	1 No. Tip Truck	9	days	\$ 680.00			\$ 6,120	
	Subtotal: Plant Cost							\$ 20,520
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	158	m	\$ 6.00	\$ 945			
	Miscellaneous materials allowance for inline items	2	No	\$ 100.00	\$ 200			
	Supply of bedding sand	150	m	\$ 8.00	\$ 1,200			
	Supply crushed rock	150	m	\$ 30.00	\$ 4,500			
	Subtotal: Materials Cost							\$ 6,845
1.4	Reinstatement							
	Tipping Fees	150	m	\$ 12		\$ 1,800		
	Footpath & pavement reinstatement	150	m	\$ 100		\$ 15,000		
	Reinstate trenching section	150	m	\$ 20.00		\$ 3,000		
	Subtotal: Reinstatement Costs							\$ 19,800
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 6,845	\$ 48,480	\$ 20,520	\$ 75,845
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 6,845.00	\$ 48,480.00	\$ 20,520.00	\$ 75,845.00
3	Design and Planning	8%	On capital cost					\$ 6,370.98
4	Management and Supervision	18%	On capital cost					\$ 13,955.48
5	Site Establishment	2%	On capital cost					\$ 1,820.28
6	Traffic Management	20%	On capital cost					\$ 15,472.38
7	Insurances	0.5%	On capital cost					\$ 409.56
8	Environmental Allowances	0%						\$ -
9	As-Built Drawings	2%	On capital cost					\$ 1,820.28
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 115,694
10	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	On Constr. Cost					\$ 11,685.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 127,379

MULTINET GAS (MG-2016-11) - Colman Road, Warrandyte South Augmentation Project - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 125mm P10 main - by Conventional trenching (open cut)	20	m					
	20 m/day Assume productivity is 20m per day	1	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Allow 0 days inclement weather and other unforeseen delays	-	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	1	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 1 working days)							
	1 No Supervisor	1	days	\$ 720.00		\$ 720		
	3 No. Gas main installers/construction workers	3	days	\$ 600.00		\$ 1,800		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	WT Tie In (125*100)	1	No.	\$ 4,000.00		\$ 4,000		
	Tie In (125*50)	1	No.	\$ 1,500.00		\$ 1,500		
	Subtotal: Labour Cost							\$ 6,520
1.2	Plant (based on 1 working days)							
	1 No. Mini excavator	1	days	\$ 880.00			\$ 880	
	1 No. Bobcat	1	days	\$ 720.00			\$ 720	
	1 No. Tip Truck	1	days	\$ 680.00			\$ 680	
	Subtotal: Plant Cost							\$ 2,280
1.3	Materials							
	Supply of 125mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	21	m	\$ 18.00	\$ 378			
	Miscellaneous materials allowance for inline items	2	No	\$ 250.00	\$ 500			
	Supply of bedding sand	20	m	\$ 10.00	\$ 200			
	Supply crushed rock	20	m	\$ 30.00	\$ 600			
	Subtotal: Materials Cost							\$ 1,678
1.4	Reinstatement							
	Tipping Fees	20	m	\$ 10		\$ 200		
	Reinstate trenching section	20	m	\$ 50.00		\$ 1,000		
	Subtotal: Reinstatement Costs							\$ 1,200
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 1,678	\$ 9,220	\$ 2,280	\$ 11,678
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 1,678.00	\$ 9,220.00	\$ 2,280.00	\$ 11,678.00
4	Design and Planning	8%	On capital cost					\$ 934.24
5	Management and Supervision	10%	On capital cost					\$ 1,214.51
6	Site Establishment	2%	On capital cost					\$ 280.27
7	Traffic Management	9%	On capital cost					\$ 992.63
8	Insurances	1%	On capital cost					\$ 163.49
9	Environmental Allowances including planning for Flora & Fauna, Fire Management & Cultural Heritage Managememt	15%						\$ 1,798.41
10	As-Built Drawings	5%	On capital cost					\$ 630.61
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 17,692
11	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	On Constr. Cost					\$ 1,912.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 19,604

MULTINET GAS (MG-2016-12) - Warrandyte-Ringwood Road, Warrandyte Sth Augmentation Project - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 63mm P10 main - by Conventional trenching (open cut)	150	m					
	25 m/day Assume productivity is 25m per day	6	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Assume 0 days inclement weather and other unforeseen delays	-	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	6	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 6 working days)							
	1 No Supervisor	6	days	\$ 720.00		\$ 4,320		
	3 No. Gas main installers/construction workers	18	days	\$ 600.00		\$ 10,800		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	Inline Tie In (63*50)	2	No.	\$ 2,500.00		\$ 5,000		
	Subtotal: Labour Cost							\$ 20,120
1.2	Plant (based on 6 working days)							
	1 No. Mini excavator	6	days	\$ 880.00			\$ 5,280	
	1 No. Bobcat	6	days	\$ 720.00			\$ 4,320	
	1 No. Tip Truck	6	days	\$ 680.00			\$ 4,080	
	Subtotal: Plant Cost							\$ 13,680
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	158	m	\$ 6.00	\$ 945			
	Miscellaneous materials allowance for inline items	2	No	\$ 100.00	\$ 200			
	Supply of bedding sand	150	m	\$ 8.00	\$ 1,200			
	Supply crushed rock	150	m	\$ 30.00	\$ 4,500			
	Subtotal: Materials Cost							\$ 6,845
1.4	Reinstatement							
	Tipping Fees	150	m	\$ 11		\$ 1,650		
	Reinstate trenching section	150	m	\$ 20.00		\$ 3,000		
	Subtotal: Reinstatement Costs							\$ 4,650
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 6,845	\$ 24,770	\$ 13,680	\$ 45,295
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 6,845.00	\$ 24,770.00	\$ 13,680.00	\$ 45,295.00
3	Design and Planning	8%	On capital cost					\$ 3,759.49
4	Management and Supervision	12%	On capital cost					\$ 5,571.29
5	Site Establishment	2%	On capital cost					\$ 1,087.08
6	Traffic Management	5%	On capital cost					\$ 2,400.64
7	Insurances	1%	On capital cost					\$ 452.95
8	Environmental Allowances	12%	On capital cost					\$ 5,616.58
9	As-Built Drawings	3%	On capital cost					\$ 1,540.03
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 65,723
10	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	On Constr. Cost					\$ 6,557.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 72,280

