MEMORANDUM (DRAFT)

DATE	12 December 2023
TO	Scott Chapman
FROM	Brett Murray
REGARDING	Blacktown Stormwater Basins – Peer Review of Mitchell Brandtman Cost Estimate

In support of your request to review the reasonableness of Blacktown City Councils costs for five (5) stormwater basins in CP20, WT have undertaken a targeted review of the councils' proposed costs for the five stormwater basins. WT have prepared this report for peer review purposes and is not to be relied upon as an exact cost estimate for each of the basins. WT have adopted costs for items deemed reasonable within the councils estimate. This report includes all costs relating to the following scope:

1. E4.14 Jacqui Ave
2. E14.2 Albert Street
3. F19.1 Hamilton Street
4. F23.1 Woodland Street
5. F24.1 Victoria Street

The councils estimate of construction costs has been based on an assessment from Mitchell Brandtman Quantity Surveyors, who for the purposes of this report will be referred to as 'MB'. As of March 2023, MB's estimate was $75,932,121 Excluding GST. To arrive at a like for like comparison, WT have escalated this figure to current day to $78,201,085 Excluding GST by applying WT tender price indices. Please refer to Appendix B for a copy of WT's tender price indices as of November 2023. WTs comparative assessment of total cost at current day is **$85,182,218 Excluding GST.** The total variance of $6,972,134 Excluding GST between the two assessments is considered within reasonable tolerances for the scope of works required and information available.

The key uncertainty uncovered throughout the peer review pertains to the incompleteness of the design information available, mostly in relation to the design levels that inform excavation quantities. The information available has required both MB and WT to make assumptions around the proposed design levels. The key theme between the two QS figures extend to MB's excavation quantities being in most cases more than WT, however WT assess the rates applied to the works to be higher. To this end, if the assumptions made by MB in relation to design levels are correct, the total variance in cost could increase. A key risk in relation to major earthworks programs extend to the contracting methodology and the unwillingness of contractors to take the 'risk' due to unknown ground conditions. Cost plus or Cost Reimbursable contracts are often entered into where a contractor is reimbursed its costs, plus an amount for profit. Appropriate contingency provisions must be held to offset likely cost overruns.

As requested by IPART, WT have made a below the line provision for price escalation to the assumed mid-point of construction for each basin to provide an indication of total outturn cost. It is indicated in the council's contribution plan, several of the basins are unlikely to move into construction for several years, which will attract construction cost increases that fluctuate with inflation over time.

Given the incompleteness of the design, and inherent risks associated with major earthworks projects, the range of outturn costs expected for a project of this nature may fall within a **+/- 20%** of the WT costs presented in this report at current day prices.

WT have carried out a peer review of Mitchell Brandtmans estimate, of which the cost comparison between each of the five basins is identified below:

BLACKTOWN STORMWATER BASINS			
Description	**MITCHELL BRANDTMAN ($)**	**WTP ($)**	**VARIANCE ($)**
E4.14 JACQUI AVENUE	$8,334,584	$8,376,245	$41,661
E14.2 ALBERT STREET	$13,852,671	$9,840,900	-$4,011,771
F19.1 HAMILTON STREET	$24,483,268	$35,473,116	$10,989,848
F23.1 WOODLAND STREET	$8,430,570	$10,538,540	$2,107,970
F24.1 VICTORIA STREET	$20,831,028	$20,953,416	$122,388
ESCALATE TO CURRENT DAY	$2,277,964	Included	-$2,277,964
Current Day Construction Total (Excl Escalation & GST)	**$78,210,085**	**$85,182,218**	**$6,972,134**
PRICE ESCALATION	Excluded	$12,091,577	$12,091,577
Outturn Construction Total (Excl. GST)	**$78,210,085**	**$97,273,795**	**$19,063,711**

We attach our Summary Report for your reference which includes the following:

- Methodology
- Assessment of Total Costs
- Key Findings
- Key Risks & Uncertainties
- Conclusion

Should you require any further information or wish to discuss any aspect of the attached, please do not hesitate to contact us.

Yours faithfully

B. Murray.

BRETT MURRAY
Associate

A. METHODOLOGY

WT were requested to undertake a targeted review of the reasonableness of the Blacktown City Councils costs for five Stormwater Basins under CP20. To do thus, WT conducted an independent measure and review of the bulk quantities and rates as presented in MB's cost estimate, namely pertaining to the bulk excavation works. WT have measured bulk earthworks volumes from the design documentation provided by IPART for each of the five basins. WT have had to make several assumptions around design levels to arrive at excavation volumes to inform the quantities in the assessment.

WT have utilised an extensive in-house data base of live and previous construction projects of a similar size and scope to benchmark the rates submitted by MB. The aim of the bulk quantity and rate check is to determine whether MB's rates and quantities fall within reasonable tolerances for the scope of works required.

In preparing this review and report, WT have attended a review meeting with IPART to discuss initial findings and progress of the report. WT have taken receipt of all documentation made available to prepare the review. WT assume the information provided is the same as provided to MB. WT has reviewed the project information and drawings to determine the projects scope, together with any assumptions made in the preparation of MB's cost estimate.

WT has undertaken an independent review of the major cost items to verify the reasonableness of the quantities and rates, in addition to reviewing the documentation in relation construction methodologies. WT has attempted to review any additional information or logic as to how the preliminaries, or indirect costs have been arrived at the by MB, however there is insufficient information to do so.

WT have not prepared an independent cost estimate for comparative review and have adopted costs that appear reasonable for the purposes of this review. This report does not include a review of the following:

- Construction programme
- Risk and contingency allowances
- Constructability
- Property acquisition
- Design

B. ASSESSMENT OF TOTAL COSTS

MB's estimate of the proposed five stormwater basins under CP20 at a total cost of $75,932,121 Excluding GST. As Mitchell Brandtmans estimate was completed in March 2023, WT have escalated these costs to current day to arrive at a like for like comparison. The like for like Mitchell Brandtman number for comparative purposes is **$78,201,085 Excluding GST**. WT's comparative assessment of the costs in totality at current day for all five stormwater basins at current day is **$85,182,218 Excluding GST.** Given the complexity and scope inherent with the nature of this work, the variance of $6,972,134 Excluding GST is considered within reasonable tolerances.

There is substantial risk around the quantities that have been applied in both QS's estimates. As mentioned earlier, the quantities applied by MB are substantially higher than WT, and the general theme is WT's assessed rates are higher. If it is determined the assumptions made by Mitchell Brandtman in relation to the quantities are a more accurate reflection of the outturn requirements, the costs could be substantially more than what WT has assessed.

WT note MB's estimate excludes price escalation to the midpoint of construction, which is considered applicable to arrive at more accurate reflection outturn cost. WT have utilised their own in-house tender

price indices for horizontal construction projects to escalate current day costs to account for future price escalation of building material and tender prices that typically rise and fall with global market factors. The midpoint of construction has been assumed to be the following for each stormwater basin as per the councils contribution plan:

1. E4.14 - Jaqui Ave: Mid 2025
2. E14.2 - Albert St: Start of 2028
3. F19.1 - Hamilton St: Start of 2028
4. F23.1 - Woodland St: Start of 2025
5. F24.1 - Victoria St: Mid 2025

The following table presents a main summary of costs for WT's peer review assessment. A detailed cost comparison can be found in **Appendix A** which illustrates on a line-by-line basis where the key variances are found.

BLACKTOWN STORMWATER CP20 BASINS - PEER REVIEW - DECEMBER 2023							
Description	**E4.14 Jacqui Ave Total**	**E14.2 Albert St Total**	**F19.1 Hamilton St Total**	**F23.1 Woodland St Total**	**F24.1 Victoria St Total**	**TOTAL ALL PROJECTS**	**DIFFERENCE (WT - MB)**
SOIL AND WATER MANAGEMENT	$17,175	$16,245	$23,725	$17,570	$49,620	$124,335	$0
EARTHWORKS	$3,214,296	$3,876,502	$18,536,672	$4,341,652	$6,682,966	$36,652,089	$5,061,017
DRAINAGE	$870,939	$1,171,878	$2,619,373	$1,009,504	$1,526,396	$7,198,090	$1,392,780
RAINGARDEN	$486,250	$414,815	$668,362	$521,287	$2,029,918	$4,120,632	$0
LANDSCAPING	$860,985	$923,160	$1,231,484	$966,627	$3,343,916	$7,326,172	$0
PRELIMINARIES (10%)	$545,000	$640,300	$2,308,000	$685,700	$1,363,300	$5,542,300	$645,400
MARGIN (8%)	$479,600	$563,500	$2,031,100	$603,400	$1,199,700	$4,877,300	$567,900
Construction Total (Excl. Design, Contingency and GST)	**$6,474,245**	**$7,606,400**	**$27,418,716**	**$8,145,740**	**$16,195,816**	**$65,840,918**	**$7,667,097**
PROJECT MANAGEMENT (7.5%)	$485,600	$570,500	$2,056,400	$610,900	$1,214,700	$4,938,100	$2,901,800
DESIGN (5%)	$323,800	$380,400	$1,371,000	$407,300	$809,800	$3,292,300	-$2,525,300
CONTINGENCY (15%)	$1,092,600	$1,283,600	$4,627,000	$1,374,600	$2,733,100	$11,110,900	$1,206,500
Construction Total (Excl. GST and Escalation)	**$8,376,245**	**$9,840,900**	**$35,473,116**	**$10,538,540**	**$20,953,416**	**$85,182,218**	**$9,250,097**
ESCALATE TO CURRENT DAY	Included	Included	Included	Included	Included	Included	-$2,277,964
TOTAL CONSTRUCTION COSTS AT CURRENT DAY	**$8,376,245**	**$9,840,900**	**$35,473,116**	**$10,538,540**	**$20,953,416**	**$85,182,218**	**$6,972,134**
PRICE ESCALATION	$544,456	$2,017,384	$7,271,989	$895,776	$1,361,972	$12,091,577	$12,091,577
TOTAL CONSTRUCTION COSTS INCL ESCALATION (EXCL GST)	**$8,920,701**	**$11,858,284**	**$42,745,105**	**$11,434,316**	**$22,315,388**	**$97,273,795**	**$19,063,711**

C . KEY FINDINGS

MB's estimate as provided by IPART follows a simple logic which is easy to follow and the structure of the estimate is aligned to standards. Throughout the measurement and checking of the bulk earthworks quantities, WT have arrived at variances on numerous items across the five basins in comparison to the MB estimate. The general theme is the quantities derived by MB are more than WT, which may suggest additional risk, or a conservative approach has been taken due to the incompleteness of the design information. In addition, a second theme is that MB's rates are lower in comparison to WT. WT however note in some instances, the quantities are very similar, especially in relation to site areas. A detailed comparison highlighting the key variances can be fond in **Appendix A.** The key bulk earthwork items in questions mainly pertain to:

1. Cut to fill quantities.
2. Cut to stockpile quantities.

3. Tipping fees VENM
4. Tipping fees GSW
5. Tipping fees ACM

It is to be noted items 1 & 2 above inform item 3, 4 & 5. The calculation MB has used to determine the tipping fees in tonnes based on the volume of material to be removed is reasonable and in line with WT's logic.

The variance in these quantities is likely attributed to differences in assumptions around the proposed design levels where the information is not sufficiently detailed on the documents used for quantity take-off. One of the key findings for IPART's consideration is the design documentation provided for quantity take off is highly conceptual, and in several cases does not include design levels that allow an expert to derive firm excavation volumes. To arrive at accurate excavation volumes, existing levels and proposed design levels are required. Typically, when estimating major earthworks, the engineer's calculation of the total cut & fill and cut to stockpile or to be removed from site is relied on through engineer modelling software used to prepare the documentation. Relying on a traditional QS's measurement of major earthworks without sufficient design information prepared by an engineer poses a cost risk.