MULTINET GAS (MG-2016-13) - Braden Brae Dr, Warranwood Augmentation Project - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Install 63mm P10 main - by Conventional trenching (open cut)	100	m					
	25 m/day Assume productivity is 25m per day	4	Days					
	> Excavate, install main							
	> Test new supply main							
	LOST TIME							
	Assume 0 days inclement weather and other unforeseen delays	-	(DELAYS)					
	TOTAL NUMBER OF CONSTRUCTION DAYS	4	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 4 working days)							
	1 No Supervisor	4	days	\$ 720.00		\$ 2,880		
	3 No. Gas main installers/construction workers	12	days	\$ 600.00		\$ 7,200		
	Service Proving - assume included in productivity							
	Unloading pipes & fittings - included							
	Tie In Works							
	Tie In (63*40)	2	No.	\$ 2,500.00		\$ 5,000		
	Subtotal: Labour Cost							\$ 15,080
1.2	Plant (based on 4 working days)							
	1 No. Mini excavator	4	days	\$ 880.00			\$ 3,520	
	1 No. Bobcat	4	days	\$ 720.00			\$ 2,880	
	1 No. Tip Truck	4	days	\$ 680.00			\$ 2,720	
	Subtotal: Plant Cost							\$ 9,120
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	105	m	\$ 6.00	\$ 630			
	Miscellaneous materials allowance for inline items	2	No	\$ 100.00	\$ 200			
	Supply of bedding sand	100	m	\$ 8.00	\$ 800			
	Supply crushed rock	100	m	\$ 30.00	\$ 3,000			
	Subtotal: Materials Cost							\$ 4,630
1.4	Reinstatement							
	Tipping Fees	150	m	\$ 11		\$ 1,650		
	Reinstate trenching section	150	m	\$ 20.00		\$ 3,000		
	Subtotal: Reinstatement Costs							\$ 4,650
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 4,630	\$ 19,730	\$ 9,120	\$ 33,480
2	Testing - included in above costs							
	2.1 NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
	TOTAL CAPITAL COST				\$ 4,630.00	\$ 19,730.00	\$ 9,120.00	\$ 33,480.00
3	Design and Planning	8%	On capital cost					\$ 2,778.84
4	Management and Supervision	12%	On capital cost					\$ 4,118.04
5	Site Establishment	2%	On capital cost					\$ 770.04
6	Traffic Management	8%	On capital cost					\$ 2,778.84
7	Insurances	1%	On capital cost					\$ 435.24
8	Environmental Allowances	5%	On capital cost					\$ 1,774.44
9	As-Built Drawings	3%	On capital cost					\$ 1,104.84
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 47,240
10	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	On Constr. Cost					\$ 4,692.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 51,932

MULTINET GAS (MG-2016-14) - Oakleigh Augmentation Project - INDEPENDENT ESTIMATE

Revision: 3_04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
STAGE A 3100m 300 Steel								
NUMBER OF CONSTRUCTION DAYS (Assume 90% conventional trenching, 10% HDD)								
1	Install 300 steel main by Conventional Trenching (open cut)	2,790	m					
	12 m/day Assume productivity is 12 m per day	233	Days					
	> Excavate, install main							
	> Test new supply main							
2	Install 300 steel main by Horizontal Directional Drilling	310	m					
	36 m/day Assume productivity is 36m per day	9	Days					
	> Excavate shafts, assist specialist contractor, install main							
	> Test new supply main							
	LOST TIME							
	Allow 10 days inclement weather and other unforeseen delays	10	(DELAYS)					
TOTAL NUMBER OF CONSTRUCTION DAYS				252	W.days			

PROPOSED MAIN CONSTRUCTION														
1.1	Main Crew (based on 252 working days)													
	1	No Supervisor	252	days	\$	720.00		\$	181,440					
	6	No. Gas main installers/construction workers/welder	1,512	days	\$	600.00		\$	907,200					
	Service Proving - assume included in productivity													
	Unloading pipes & fittings - included													
	Specialist Works													
		HDD to suit 300 steel	310	m	\$	700.00		\$	217,000					
		EO. Casing (Assume 30% cased)	93	m	\$	400.00		\$	37,200					
		Inline Tie In (300*150)	1	No.	\$	8,000.00		\$	8,000					
		Connection to regulator station	1	No.	\$	5,000.00		\$	5,000					
		Corrosion Protection	1	Item	\$	5,000.00		\$	5,000					
	Subtotal: Labour Cost									\$	1,360,840			
1.2	Plant (based on 252 working days)													
	2	No. excavator (1 large, 1 small)	504	days	\$	1,000.00		\$	504,000					
	1	No. Bobcat	252	days	\$	720.00		\$	181,440					
	1	No. Tip Truck	252	days	\$	680.00		\$	171,360					
Subtotal: Plant Cost										\$	856,800			
1.3	Materials													
		Supply of 300mm steel Pipe and fittings - including 5% wastage allowance	3,250	m	\$	280.00	\$	910,000						
		Miscellaneous materials allowance for connections	2	No	\$	5,000.00	\$	10,000						
		Supply of thinsulators (encased pipe sections)	93	No.	\$	100.00	\$	9,300						
		Sawcut existing pavement	5,580	m	\$	10.00	\$	55,800						
		Supply of bedding sand	2,790	m	\$	12.00	\$	33,480						
		Supply of crushed rock (backfill)	2,790	m	\$	44.00	\$	122,760						
		Supply and lay asphalt (ASSUME BY OTHERS)	2,790	m	\$	-	\$	-						
	Subtotal: Materials Cost										\$	1,141,340		
1.4	Reinstatement													
		Tipping Fees	2,790	m	\$	16.00		\$	44,640					
		Reinstate trenching section	2,790	m	\$	18.00		\$	50,220					
		Reinstate bored section	310	m	\$	12.00		\$	3,720					
Subtotal: Reinstatement Costs											\$	98,580		
SUBTOTAL: MAINS AND SERVICES RENEWAL						\$	1,141,340	\$	1,459,420	\$	856,800	\$	3,457,560	
2 Testing - included in above costs														
2.1 NIL														
Subtotal: Testing						\$	-	\$	-	\$	-	\$	-	
TOTAL CAPITAL COST						\$	1,141,340.00	\$	1,459,420.00	\$	856,800.00	\$	3,457,560.00	
4	Design and Planning	8%	On capital cost									\$	290,435.04	
5	Management and Supervision	12%	On capital cost									\$	428,737.44	
6	Site Establishment	2%	On capital cost									\$	82,981.44	
7	Traffic Management	8%	On capital cost									\$	290,435.04	
8	Insurances	0.5%	On capital cost									\$	18,670.82	
9	Environmental Allowances	1%	On capital cost									\$	48,405.84	
10	As-Built Drawings	0.5%	On capital cost									\$	18,670.82	
CONSTRUCTION COST (DIRECT + INDIRECT COST)													\$	4,635,896
11	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)		10.0%	On Const. Cost								\$	457,140.00	
PRELIMINARY ESTIMATED CONSTRUCTION COST STAGE A													\$	5,093,036