There are discrepancies within several of the rates applied by MB in comparison to WT's assessment. WT have applied adjusted rates in the peer review mainly around bulk earthworks and drainage items. Some of the key rates for considerations pertain to rates applied to:

Item of Work	Unit	MB ($)	WT ($)	Variance ($)
Clear and Grub	m2	$3.50	$3.00	-$0.50
Strip topsoil and stockpile	m3	$7.00	$13.20	$6.20
Cut to fill, spread and compact	m3	$14.00	$33.00	$19.00
Cut to stockpile	m3	$8.00	$20.50	$12.50
Tipping Fees (VENM) 80%	**t**	**$25.00**	**$79.00**	**$54.00**
Tipping Fees (GSW) - 10%	t	$225.00	$94.00	-$131.00
Tipping Fees (GSW special ACM) - 10%	t	$285.00	$419.00	$134.00

A key rate driving a substantial difference is related to the Tipping Fees associated with VENM disposal. WT have a robust source of current quotations from the market that suggest $79/ tonne is a reasonable rate for application. WT have found the MB estimate applies a flat Preliminaries cost charge at 10% in addition to a Project Management charge at 3.5%. WT consider Project Management should be in the order of 7.5% and have adjusted this accordingly in the assessment. Typically, indirect costs should be built up on first principles as the requirements will be different for each construction site. These costs would likely change substantially upon contracting the work. WT are of the opinion the margin charge applied at 8% is reasonable for the project works in addition to the 15% contingency applied. One of the key findings that may provide some cost reduction is the MB assessment of the design costs at 10% for each basin. These costs are likely overstated, and as such WT have assessed this cost at 5%.

A key cost consideration is MB's estimate excludes all price escalation. WT understand some of the construction work is not commencing for several years. This will attract substantial price escalation due to building cost inflation that rises and falls with the global economy. WT have prepared an indicative assessment of the building cost inflation likely to occur over the period between current day and construction commencement and have shown this as a below the line item.

D. KEY RISKS & UNCERTAINTIES

WT are of the opinion the key risks and uncertainties the council currently faces is the incompleteness of the design documentation used to inform and derive the quantities that have been applied in building up the costs. MB and WT have had to make assumptions around the design levels to inform excavation quantities which poses substantial risk to accurateness of the costs. It is recommended an engineer is engaged to further prepare the design modelling of the basins and to provide advice around the bulk earthworks volumes.

WT notes another substantial risk is the presence of ACM (Asbestos Containing Material) in the ground and requirements for removal. MB makes a provision of 10% of ACM tipping fees. This provision could be a lot more, or less depending on the findings. It is recommended specialist investigation reports are procured to determine the likelihood of ACM material in the construction zones. WT note the drawings appear to indicate a Caltex Petrol station is near one of the basins, which may result in contaminated ground in the surrounding locations.

WT note two of the sites appear to be covered in dense forest. The provision of heavy tree felling does not appear present in the councils estimate. WT have made provision for clearing heavy bush in the 'clear and grub' cost rates. It is to be noted there is likely a 'cost rebate' to consider if there is a market to sell the lumber from the tree felling. Another key consideration is the availability of a major earthworks contractors to undertake the proposed work. It is understood the basins will not be constructed concurrently, which will alleviate the requirement for the administration of multiple contracts. Tendering the works to multiple General Contractors will promote and maintain competition to aid in keeping costs down.

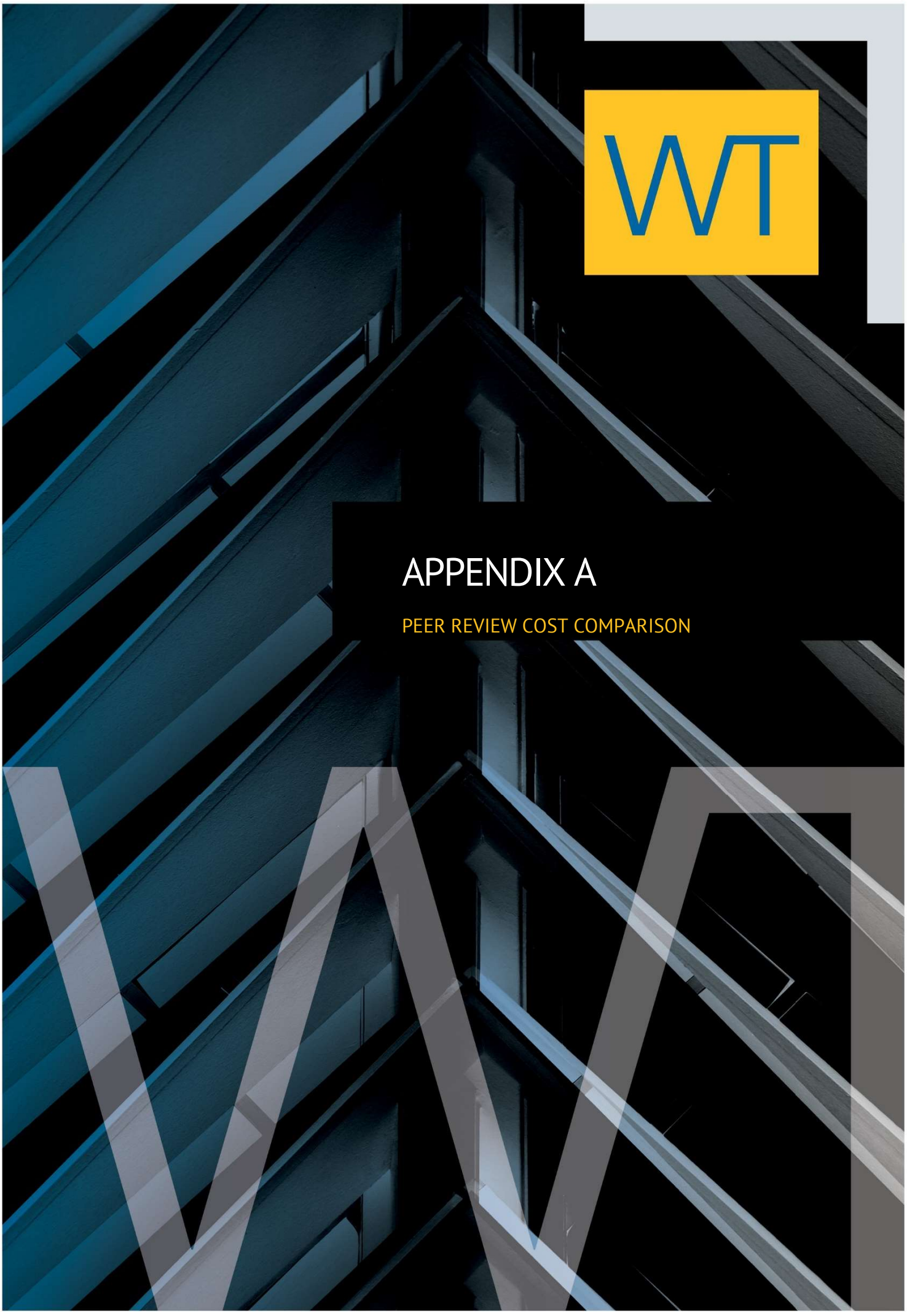
The method of procurement and contracting methodology will play a large role in the costs returned by a General Contractor and the likely outturn cost of the project. Typically, major earthworks projects are procured and contracted under a 'Cost Plus', 'Target Cost' or Cost Reimbursable' contracting methodology, where a General Contractor is reimbursed for all costs, as well as an amount for profit. Under these contracting arrangements, given the uncertainty of the ground conditions and final volumes of excavation required, a General Contractor will typically not take the 'risk' on the quantities. This often results in cost overruns. A contingency should be held to account for such overruns.

E. CONCLUSION

Following our review and assessment of all information provided and meetings attended, WT are of the opinion the costs provided by MB are fair and reasonable and fall within reasonable tolerances for the scope of work required.

To alleviate the key project risk, being the incompleteness of available design information, WT recommend the council re engage design engineers to advise on accurate volumes of material to be excavated and removed from site based on design modelling, and that design levels for all basins are calculated to de risk the project.

If further information is required on any of the above, please do not hesitate to contact us.



APPENDIX A

PEER REVIEW COST COMPARISON

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)

WTP BULK CHECK REVIEW - SUMMRARY ALL PROJECTS

DATE: 12/12/23

REVISION: 00

MITCHELL BRANDTMAN COST ESTIMATE - MARCH 2023							
Description	**E4.14 Jacqui Ave Total**	**E14.2 Albert St Total**	**F19.1 Hamilton St Total**	**F23.1 Woodland St Total**	**F24.1 Victoria St Total**	**TOTAL ALL PROJECTS**	**DIFFERENCE (MB-WT)**
SOIL AND WATER MANAGEMENT	$17,175	$16,245	$23,725	$17,570	$49,620	$124,335	$0
EARTHWORKS	$3,311,833	$6,641,872	$11,895,714	$3,035,977	$6,705,676	$31,591,072	-$5,061,017
DRAINAGE	$698,541	$937,279	$1,969,683	$895,209	$1,304,598	$5,805,310	-$1,392,780
RAINGARDEN	$486,250	$414,815	$668,362	$521,287	$2,029,918	$4,120,632	$0
LANDSCAPING	$860,985	$923,160	$1,231,484	$966,627	$3,343,916	$7,326,172	$0
PRELIMINARIES (10%)	$537,500	$893,400	$1,578,900	$543,700	$1,343,400	$4,896,900	-$645,400
MARGIN (8%)	$473,000	$786,200	$1,389,500	$478,500	$1,182,200	$4,309,400	-$567,900
Construction Total (Excl. Design, Contingency and GST)	**$6,385,284**	**$10,612,971**	**$18,757,368**	**$6,458,870**	**$15,959,328**	**$58,173,821**	**-$7,667,097**
PROJECT MANAGEMENT (3.5%)	$223,500	$371,500	$656,600	$226,100	$558,600	$2,036,300	-$2,901,800
DESIGN (10%)	$638,600	$1,061,300	$1,875,800	$645,900	$1,596,000	$5,817,600	$2,525,300
CONTINGENCY (15%)	$1,087,200	$1,806,900	$3,193,500	$1,099,700	$2,717,100	$9,904,400	-$1,206,500
ESCALATION	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded	$0
Construction Total (Excl. GST and Escalation)	**$8,334,584**	**$13,852,671**	**$24,483,268**	**$8,430,570**	**$20,831,028**	**$75,932,121**	**-$9,250,097**
ESCALATE TO CURRENT DAY	250,037.52	415,580.13	734,498.04	252,917.10	624,930.84	2,277,963.63	$2,277,964
Construction Total (Excl. GST and Escalation)	**$8,584,622**	**$14,268,251**	**$25,217,766**	**$8,683,487**	**$21,455,959**	**$78,210,085**	**-$6,972,134**

PEER REVIEW QUANTITY & RATE BULK CHECK - DECEMBER 2023							
Description	**E4.14 Jacqui Ave Total**	**E14.2 Albert St Total**	**F19.1 Hamilton St Total**	**F23.1 Woodland St Total**	**F24.1 Victoria St Total**	**TOTAL ALL PROJECTS**	**DIFFERENCE (WT - MB)**
SOIL AND WATER MANAGEMENT	$17,175	$16,245	$23,725	$17,570	$49,620	$124,335	$0
EARTHWORKS	$3,214,296	$3,876,502	$18,536,672	$4,341,652	$6,682,966	$36,652,089	$5,061,017
DRAINAGE	$870,939	$1,171,878	$2,619,373	$1,009,504	$1,526,396	$7,198,090	$1,392,780
RAINGARDEN	$486,250	$414,815	$668,362	$521,287	$2,029,918	$4,120,632	$0
LANDSCAPING	$860,985	$923,160	$1,231,484	$966,627	$3,343,916	$7,326,172	$0
PRELIMINARIES (10%)	$545,000	$640,300	$2,308,000	$685,700	$1,363,300	$5,542,300	$645,400
MARGIN (8%)	$479,600	$563,500	$2,031,100	$603,400	$1,199,700	$4,877,300	$567,900
Construction Total (Excl. Design, Contingency and GST)	**$6,474,245**	**$7,606,400**	**$27,418,716**	**$8,145,740**	**$16,195,816**	**$65,840,918**	**$7,667,097**
PROJECT MANAGEMENT (7.5%)	$485,600	$570,500	$2,056,400	$610,900	$1,214,700	$4,938,100	$2,901,800
DESIGN (5%)	$323,800	$380,400	$1,371,000	$407,300	$809,800	$3,292,300	-$2,525,300
CONTINGENCY (15%)	$1,092,600	$1,283,600	$4,627,000	$1,374,600	$2,733,100	$11,110,900	$1,206,500
Construction Total (Excl. GST and Escalation)	**$8,376,245**	**$9,840,900**	**$35,473,116**	**$10,538,540**	**$20,953,416**	**$85,182,218**	**$9,250,097**
ESCALTE TO CURRENT DAY	Included	Included	Included	Included	Included	Included	-$2,277,964
Sub Total	**$8,376,245**	**$9,840,900**	**$35,473,116**	**$10,538,540**	**$20,953,416**	**$85,182,218**	**$6,972,134**
PRICE ESCALATION	$544,456	$2,017,384	$7,271,989	$895,776	$1,361,972	$12,091,577	$12,091,577
Construction Total (Excl. GST)	**$8,920,701**	**$11,858,284**	**$42,745,105**	**$11,434,316**	**$22,315,388**	**$97,273,795**	**$19,063,711**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)