STAGE B 3600m 300 Steel & 800m 180P10								
NUMBER OF CONSTRUCTION DAYS (Assume 90% conventional trenching, 10% HDD)								
1	Install 300 steel main by Conventional Trenching (open cut)	3,240	m					
	12 m/day Assume productivity is 12 m per day	270	Days					
	> Excavate, install main							
	> Test new supply main							
2	Install 300 steel main by Horizontal Directional Drilling	360	m					
	36 m/day Assume productivity is 36m per day	10	Days					
	> Excavate shafts, assist specialist contractor, install main							
	> Test new supply main							
3	Install 180 PE10 main by Conventional Trenching (open cut)	720	m					
	18 m/day Assume productivity is 18 m per day	40	Days					
	> Excavate, install main							
	> Test new supply main							
4	Install 180 PE10 by Horizontal Directional Drilling	80	m					
	40 m/day Assume productivity is 40m per day	2	Days					
	> Excavate shafts, assist specialist contractor, install main							
	> Test new supply main							
	LOST TIME							
	Allow 13 days inclement weather and other unforeseen delays	13	(DELAYS)					
TOTAL NUMBER OF CONSTRUCTION DAYS				335	W.days			

PROPOSED MAIN CONSTRUCTION										
1.1	Main Crew (based on 335 working days)									
	1	No Supervisor	335	days	\$	720.00		\$	241,200	
	6	No. Gas main installers/construction workers/welder	2,010	days	\$	600.00		\$	1,206,000	
	Service Proving - assume included in productivity									
	Unloading pipes & fittings - included									
	Specialist Works									
		HDD to suit 300 steel	360	m	\$	700.00		\$	252,000	
		EO. Casing to suit 300 steel (Assume 30% cased)	108	m	\$	400.00		\$	43,200	
		HDD to suit 180 PE 10	80	m	\$	300.00		\$	24,000	
		EO. Casing to suit 180 PE 10 (Assume 30% cased)	24	m	\$	200.00		\$	4,800	
		Inline Tie In (300*200)	1	No.	\$	10,000.00		\$	10,000	
		Network separation valve and connection	1	No	\$	8,000.00		\$	8,000	
		Connection to Stage A	1	No.	\$	2,000.00		\$	2,000	
		Corrosion Protection	1	Item	\$	5,000.00		\$	5,000	
	Subtotal: Labour Cost									\$ 1,796,200
1.2	Plant (based on 335 working days)									
	2	No. Mini excavator	670	days	\$	880.00		\$	589,600	
	1	No. Bobcat	335	days	\$	720.00		\$	241,200	
	1	No. Tip Truck	335	days	\$	680.00		\$	227,800	
Subtotal: Plant Cost									\$ 1,058,600	
1.3	Materials									
		Supply of 300mm steel Pipe and fittings - including 5% wastage allowance	3,780	m	\$	280.00	\$	1,058,400		
		Supply of 180 PE10 and fittings- including 5% wastage allowance	840	m	\$	28.00	\$	23,520		
		Miscellaneous materials allowance for connections	3	No	\$	5,000.00	\$	15,000		
		Supply of thinsulators (encased pipe sections)	132	No.	\$	100.00	\$	13,200		
		Sawcut existing pavement	8,000	m	\$	10.00	\$	80,000		
		Supply of bedding sand	3,960	m	\$	12.00	\$	47,520		
		Supply of crushed rock (backfill)	3,960	m	\$	44.00	\$	174,240		
		Supply and lay asphalt (ASSUME BY OTHERS)	3,960	m	\$	-	\$	-		
	Subtotal: Materials Cost									\$ 1,411,880
1.4	Reinstatement									
		Tipping Fees	3,960	m	\$	16.00		\$	63,360	
		Reinstate trenching section	3,960	m	\$	18.00		\$	71,280	
		Reinstate bored section	440	m	\$	12.00		\$	5,280	
Subtotal: Reinstatement Costs									\$ 139,920	
SUBTOTAL: MAINS AND SERVICES RENEWAL							\$ 1,411,880	\$ 1,936,120	\$ 1,058,600	\$ 4,406,600
2	Testing - included in above costs									
	2.1	NIL								
Subtotal: Testing							\$ -	\$ -	\$ -	\$ -
TOTAL CAPITAL COST							\$ 1,411,880.00	\$ 1,936,120.00	\$ 1,058,600.00	\$ 4,406,600.00
4	Design and Planning	8%	On capital cost						\$ 290,435.04	
5	Management and Supervision	12%	On capital cost						\$ 428,737.44	
6	Site Establishment	2%	On capital cost						\$ 82,981.44	
7	Traffic Management	8%	On capital cost						\$ 290,435.04	
8	Insurances	0.5%	On capital cost						\$ 18,670.82	
9	Environmental Allowances	1%	On capital cost						\$ 48,405.84	
10	As-Built Drawings	0.5%	On capital cost						\$ 18,670.82	
CONSTRUCTION COST (DIRECT + INDIRECT COST)									\$ 5,594,936	
11	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)		10.0%	On Const. Cost					\$ 567,152.00	
PRELIMINARY ESTIMATED CONSTRUCTION COST STAGE B										\$ 6,152,088
TOTAL PRELIMINARY ESTIMATED CONSTRUCTION COST (STAGE A + STAGE B)										\$ 11,245,125

MULTINET GAS (MG-2016-15) - WEEDEN DVE, VERMONT MP - HP MAINS RENEWAL GAAR INDEPENDENT ESTIMATE
17,659 m of MP to HP renewal with 63P10