WTP BULK CHECK REVIEW - SUMMRARY PROJECT

DATE: 12/12/23

REVISION: 00

	MB COST ESTIMATE MARCH 2023	WT BULK CHECK DECEMBER 2023		
E4.14 Jacqui Ave Total	**E4.14 MB Total**	**E4.14 WT Total**	**Difference (WT - MB)**	**Comment**
SOIL AND WATER MANAGEMENT	$17,175	$17,175	$0	
EARTHWORKS	$3,311,833	$3,214,296	-$97,537	
DRAINAGE	$698,541	$870,939	$172,398	Variance in rates and quantities
RAINGARDEN	$486,250	$486,250	$0	
LANDSCAPING	$860,985	$860,985	$0	
PRELIMINARIES (10%)	$537,500	$545,000	$7,500	Knock on adjustments
MARGIN (8%)	$473,000	$479,600	$6,600	Knock on adjustments
Construction Total (Excl. Design, Contingency and GST)	**$6,385,284**	**$6,474,245**	**$88,961**	
PROJECT MANAGEMENT (3.5%)	$223,500	$485,600	$262,100	WT Assess Project Management at 7.5%
DESIGN (10%)	$638,600	$323,800	-$314,800	WT Assess Design Costs at 5%
CONTINGENCY (15%)	$1,087,200	$1,092,600	$5,400	
ESCALATION	Excluded			
Construction Total (Excl. GST and Escalation)	**$8,334,584**	**$8,376,245**	**$41,661**	

E14.2 Albert St Total	**E14.2 MB Total**	**E14.2 WT Total**		**Comment**
SOIL AND WATER MANAGEMENT	$16,245	$16,245	$0	
EARTHWORKS	$6,641,872	$3,876,502	-$2,765,370	Variance in rates and quantities
DRAINAGE	$937,279	$1,171,878	$234,599	
RAINGARDEN	$414,815	$414,815	$0	
LANDSCAPING	$923,160	$923,160	$0	
PRELIMINARIES (10%)	$893,400	$640,300	-$253,100	Knock on adjustments
MARGIN (8%)	$786,200	$563,500	-$222,700	Knock on adjustments
Construction Total (Excl. Design, Contingency and GST)	**$10,612,971**	**$7,606,400**	**-$3,006,571**	
PROJECT MANAGEMENT (3.5%)	$371,500	$570,500	$199,000	WT Assess Project Management at 7.5%
DESIGN (10%)	$1,061,300	$380,400	-$680,900	WT Assess Design Costs at 5%
CONTINGENCY (15%)	$1,806,900	$1,283,600	-$523,300	
ESCALATION	Excluded			
Construction Total (Excl. GST and Escalation)	**$13,852,671**	**$9,840,900**	**-$4,011,771**	

F19.1 Hamilton St Total	**F19.1 MB Total**	**F19.1 WT Total**		**Comment**
SOIL AND WATER MANAGEMENT	$23,725	$23,725	$0	
EARTHWORKS	$11,895,714	$18,536,672	$6,640,958	Variance in rates and quantities
DRAINAGE	$1,969,683	$2,619,373	$649,690	Variance in rates and quantities
RAINGARDEN	$668,362	$668,362	$0	
LANDSCAPING	$1,231,484	$1,231,484	$0	
PRELIMINARIES (10%)	$1,578,900	$2,308,000	$729,100	Knock on adjustments
MARGIN (8%)	$1,389,500	$2,031,100	$641,600	Knock on adjustments
Construction Total (Excl. Design, Contingency and GST)	**$18,757,368**	**$27,418,716**	**$8,661,348**	
PROJECT MANAGEMENT (3.5%)	$656,600	$2,056,500	$1,399,900	WT Assess Project Management at 7.5%
DESIGN (10%)	$1,875,800	$1,371,000	-$504,800	WT Assess Design Costs at 5%
CONTINGENCY (15%)	$3,193,500	$4,627,000	$1,433,500	
ESCALATION	Excluded			
Construction Total (Excl. GST and Escalation)	**$24,483,268**	**$35,473,216**	**$10,989,948**	

F23.1 Woodland St Total	**F23.1 MB Total**	**F23.1 WT Total**		**Comment**
SOIL AND WATER MANAGEMENT	$17,570	$17,570	$0	
EARTHWORKS	$3,035,977	$4,341,652	$1,305,675	Variance in rates and quantities
DRAINAGE	$895,209	$1,009,504	$114,295	Variance in rates and quantities
RAINGARDEN	$521,287	$521,287	$0	
LANDSCAPING	$966,627	$966,627	$0	
PRELIMINARIES (10%)	$543,700	$685,700	$142,000	Knock on adjustments
MARGIN (8%)	$478,500	$603,400	$124,900	Knock on adjustments
Construction Total (Excl. Design, Contingency and GST)	**$6,458,870**	**$8,145,740**	**$1,686,870**	
PROJECT MANAGEMENT (3.5%)	$226,100	$610,900	$59,000	WT Assess Project Management at 7.5%
DESIGN (10%)	$645,900	$407,300	$168,700	WT Assess Design Costs at 5%
CONTINGENCY (15%)	$1,099,700	$1,374,600	$287,200	
ESCALATION	Excluded			
Construction Total (Excl. GST and Escalation)	**$8,430,570**	**$10,538,540**	**$2,201,770**	