Revision: 2/ 18.10.2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 75% of 17,659 m by Horizontal Directional Drilling	13,244	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 50 m per day main isolated at any one time (generally in short sections across the road) > Bore/excavate, install main > Test new supply main > Tap services offtakes	265	Days					
2	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 25% of 17,659 m by Conventional Trenching Method	4,415	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 35m per day	127	Day					
	Number of services = 1174 Assume productivity is 6 No services are replaced and tested per day > Replacement of Services - assume new services are placed inside existing service pipe (and tested).	1,174 196	No. Days					
	LOST TIME Allow 8 days inclement weather and other unforeseen delays	8	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	400	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 400 working days)							
	1 No Supervisor	400	days	\$ 720.00		\$ 288,000		
	5 No. Gas main installers/construction workers	2,000	days	\$ 600.00		\$ 1,200,000		
	Service Proving - assume productivity @ 400m per day (mainly inserted pipe)							
	1 No Construction Worker (Spotter)	44	days	\$ 600.00		\$ 26,489		
	1 No Backhoe	44	days	\$ 800.00		\$ 35,318		
	Other Works Horizontal Directional Drilling by Specialist Contractor (Including set-ups) (Provision of entry/exit holes required is included in the Plant Working Days calculation. Rate includes pipe casing)	13,244	m	\$ 50.00		\$ 662,213		
Subtotal: Labour Cost								\$ 2,212,019
1.2	Plant (based on 400 working days)							
	2 No. Mini excavator	800	days	\$ 880.00			\$ 704,000	
	1 No. Bobcat	400	days	\$ 720.00			\$ 288,000	
	1 No. Tip Truck	400	days	\$ 680.00			\$ 272,000	
Subtotal: Plant Cost								\$ 1,264,000
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	18,542	m	\$ 6.00	\$ 111,252			
	Supply of tie in materials - 63mm poly/100mm/50mm	5	No	\$ 250.00	\$ 1,250			
	Supply of 63mm Valve (open)	-	No	\$ 150.00	\$ -			
	Miscellaneous materials for cut-offs	1	Item	\$ 1,500.00	\$ 1,500			
	Supply of Regulator	1,174	No	\$ 50.00	\$ 58,700			
	Supply of Service Pipes & fittings	1,174	No	\$ 80.00	\$ 93,920			
Subtotal: Materials Cost								\$ 266,622
1.4	Reinstatement							
	>sawcut	8,840	m	\$ 10.00		\$ 88,400		
	>tipping	4,415	m	\$ 15.00		\$ 66,225		
	>Granular pavement	4,415	m	\$ 68.00		\$ 300,220		
	>Asphalt pavement	4,125	m	\$ 90.00		\$ 371,250		
	Reinstate Mains - horizontal drilling section	13,244	m	\$ 12.00		\$ 158,931		
	Reinstate Mains - conventional trenching section	4,415	m	\$ 20.00		\$ 88,295		
	Reinstate Services	1,174	each	\$ 100.00		\$ 117,400		
Subtotal: Reinstatement Costs								\$ 1,190,721
SUBTOTAL: MAINS AND SERVICES RENEWAL					\$ 266,622	\$ 3,402,740	\$ 1,264,000	\$ 4,933,362
2	Testing - included in above costs							
2.1	NIL							
Subtotal: Testing					\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	Inline Tie-in (4 Nos 150mm & 1 No 100mm cut offs_capping of live side) & Inline 63mm tie-in for new & existing pipes (5 Nos) - 10 day operation conducted during a normal weekday	10	Day	\$ 6,000.00		\$ 60,000		
Subtotal:Miscellaneous Works					\$ -	\$ 60,000	\$ -	\$ 60,000
TOTAL CAPITAL COST					\$ 266,622	\$ 3,462,740	\$ 1,264,000	\$ 4,993,362
4	Design and Planning	8%	On capital cost					\$ 419,442
5	Management and Supervision	12%	On capital cost					\$ 619,177
6	Site Establishment	2%	On capital cost					\$ 119,841
7	Traffic Management	6%	On capital cost					\$ 274,635
8	Insurances	0.5%	On capital cost					\$ 26,964
9	As-Built Drawings	0.5%	On capital cost					\$ 26,964
CONSTRUCTION COST (DIRECT + INDIRECT COST)								\$ 6,480,385
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	n Construction Cost					\$ 652,021
PRELIMINARY ESTIMATED CONSTRUCTION COST								\$ 7,132,406

MULTINET GAS (MG-2016-16) KING ARTHUR DR, GLEN WAVERLEY MP HP MAINS RENEWAL GAAR INDEPENDENT ESTIMATE
22,349 m of MP to HP renewal with 63P10

Revision 2: 18/10/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 75% of 22,349 m by Horizontal Directional Drilling	16,762	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 55 m per day main isolated at any one time (generally in short sections across the road) > Bore/excavate, install main > Test new supply main > Tap services offtakes	305	Days					
2	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 25% of 22,349 m by Conventional Trenching Method	5,587	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 36m per day	156	Day					
	Number of services = 1306 Assume productivity is 6 No services are replaced and tested per day > Replacement of Services - assume new services are placed inside existing service pipe (and tested).	1,306 218	No. Days					
	LOST TIME Allow 9 days inclement weather and other unforeseen delays	9	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	470	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 470 working days)							
	1 No Supervisor	470	days	\$ 720.00		\$ 338,400		
	5 No. Gas main installers/construction workers	2,350	days	\$ 600.00		\$ 1,410,000		
	Service Proving - assume productivity @ 400m per day							
	1 No Construction Worker (Spotter)	56	days	\$ 600.00		\$ 33,524		
	1 No Backhoe	56	days	\$ 800.00		\$ 44,698		
	Other Works Horizontal Directional Drilling by Specialist Contractor (Including set-ups) (Provision of entry/exit holes required is included in the Plant Working Days calculation)	16,762	m	\$ 50.00		\$ 838,088		
	Subtotal: Labour Cost							\$ 2,664,709
1.2	Plant (based on 470 working days)							
	2 No. Mini excavator	940	days	\$ 880.00			\$ 827,200	
	1 No. Bobcat	470	days	\$ 720.00			\$ 338,400	
	1 No. Tip Truck	470	days	\$ 680.00			\$ 319,600	
	Subtotal: Plant Cost							\$ 1,485,200
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	23,466	m	\$ 6.00	\$ 140,799			
	Supply of T.D. Williamson 3-way equal tees (50WT)	6	No	\$ 500.00	\$ 3,000			
	Supply of tie-in materials -63mm poly/200mm	8	No	\$ 250.00	\$ 2,000			
	Supply of 63mm Valve (open)	-	No	\$ 150.00	\$ -			
	Miscellaneous materials for cut-offs	1	Item	\$ 2,000.00	\$ 2,000			
	Supply of Regulator	1,306	No	\$ 50.00	\$ 65,300			
	Supply of Service Pipes & fittings	1,306	No	\$ 80.00	\$ 104,480			
	Subtotal: Materials Cost							\$ 317,579
1.4	Reinstatement							
	>sawcut	11,200	m	\$ 10.00		\$ 112,000		
	>Tipping	5,587	m	\$ 10.00		\$ 55,870		
	>Granular pavement	5,587	m	\$ 65.00		\$ 363,155		
	> Asphalt pavement	5,587	m	\$ 90.00		\$ 502,830		
	Reinstate Mains - horizontal drilling section	16,762	m	\$ 12.00		\$ 201,141		
	Reinstate Mains - conventional trenching section	5,587	m	\$ 20.00		\$ 111,745		
	Reinstate Services	1,306	each	\$ 100.00		\$ 130,600		
	Subtotal: Reinstatement Costs							\$ 1,477,341
	SUBTOTAL: MAINS AND SERVICES RENEWAL				\$ 317,579	\$ 4,142,050	\$ 1,485,200	\$ 5,944,829
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	Inline Tie-in (6 Nos 50mm cut offs_capping of live side) & Inline 50mm Tie-in for new & existing pipes (8 Nos) - 6 day operation conducted during a normal weekday by specialist contractor	6	Day	\$ 5,000.00		\$ 30,000		
3.3	Abandonment of mains incl grout capping	1	Item	\$ 5,000.00	\$ 5,000			
	Subtotal:Miscellaneous Works				\$ 5,000	\$ 30,000	\$ -	\$ 35,000
	TOTAL CAPITAL COST				\$ 322,578.70	\$ 4,172,050	\$ 1,485,200	\$ 5,979,829
4	Design and Planning	8%	On capital cost					\$ 502,306
5	Management and Supervision	12%	On capital cost					\$ 741,499
6	Site Establishment	2%	On capital cost					\$ 143,516
7	Traffic Management	6%	On capital cost					\$ 328,891
8	Insurances	0.5%	On capital cost					\$ 32,291
9	As-Built Drawings	0.5%	On capital cost					\$ 32,291
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 7,760,622
10	Contractor's Offsite Overhead and Profit 10% (of Direct + Indirect Cost)	10.0%	n Construction Cost					\$ 780,831
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 8,541,453

Revision 3: 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace medium pressure main with 63mm P10 main Medium Pressure - by Directional Drilling	1,115	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 50 m per day main isolated at any one time (generally in short sections) > Bore/excavate, install main > Test new supply main > Tap services offtakes	23	Days					
2	Replace medium pressure main with 125mm P10 main Medium Pressure - by Directional Drilling	2,306	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 40 m per day main isolated at any one time (generally in short sections) > Bore/excavate, install main > Test new supply main > Tap services offtakes	58	Days					
3	Replace medium pressure main with 180mm P10 main Medium Pressure - by Directional Drilling	3,390	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 36 m per day main isolated at any one time (generally in short sections) > Bore/excavate, install main > Test new supply main > Tap services offtakes	95	Days					
4	Replace medium pressure main with 63mm P10 main Medium Pressure - by Conventional Trenching Method	77	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 35 m per day	3	Day					
5	Replace medium pressure main with 150mm Steel main Medium Pressure - by Conventional Trenching Method	54	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 24 m per day	3	Day					
6	Replace medium pressure main with 180mm P10 main Medium Pressure - by Conventional Trenching Method	362	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 30 m per day	13	Day					
7	Replace medium pressure main with 300mm Steel main Medium Pressure - by Conventional Trenching Method	777	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 18 m per day	44	Day					
8	6 No./day	318	No.					
	Assume productivity is 6 No services are replaced and tested per day > Replacement of Services - assume new services are placed inside existing service pipe (and tested).	53	Days					
	LOST TIME Allow 11 days inclement weather and other unforeseen delays	11	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	250	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 250 working days)							
	1 No Supervisor	250	days	\$ 720.00		\$ 180,000		
	6 No. Gas main installers/construction workers/welder	1,500	days	\$ 600.00		\$ 900,000		
	Service Proving - assume productivity 200m per day							
	1 No Construction Worker (Spotter)	7	days	\$ 600.00		\$ 4,200		
	1 No Backhoe	7	days	\$ 800.00		\$ 5,600		
	Specialist Works							
	Horizontal Directional Drilling by Specialist Contractor (Including set-ups) (Provision of entry/exit holes required is included in the Working Days calculation)							
	Bore for 63mm pipe	1,115	m	\$ 50.00		\$ 55,750		
	Bore for 125mm pipe	2,306	m	\$ 150.00		\$ 345,900		
	Bore for 180mm pipe	3,390	m	\$ 220.00		\$ 745,800		
	WT Tie in (50mm)	36	No.	\$ 3,500.00		\$ 126,000		
	WT Tie In (100mm)	3	No.	\$ 6,500.00		\$ 19,500		
	150mm In line Tie in	17	No.	\$ 6,000.00		\$ 102,000		
	150 mm Steel Double Stop tie in	3	No.	\$ 8,000.00		\$ 24,000		
	300mm Tie in	4	No.	\$ 15,000.00		\$ 60,000		
	Subtotal: Labour Cost							\$ 2,568,750
1.2	Plant (based on 250 working days)							
	2 No. excavator	500	days	\$ 1,000.00			\$ 500,000	
	1 No. Bobcat	250	days	\$ 720.00			\$ 180,000	
	1 No. Tip Truck	250	days	\$ 680.00			\$ 170,000	
	Subtotal: Plant Cost							\$ 850,000
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	1,252	m	\$ 6.00	\$ 7,510			
	Supply of 125mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	2,422	m	\$ 18.00	\$ 43,591			
	Supply of 180mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	3,940	m	\$ 32.00	\$ 126,076			
	Supply of 150mm steel Pipe and fittings - including 5% wastage allowance	54	m	\$ 74.00	\$ 4,023			
	Supply of 300mm steel Pipe and fittings - including 5% wastage allowance	777	m	\$ 195.00	\$ 151,590			
	Supply of fittings for 50mm connections	42	No	\$ 120.00	\$ 5,040.00			
	Supply of fittings for 100mm connections	7	No	\$ 180.00	\$ 1,260.00			
	Supply of fittings for 150mm connections	20	No	\$ 250.00	\$ 5,000.00			
	Supply of fittings for 300mm connections	4	No	\$ 500.00	\$ 2,000.00			
	Supply of 150mm Valve (Steel)	3	No	\$ 3,000.00	\$ 9,000.00			
	Miscellaneous materials allowance for inline items	35	No	\$ 150.00	\$ 5,250.00			
	Supply of Regulator	318	No	\$ 50.00	\$ 15,900.00			
	Supply of Service Pipes & fittings	318	No	\$ 80.00	\$ 25,440.00			
	Subtotal: Materials Cost							\$ 401,680
1.4	Reinstatement							
	Pavement							
	>Sawcut	2,540	m	\$ 10.00		\$ 25,400		
	>Tipping	1,270	m	\$ 15.00		\$ 19,050		
	>Granular pavement	1,270	m	\$ 68.00		\$ 86,360		
	>Asphalt Pavement	1,270	m	\$ 90.00		\$ 114,300		
	Reinstate Mains - horizontal drilling section	6,812	m	\$ 12.00		\$ 81,739		
	Reinstate Mains - conventional trenching section	1,271	m	\$ 50.00		\$ 63,542		
	Reinstate Services	318	each	\$ 100.00		\$ 31,800		
	Subtotal: Reinstatement Costs							\$ 422,192
	SUBTOTAL: MAINS AND SERVICES RENEWAL			\$ 401,680		\$ 2,990,942	\$ 850,000	\$ 4,242,622
2	Testing - included in above costs							
2.1	NIL							
	Subtotal: Testing				\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
	2 No./day 63mm in line tie in (4 No.)	2	Day	\$ 3,750.00		\$ 7,500		
	2 No. /day 50 steel tie in (27 No.)	14	Day	\$ 3,750.00		\$ 52,500		
	1 No. /day 100 steel in line tie in (8 No.)	8	Day	\$ 3,750.00		\$ 30,000		
	Abandonment of mains incl cut off and grouting	1	Item	\$ 4,000.00	\$ 4,000			
	Subtotal:Miscellaneous Works				\$ 4,000	\$ 90,000	\$ -	\$ 94,000
	TOTAL CAPITAL COST				\$ 405,680.13	\$ 3,080,941.50	\$ 850,000.00	\$ 4,336,621.63
4	Design and Planning	8%	On capital cost					\$ 364,276.22
5	Management and Supervision	12%	On capital cost					\$ 537,741.08
6	Site Establishment	2%	On capital cost					\$ 104,078.92
7	Traffic Management	5%	On capital cost					\$ 234,177.57
8	Insurances	0.5%	On capital cost					\$ 23,417.76
9	As-Built Drawings	0.5%	On capital cost					\$ 23,417.76
	CONSTRUCTION COST (DIRECT + INDIRECT COST)							\$ 5,623,731
10	Contractor's Offsite Overhead and Profit, 10% of (Direct + Indirect Cost)	10.0%	h Construction Cost					\$ 570,602.00
	PRELIMINARY ESTIMATED CONSTRUCTION COST							\$ 6,194,333