F24.1 Victoria St Total	**F24.1 MB Total**	**F24.1 WT Total**		**Comment**
SOIL AND WATER MANAGEMENT	$49,620	$49,620	$0	
EARTHWORKS	$6,705,676	$6,682,966	-$22,710	Variance in rates and quantities
DRAINAGE	$1,304,598	$1,526,396	$221,798	
RAINGARDEN	$2,029,918	$2,029,918	$0	
LANDSCAPING	$3,343,916	$3,343,916	$0	

PRELIMINARIES (10%)	$1,343,400	$1,363,300	$19,900	Knock on adjustments
MARGIN (8%)	$1,182,200	$1,199,700	$17,500	Knock on adjustments
Construction Total (Excl. Design, Contingency and GST)	**$15,959,328**	**$16,195,816**	**$236,488**	
PROJECT MANAGEMENT (3.5%)	$558,600	$1,214,700	$656,100	WT Assess Project Management at 7.5%
DESIGN (10%)	$1,596,000	$809,800	-$786,200	WT Assess Design Costs at 5%
CONTINGENCY (15%)	$2,717,100	$2,733,100	$16,000	
ESCALATION	Excluded			
Construction Total (Excl. GST and Escalation)	**$20,831,028**	**$20,953,416**	**$122,388**	

GRAND TOTAL (Excl. GST and Escalation)	**$75,932,121**	**$85,182,318**	**$9,250,197**	**Total Variance**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)

WTP BULK CHECK REVIEW - E4.14 JACQUI AVE

DATE: 12/12/23

REVISION: 00

	MITCHELL BRADTMAN COST ESTIMATE MARCH 2023				WT PARTNERSHIP PEER REVIEW - BULK CHECK DECEMBER 2023					DIFFERNECE WTP - MB		
DESCRIPTION	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**COMMENT**	**QUANTITY**	**RATE**	**TOTAL**
SOIL AND WATER MANAGEMENT												
Supply all materials and construct sediment control devices, maintain for the duration of the contract and remove when instructed, to include but not limited to:												
Stabilised site access	1	No	$5,500.00	$5,500.00	1	No	$5,500.00	$5,500.00		-	$-	$-
Sediment fence	492	m	$15.00	$7,380.00	492	m	$15.00	$7,380.00		-	$-	$-
Geotextile inlet filter	22	No	$85.00	$1,870.00	22	No	$85.00	$1,870.00		-	$-	$-
Straw bale	15	No	$55.00	$825.00	15	No	$55.00	$825.00		-	$-	$-
Maintenance of soil and erosion control devices	1	Item	$1,600.00	$1,600.00	1	Item	$1,600.00	$1,600.00		-	$-	$-
TOTAL SOIL AND WATER MANAGEMENT				**$17,175.00**				**$17,175.00**				**$-**
EARTHWORKS												
Allowance for clearing rubbish	1	Item	$75,000.00	$75,000.00	1	Item	$75,000.00	$75,000.00		-	$-	$-
Dewater and desilt existing dams	1	pt	$65,000.00	$65,000.00	1	Item	$65,000.00	$65,000.00		-	$-	$-
Clear and grub	14,910	m2	$3.50	$52,185.00	19,104	m2	$3.00	$57,312.00	WTP assessment of quantities and rates	4,194.00	-$0.50	$5,127.00
Strip topsoil and stockpile	2,982	m3	$7.00	$20,874.00	1,910	m3	$13.20	$25,217.28	WTP assessment of quantities and rates	-1,071.60	$6.20	$4,343.28
Cut to fill	6,336	m3	$12.00	$76,032.00	657	m3	$33.00	$21,681.00	WTP assessment of quantities and rates	-5,679.00	$21.00	-$54,351.00
Cut to stockpile	19,700	m3	$9.00	$177,300.00	11,712	m3	$20.50	$240,087.80	WTP assessment of quantities and rates	-7,988.40	$11.50	$62,787.80
Tip fees (VENM) - 80%	31,520	t	$25.00	$788,000.00	18,739	t	$79.00	$1,480,346.24	Disposal rate is $60/tonne	-12,781.44	$54.00	$692,346.24
Tip fees (GSW) - 10% (based on Council and Landcom work in Scheduled Lands)	3,940	t	$225.00	$886,500.00	2,342	t	$94.00	$220,178.08	WTP assessment of quantities and rates	-1,597.68	-$131.00	-$666,321.92
Tip fees (GSW special ACM including PPE, suppression, air monitors and hygienists) - 10%	3,940	t	$285.00	$1,122,900.00	2,342	t	$419.00	$981,432.08	10% assumption to be tested	-1,597.68	$134.00	-$141,467.92
Respread topsoil to depth onsite	2,982	m3	$10.00	$29,820.00	2,982	m3	$10.00	$29,820.00		-	$-	$-
Trim and compact raingarden and batters	1,577	m2	$6.00	$9,462.00	1,577	m2	$6.00	$9,462.00		-	$-	$-
Trim and compact channel	730	m2	$12.00	$8,760.00	730	m2	$12.00	$8,760.00		-	$-	$-
TOTAL EARTHWORKS				**$3,311,833.00**				**$3,214,296.48**				**-$97,536.52**
DRAINAGE												
Excavate for trenches and structures in all classes of material, supply, bed, lay, joint and backfill stormwater pipes												
Excavate, supply, bed, lay and joint stormwater pipes as specified:												
300mm dia. uPVC	165	m	$165.00	$27,225.00	165	m	$165.00	$27,225.00		-	$-	$-
375mm dia. RRJ2	30	m	$245.00	$7,350.00	30	m	$357.00	$10,710.00		-	$112.00	$3,360.00
375mm dia. RRJ3	23	m	$250.00	$5,750.00	23	m	$330.00	$7,590.00		-	$80.00	$1,840.00
525mm dia. RRJ2	56	m	$335.00	$18,760.00	56	m	$584.00	$32,704.00		-	$249.00	$13,944.00
600mm dia. RRJ2	14	m	$380.00	$5,320.00	14	m	$701.00	$9,814.00		-	$321.00	$4,494.00
900mm dia. RRJ2	30	m	$540.00	$16,200.00	30	m	$1,478.00	$44,340.00		-	$938.00	$28,140.00
1050mm dia. RRJ2	56	m	$785.00	$43,960.00	56	m	$1,930.00	$108,080.00		-	$1,145.00	$64,120.00
CCTV inspection	209	m	$8.00	$1,672.00	209	m	$8.00	$1,672.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct RCBC culvert including base slab to detail:												
2400 x 900mm RCBC	5	m	$3,100.00	$15,500.00	5	m	$6,000.00	$30,000.00		-	$2,900.00	$14,500.00
2500 x 900mm RCBC	14	m	$3,150.00	$44,100.00	14	m	$8,150.00	$86,100.00		-	$3,000.00	$42,000.00
Excavate in all classes of material, supply all materials and construct standard drainage structures including sub-soil drainage connections and trench drainage facilities to detail:												
900x900mm Grated surface inlet pit	1	No.	$4,000.00	$4,000.00	1	No.	$4,000.00	$4,000.00		-	$-	$-
900x900mm Junction pit	8	No.	$4,500.00	$36,000.00	8	No.	$4,500.00	$36,000.00		-	$-	$-
Custom pit	2	No	$20,000.00	$40,000.00	2	No	$20,000.00	$40,000.00		-	$-	$-
Structural certification of pits	11	Each	$170.00	$1,870.00	11	Each	$170.00	$1,870.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct bioretention pits including sub-soil drainage connections and trench drainage facilities to detail:												
Raingarden Outlet Pit combined system (3no. Precast 900x900 GSIP)	2	No.	$17,500.00	$35,000.00	2	No.	$17,500.00	$35,000.00		-	$-	$-
Bioretention inlet pit	3	No.	$6,700.00	$20,100.00	3	No.	$6,700.00	$20,100.00		-	$-	$-
Bioretention outlet pit	1	No.	$6,500.00	$6,500.00	1	No.	$6,500.00	$6,500.00		-	$-	$-
Bioretention upflow pit	5	No.	$7,200.00	$36,000.00	5	No.	$7,200.00	$36,000.00		-	$-	$-
225mm dia uPVC pipe.	9	m	$110.00	$990.00	9	m	$110.00	$990.00		-	$-	$-
Construct 150mm concrete apron surrounding pit to detail	121	m2	$140.00	$16,940.00	121	m2	$140.00	$16,940.00		-	$-	$-
150mm Lean mix concrete (5%)	121	m2	$95.00	$11,495.00	121	m2	$95.00	$11,495.00		-	$-	$-
150mm Cement stabilised crushed granite	44	m2	$75.00	$3,300.00	44	m2	$75.00	$3,300.00		-	$-	$-
Supply, bed, lay, joint subsoil drainage pipes and structures as required:												
150mm dia slotted uPVC pipe subsoil drain including rodding eyes as required.	202	m	$42.00	$8,484.00	202	m	$42.00	$8,484.00		-	$-	$-
Flush point including temporary concrete collar and connecting to subsoil with 150mm dia. non-slotted pipe	7	No	$175.00	$1,225.00	7	No	$175.00	$1,225.00		-	$-	$-
Excavate in all classes of material, supply all materials, and construct rock headwalls complete (including rock erosion protection) to detail for:												
Precast concrete headwall to accommodate 2400 x 900mm RCBC	1	Item	$9,500.00	$9,500.00	1	Item	$9,500.00	$9,500.00		-	$-	$-
Precast concrete headwall to accommodate 600mm RCP	1	Item	$1,800.00	$1,800.00	1	Item	$1,800.00	$1,800.00		-	$-	$-
Scour protection	1	Item	$3,000.00	$3,000.00	1	Item	$3,000.00	$3,000.00		-	$-	$-
Pool Fence powder coated dulux	30	m	$350.00	$10,500.00	30	m	$350.00	$10,500.00		-	$-	$-