MULTINET GAS (MG-2016-18) - CLAYTON SOUTH MP - HP CAST IRON RENEWAL GAAR INDEPENDENT ESTIMATE
Approximately 4.1kms of MP to HP renewal with 63P10

Revision 3: 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 50% of 4,100 m by Insertion Method	2,050	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 80 m per day main isolated at any one time > Isolate main / excavate and prepare cut in > Install new high pressure main inside low pressure main > Test new supply main > Tap services offtakes	26	Days					
2	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 25% of 4,100 m by Horizontal Directional Drilling	1,025	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Assume productivity is 40 m per day main isolated at any one time (generally in short sections across the road) > Bore/excavate, install main > Test new supply main > Tap services offtakes	26	Days					
3	Replace medium pressure main with 63mm P10 main operating at High Pressure - allow 25% of 4,100 m by Conventional Trenching Method	1,025	m					
	Reticulation - Main and Service Replacement MAINS / SERVICES Dig, lay and backfill_productivity @ 25m per day	41	Day					
	Number of services = 260 Assume productivity is 6 No services are replaced and tested per day > Replacement of Services - assume new services are placed inside existing service pipe (and tested).	260 44	No. Days					
	LOST TIME Allow 10 days inclement weather and other unforeseen delays	10	(DELAYS)					
	Adopt days highlighted in yellow TOTAL NUMBER OF CONSTRUCTION DAYS	103	W.days					
PROPOSED MAIN CONSTRUCTION								
1.1	Main Crew (based on 103 working days)							
	1 No Supervisor	103	days	\$ 720.00		\$ 74,160		
	6 No. Gas main installers/construction workers	618	days	\$ 600.00		\$ 370,800		
	Service Proving - assume productivity @ 400m per day (mainly inserted pipe)							
	1 No Construction Worker (Spotter)	10	days	\$ 600.00		\$ 6,150		
	1 No Backhoe	10	days	\$ 800.00		\$ 8,200		
	Other Works Horizontal Directional Drilling by Specialist Contractor (Including set-ups) (Provision of entry/exit holes required is included in the Plant Working Days calculation. Rate includes pipe casing)	1,025	m	\$ 50.00		\$ 51,250		
Subtotal: Labour Cost								
1.2	Plant (based on 103 working days)							
	2 No. Mini excavator	206	days	\$ 880.00			\$ 181,280	
	1 No. Bobcat	103	days	\$ 720.00			\$ 74,160	
	1 No. Tip Truck	103	days	\$ 680.00			\$ 70,040	
Subtotal: Plant Cost								
1.3	Materials							
	Supply of 63mm High Pressure PE100 Pipe and fittings - including 5% wastage allowance	4,305	m	\$ 6.00	\$ 25,830.00			
	Supply of T.D. Williamson 3-way equal tees (100WT)	1	No	\$ 1,000.00	\$ 1,000.00			
	Supply of T.D. Williamson 3-way equal tees (50WT)	3	No	\$ 500.00	\$ 1,500.00			
	Supply of 50mm & 100mm CI x 180mm poly inline tie-in	2	No	\$ 250.00	\$ 500.00			
	Supply of Equal Tee T.I. - 100mm/150mm	1	No	\$ 250.00	\$ 250.00			
	Miscellaneous materials for cut-offs	1	Item	\$ 5,000.00	\$ 5,000.00			
	Supply of Regulator	260	No	\$ 50.00	\$ 13,000.00			
	Supply of Service Pipes & fittings	260	No	\$ 80.00	\$ 20,800.00			
Subtotal: Materials Cost								
1.4	Reinstatement							
	Reinstate Mains - insertion method section	2,050	m	\$ 6.00		\$ 12,300		
	Reinstate Mains - horizontal drilling section	1,025	m	\$ 14.00		\$ 14,350		
	Reinstate Mains - conventional trenching section	1,025	m	\$ 20.00		\$ 20,500		
	Reinstate Services	260	each	\$ 100.00		\$ 26,000		
Subtotal: Reinstatement Costs								
SUBTOTAL: MAINS AND SERVICES RENEWAL					\$ 67,880	\$ 583,710	\$ 325,480	\$ 977,070
2	Testing - included in above costs							
2.1	NIL							
Subtotal: Testing					\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	Inline Tie-in via 3 Way Equal Tee (8 Nos cut offs_capping of live side) & Inline Tie-in for new & existing pipes (7 Nos) - 12 day operation conducted during a normal weekday by specialist contractor	12	Day	\$ 3,750.00		\$ 45,000		
3.2	Pit to be decommissioned:Pit P2-234 Regent Avenue	1	No	\$ 2,000.00		\$ 2,000		
3.3	Abandonment of mains and grouting of unprotected steel sections (say 700 m, generally existing pipes are 100mm to 150mm diameter)	1	Item	\$ 4,000.00	\$ 4,000			
Subtotal:Miscellaneous Works					\$ 4,000	\$ 47,000	\$ -	\$ 51,000
TOTAL CAPITAL COST					\$ 71,880.00	\$ 630,710.00	\$ 325,480.00	\$ 1,028,070.00
4	Design and Planning	8%	On capital cost					\$ 86,357.88
5	Management and Supervision	12%	On capital cost					\$ 127,480.68
6	Site Establishment	2%	On capital cost					\$ 24,673.68
7	Traffic Management	6%	On capital cost					\$ 57,571.92
8	Insurances	0.5%	On capital cost					\$ 5,551.58
9	As-Built Drawings	0.5%	On capital cost					\$ 5,551.58
CONSTRUCTION COST (DIRECT + INDIRECT COST)								\$ 1,335,257
10	Contractor's Offsite Overhead and Profit (10% of Direct + Indirect Cost)	10%	h Construction Cost					\$ 137,307.00
PRELIMINARY ESTIMATED CONSTRUCTION COST								\$ 1,472,564

MULTINET GAS (MG-2016-19) - Sherbrooke Road, Sassafras Augmentation Project
Mains 125mm P10 PE Augmentation High Level Cost Estimate
(To maintain minimum pressure of Olinda South HP above 140KPa)
Total Length of Proposed Augmentation (1,500m)

Revision: 2 04/11/2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Proposed 125mm P10 Grid Main by Conventional Trenching Method (assumed)	1,500	m					
	Reticulation - New Grid Main							
	MAINS ONLY							
	Dig, lay and backfill _ productivity @ 30m per day	50	Days					
	Number of services = 0	-	No.					
	Assume 6 No services are replaced and tested per day (single services) 12 services per day (multi services)	-	Days					
	> Replacement of Services - assume new services are placed inside existing service pipe (and tested).							
	LOST TIME							
	Allow 4 days inclement weather and other unforeseen delays	4	(DELAYS)					
	<i>Adopt days highlighted in yellow</i>							
	TOTAL NUMBER OF CONSTRUCTION DAYS	54	W.days					
PROPOSED GRID MAIN								
1.1	Main Crew (based on 54 working days)							
	1 No Crew Leader	54	days	\$ 720.00		\$ 38,880		
	5 No. Gas main installers/construction workers	270	days	\$ 600.00		\$ 162,000		
	0 No Construction Worker (Spotter)	-	days	\$ 600.00		\$ -		
	Service Proving - assume included above							
Subtotal: Labour Cost								\$ 200,880
1.2	Plant (based on 54 working days)							
	2 No. Mini excavator	108	days	\$ 880.00			\$ 95,040	
	1 No. Bobcat	54	days	\$ 720.00			\$ 38,880	
	1 No. Tip Truck	54	days	\$ 680.00			\$ 36,720	
Subtotal: Plant Cost								\$ 170,640
1.3	Materials							
	Pavement							
	>Contaminated materials - assume 10% of excavated materials	169	tonne	\$ 100.00	\$ 16,875			
	>Rock Excavation - assume 10% rock	94	m3	\$ 90.00			\$ 8,438	
	>Sawcut - not required (trenching is outside road pavement)	-	m	\$ 10.00		\$ -		
	>Pipe bedding/backfill	1,500	m	\$ 60.00	\$ 90,000			
	>Asphalt Pavement - not required_trenching is outside road pavement	-	m	\$ 90.00	\$ -			
	Tipping - dispose excess materials @ 5.5 m3 per load (volume replaced with granular materials = 0.24m3/m)	65	loads	\$ 100.00	\$ 6,500			
	Pipes & Fittings							
	Supply of 125mm High Pressure P10Pipe and fittings - including 5% wastage allowance	1,575	m	\$ 15.00	\$ 23,625.00			
	Supply of 100S7 x 125P10 Tie In	2	No	\$ 200.00	\$ 400.00			
	Supply of Regulator	-	No	\$ 50.00	\$ -			
	Supply of service pipes & fittings	-	No	\$ 80.00	\$ -			
Subtotal: Materials Cost								\$ 145,838
1.4	Reinstatement							
	Reinstate Mains - trenching section	1,500	m	\$ 20.00		\$ 30,000		
	Reinstate Mains - horizontal drilling section							
Subtotal: Reinstatement Costs								\$ 30,000
2	Testing - included in above costs							
	2.1 NIL							
Subtotal: Testing					\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
	3.1 Inline Tie-in 2No. (4hrs/ea.) - by specialist contractor	1.0	Day	\$ 2,600.00		\$ 2,600		
Subtotal:Miscellaneous Works								\$ 2,600
TOTAL DIRECT COST					\$ 137,400.00	\$ 233,480.00	\$ 179,077.50	\$ 549,958
4	Design and Planning	8%	On Direct Cost					\$ 45,646
5	Management and Supervision	12%	On Direct Cost					\$ 68,195
6	Site Establishment	2%	On Direct Cost					\$ 12,649
7	Traffic Management	7%	On Direct Cost					\$ 40,697
8	Insurances (assume included in OH&P)	0%	On Direct Cost					\$ -
9	Environmental Management Plan	3%	On Direct Cost					\$ 16,499
10	Flora & Fauna Plan	3%	On Direct Cost					\$ 16,499
11	Construction Management Plan	2%	On Direct Cost					\$ 10,999
12	Fire Management Plan	3%	On Direct Cost					\$ 18,699
13	Cultural Heritage Management Plan	3%	On Direct Cost					\$ 16,499
14	As-Built Drawings	2%	On Direct Cost					\$ 10,999
CONSTRUCTION COST (DIRECT + INDIRECT COST)								\$ 807,338
15	Contractor's Offsite Overhead and Profit (10% of Direct + Indirect Cost)	10.0%	h Construction Cost					\$ 82,539
PRELIMINARY ESTIMATED CONSTRUCTION COST								\$ 889,877

MULTINET GAS (MG-2016-21) - Lorimer Street, Docklands Augmentation Project

Mains 180mm P10 PE Augmentation High Level Cost Estimate

Total Length of Proposed Augmentation (1,400 m)

Revision: 2/ 04.11.2016

Item No	Scope of Work	Quantity	Unit	Rate	Material	Labour	Plant	Preliminary Cost Estimate
NUMBER OF CONSTRUCTION DAYS								
1	Proposed 180mm P10 Grid Main by Conventional Trenching Method	1,400	m					
	Reticulation - New Grid Main							
	MAINS ONLY							
	Dig, lay and backfill _ productivity @ 25m per day	56	Days					
	Number of services = 0	-	No.					
	Assume 6 No services are replaced and tested per day (single services) 12 services per day multi services	-	Days					
	> Replacement of Services - assume new services are placed inside existing service pipe (and tested).							
	LOST TIME							
	Allow 4 days inclement weather and other unforeseen delays	4	(DELAYS)					
	Adopt days highlighted in yellow							
	TOTAL NUMBER OF CONSTRUCTION DAYS	60	W.days					
PROPOSED GRID MAIN								
1.1	Main Crew (based on 60 working days)							
	1 No Crew Leader	60	days	\$ 720.00		\$ 43,200		
	5 No. Gas main installers/construction workers	300	days	\$ 600.00		\$ 180,000		
	1 No Construction Worker (Spotter) - due to presence of overhead wires and close to CityLink (Bolte Bridge)	60	days	\$ 600.00		\$ 36,000		
	Service Proving - assume included above							
Subtotal: Labour Cost								\$ 259,200
1.2	Plant (based on 60 working days)							
	2 No. Mini excavator	120	days	\$ 880.00			\$ 105,600	
	1 No. Bobcat	60	days	\$ 720.00			\$ 43,200	
	1 No. Tip Truck	60	days	\$ 680.00			\$ 40,800	
Subtotal: Plant Cost								\$ 189,600
1.3	Materials							
	Pavement							
	>Contaminated materials - assume 10% of excavated materials	171	tonne	\$ 100.00	\$ 17,136			
	>Rock Excavation - assume no rock	-	m3	\$ 90.00		\$ -		
	>Sawcut	2,800	m	\$ 10.00		\$ 28,000		
	>Pipe bedding/backfill	1,400	m	\$ 60.00	\$ 84,000			
	>Granular Pavement (200mm CTCR)	1,400	m	\$ 15.00	\$ 21,000			
	>Asphalt Pavement (150mm thick + 40mm wearing course)	1,400	m	\$ 90.00	\$ 126,000			
	Tipping - dispose excess materials @ 5.5 m3 per load	170	loads	\$ 100.00	\$ 17,000			
	Pipes & Fittings							
	Supply of 180mm High Pressure P10Pipe and fittings - including 5% wastage allowance	1,470	m	\$ 30.00	\$ 44,100.00			
	Supply of 100S7 x 180P10 Tie In	1	No	\$ 250.00	\$ 250.00			
	Supply of 200S4 x 180P10 Tie In	1	No	\$ 450.00	\$ 450.00			
	Supply of Regulator	-	No	\$ 50.00	\$ -			
	Supply of service pipes & fittings	-	No	\$ 80.00	\$ -			
Subtotal: Materials Cost								\$ 337,936
1.4	Reinstatement							
	Reinstate Mains - trenching section	1,400	m	\$ 20.00		\$ 28,000		
	Reinstate Mains - horizontal drilling section							
Subtotal: Reinstatement Costs								\$ 28,000
2	Testing - included in above costs							
2.1	NIL							
Subtotal: Testing					\$ -	\$ -	\$ -	\$ -
3	Miscellaneous Works							
3.1	Inline Tie-in 2No. (4hrs/ea.) - by specialist contractor	1.0	Day	\$ 2,600.00		\$ 2,600		
Subtotal:Miscellaneous Works								\$ 2,600
TOTAL DIRECT COST					\$ 309,936.00	\$ 317,800.00	\$ 189,600.00	\$ 817,336
4	Design and Planning	8%	On Direct Cost					\$ 68,656
5	Management and Supervision	12%	On Direct Cost					\$ 101,350
6	Site Establishment	2%	On Direct Cost					\$ 19,616
7	Traffic Management	7%	On Direct Cost					\$ 60,483
8	Insurances (assume included in OH&P)	0%	On Direct Cost					\$ -
9	As-Built Drawings	2%	On Direct Cost					\$ 18,799
CONSTRUCTION COST (DIRECT + INDIRECT COST)								\$ 1,086,240
10	Contractor's Offsite Overhead and Profit (10% of Direct + Indirect Cost)	10.0%	On Construction Cost					\$ 108,587
PRELIMINARY ESTIMATED CONSTRUCTION COST								\$ 1,194,827



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Appendix B Complex Services Cost Estimates



Dandenong Complex Service Locations

Location (from Walk Sheet)	No.	Assumed Fitting Line (m)	Assumed \$/m	Cost per Manifold	Total
Back of House	201	10	50		\$ 100,500
Back Yard	3	10	50		\$ 1,500
Cupboard	4	10	50		\$ 2,000
Group of Valves	60			3000	\$ 180,000 (based on 6 @\$500)
Kitchen	6	10	50		\$ 3,000
Upper Back House	1	10	50		\$ 500
Upper Right side	8	5	50		\$ 2,000
Wash House	7	10	50		\$ 3,500
Total					\$ 293,000

St. Kilda Complex Service Locations

Location (from Walk Sheet)	No.	Assumed		Cost per Manifold	Total	
		Fitting Line (m)	Assumed \$/m			
Back of House	178	10	50		\$ 89,000	
Back Verandah	12	10	50		\$ 6,000	
Back Yard	5	10	50		\$ 2,500	
Basement	1	10	50		\$ 500	
Cupboard	11	10	50		\$ 5,500	
Garage	58	10	50		\$ 29,000	
Group of Meters	41			4000	\$ 164,000	(based on 8 @\$500)
Kitchen	1	10	50		\$ 500	
Under Left Side	21	5	50		\$ 5,250	
Under Stairs	7	10	50		\$ 3,500	
Wash House	2	10	50		\$ 1,000	
Total					\$ 306,750	

Southbank Complex Service Locations

		Assumed			
Location (from Walk Sheet)	No.	Fitting Line (m)	Assumed \$/m	Cost per Manifold	Total
Back of House	106	10	50		\$ 53,000
Basement	10	10	50		\$ 5,000
Group of Meters	12			4000	\$ 48,000 (based on 8 @\$500/upstand)
Passage	2	10	50		\$ 1,000
Store Room	6	10	50		\$ 3,000
Underback House	2	5	50		\$ 500
Upstairs	1	10	50		\$ 500
Under Stairs	1	10	50		\$ 500
Wash House	1	10	50		\$ 500
				Total	\$ 112,000

Toorak Complex Service Locations

Location (from Walk Sheet)	No.	Assumed Fitting Line (m)	Assumed \$/m	Cost per Manifold	Total
Back of House	104	10	50		\$ 52,000
Basement	1	10	50		\$ 500
Garage	11	10	50		\$ 5,500
Group of Meters	50			4000	\$ 200,000 (based on 8 @\$500)
Over Back Door	5	5	50		\$ 1,250
UnderRight Side	7	5	50		\$ 1,750
Under Stairs	3	10	50		\$ 1,500
Wash House	1	10	50		\$ 500
Total					\$ 263,000

Elwood Complex Service Locations

Location (from Walk Sheet)	No.	Assumed		Cost per Manifold	Total	
		Fitting Line (m)	Assumed \$/m			
Back of House	885	10	50		\$ 442,500	
Back Verandah	25	10	50		\$ 12,500	
Back Yard	45	10	50		\$ 22,500	
Basement	9	10	50		\$ 4,500	
Cupboard	15	10	50		\$ 7,500	
Garage	85	10	50		\$ 42,500	
Group of Meters	256			4000	\$ 1,024,000	(based on 8 @\$500)
Kitchen	4	10	50		\$ 2,000	
Store Room	2	10	50		\$ 1,000	
Under Left Side	34	5	50		\$ 8,500	
Under Stairs	60	10	50		\$ 30,000	
Upstairs	2	10	50		\$ 1,000	
Wash House	1	10	50		\$ 500	
Total					\$ 1,599,000	

Port Melbourne Complex Service Locations

Location (from Walk Sheet)	No.	Assumed		Cost per Manifold	Total	
		Fitting Line (m)	Assumed \$/m			
Unknown	10	10	50		5000	
Back of House	46	10	50		\$ 23,000	
Back Verandah	2	10	50		\$ 1,000	
Back Wall	2	10	50		\$ 1,000	
Back Yard	7	10	50		\$ 3,500	
Basement	6	10	50		\$ 3,000	
Bathroom	1	10	50		\$ 500	
Cupboard	1	10	50		\$ 500	
Group of Meters	7			4000	\$ 28,000	(based on 8 @\$500)
Storeroom	1	10	50		\$ 500	
Over Back Door	1	5	50		\$ 250	
Passage	2	10	50		\$ 1,000	
Total					\$ 67,250	