Construct GPT												
Supply and construct gross pollutant trap Rocla GPT CDS1012 incl. access platform and cleaning at the time of Practical Completion	2	No	$133,000.00	$266,000.00	2	No	$133,000.00	$266,000.00		-	$-	$-
TOTAL DRAINAGE				**$698,541.00**				**$870,939.00**				**$172,398.00**
RAINGARDEN												
Stage 1: Interim Raingarden												
Trim and grade temporary sediment basin	1,067	m2	$4.50	$4,801.50	1,067	m2	$4.50	$4,801.50		-	$-	$-
Supply and place liner to detail including:												
HDPE liner incl. temporary liner	1,310	m2	$30.00	$39,312.00	1,310	m2	$30.00	$39,312.00		-	$-	$-
"BIDIM A44" A44 geotextile liner (Temporary)	1,248	m2	$5.00	$6,240.00	1,248	m2	$5.00	$6,240.00		-	$-	$-
"BIDIM A44" geotextile liner (2 layers)	1,248	m2	$10.00	$12,480.00	1,248	m2	$10.00	$12,480.00		-	$-	$-
Supply and place Drainage Layer [Aggregate (200mm thick)]	214	m3	$205.00	$43,870.00	214	m3	$205.00	$43,870.00		-	$-	$-
Supply and place Transition Layer [Coarse Sand (250mm thick)]	267	m3	$190.00	$50,730.00	267	m3	$190.00	$50,730.00		-	$-	$-
Supply and place recycled sand/loam media (150mm thick)	161	m3	$210.00	$33,810.00	161	m3	$210.00	$33,810.00		-	$-	$-
Supply and place sacrificial geotextile layer	1,067	m2	$7.50	$8,002.50	1,067	m2	$7.50	$8,002.50		-	$-	$-
Supply and place sacrificial turf layer	1,067	m2	$12.00	$12,804.00	1,067	m2	$12.00	$12,804.00		-	$-	$-
Stage 2: Ultimate Rainoarden												
Remove interim geotextile, filter media and washed turf layer	1	Item	$10,670.00	$10,670.00	1	Item	$10,670.00	$10,670.00		-	$-	$-
Supply and place liner to detail including:												
Supply and place Transition Layer [Coarse Sand (450mm thick)]	481	m3	$190.00	$91,390.00	481	m3	$190.00	$91,390.00		-	$-	$-
Supply and place recycled sand/loam media (500mm thick)	534	m3	$210.00	$112,140.00	534	m3	$210.00	$112,140.00		-	$-	$-
Planting of bioretention garden (measured in Landscaping)		Note				Note						
Escalation on ultimate raingarden and planting (estimated at 5-10 years - say 7 years at 3% p.a. after initial Stage 1 completion)	1	Item	$60,000.00	$60,000.00	1	Item	$60,000.00	$60,000.00		-	$-	$-
TOTAL RAINGARDEN				**$486,250.00**				**$486,250.00**				**$-**
LANDSCAPING												
Preliminaries												
Contractors and suppliers, site establishment, site compound, amenities, insurances, sediment and erosion control, WAE survey, disposal of spoil off site. Assuming no contamination. Based on one contract for all stages of work	1	Item	$10,000.00	$10,000.00	1	Item	$10,000.00	$10,000.00		-	$-	$-
Topsoil												
Ameliorate site topsoil	2,982	m3	$4.00	$11,928.00	2,982	m3	$4.00	$11,928.00		-	$-	$-
Allowance for upgrading existing soil with compost or imported topsoil (say 50%)	1,491	m3	$45.00	$67,095.00	1,491	m3	$45.00	$67,095.00		-	$-	$-
Turf												
Subgrade preparation inc cultivation & gypsum	10,243	m2	$5.00	$51,215.00	10,243	m2	$5.00	$51,215.00		-	$-	$-
Import 150mm topsoil (80/20)	1,536	m3	$95.00	$145,962.75	1,536	m3	$95.00	$145,962.75		-	$-	$-
Supply and lay couch turf	10,243	m2	$12.00	$122,916.00	10,243	m2	$12.00	$122,916.00		-	$-	$-
Planting												
Raingarden												
Subgrade preparation inc cultivation & gypsum	1,067	m2	$5.00	$5,335.00	1,067	m2	$5.00	$5,335.00		-	$-	$-
Import 250mm topsoil (Premium garden mix)	267	m3	$95.00	$25,342.00	267	m3	$95.00	$25,342.00		-	$-	$-
Mulching (75mm)	1,067	m2	$8.00	$8,536.00	1,067	m2	$8.00	$8,536.00		-	$-	$-
Macrophyte tubestock (Assume 8 per m^2)	8,536	No.	$3.50	$29,876.00	8,536	No.	$3.50	$29,876.00		-	$-	$-
Tree Planting												
Allowance for 100L street tree planting including pit excavation, soil mix, ag line, stakes, trees and mulch	111	No	$400.00	$44,400.00	111	No	$400.00	$44,400.00		-	$-	$-
Maintenance Track												
Supply all materials and construct all weather access to detail:												
Trim, grade and compact subgrade to maintenance access track	1,293	m2	$3.00	$3,879.00	1,293	m2	$3.00	$3,879.00		-	$-	$-
150mm Concrete (25MPa) with SL82 Mesh and 30mm sand	1,293	m2	$120.00	$155,160.00	1,293	m2	$120.00	$155,160.00		-	$-	$-
Construct commercial vehicle crossing	6	m	$190.00	$1,140.00	6	m	$190.00	$1,140.00		-	$-	$-
Miscellaneous												
Allowance for linemarking				Excluded				Excluded				
Allowance for fence or bollards on street frontages (approx. 490m)	1	Item	$122,500.00	$122,500.00	1	Item	$122,500.00	$122,500.00		-	$-	$-
Floodway signage	4	No	$425.00	$1,700.00	4	No	$425.00	$1,700.00		-	$-	$-
Establishment Maintenance / Defects Liability												
Watering and maintenance for 36 months defects liability period	36	mths	$1,500.00	$54,000.00	36	mths	$1,500.00	$54,000.00		-	$-	$-
Fence												
Allowance for pool fence to perimeter of basin				Excluded				Excluded				
TOTAL: LANDSCAPING				**$860,985.00**				**$860,985.00**				**$-**
SUB-TOTAL TRADE WORKS				**$5,374,783.75**				**$5,449,645.23**				**$74,861.48**
PRELIMINARIES (10%)				**$537,500.00**				**$545,000.00**				**$7,500.00**
MARGIN (8%)				**$473,000.00**				**$479,600.00**				**$6,600.00**
TOTAL CONSTRUCTION WORKS				**$ 6,385,284.00**				**$ 6,474,245.00**				**$ 88,961.00**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)
WTP BULK CHECK REVIEW - E14.2 ALBERT AVE
DATE: 12/12/23
REVISION: 00

	MITCHELL BRADTMAN COST ESTIMATE MARCH 2023				WT PARTNERSHIP PEER REVIEW - BULK CHECK DECEMBER 2023					DIFFERNECE WTP - MB		
DESCRIPTION	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**COMMENT**	**QUANTITY**	**RATE**	**TOTAL**
SOIL AND WATER MANAGEMENT												
Supply all materials and construct sediment control devices, maintain for the duration of the contract and remove when instructed, to include but not limited to:												
Stabilised site access	1	No	$5,500.00	$5,500.00	1	No	$5,500.00	$5,500.00		-	$-	$-
Sediment fence	499	m	$15.00	$7,485.00	499	m	$15.00	$7,485.00		-	$-	$-
Geotextile inlet filter	11	No	$85.00	$935.00	11	No	$85.00	$935.00		-	$-	$-
Straw bale	15	No	$55.00	$825.00	15	No	$55.00	$825.00		-	$-	$-
Maintenance of soil and erosion control devices	1	Item	$1,500.00	$1,500.00	1	Item	$1,500.00	$1,500.00		-	$-	$-
TOTAL SOIL AND WATER MANAGEMENT				**$16,245.00**				**$16,245.00**				**$-**
EARTHWORKS												
Demolition or clearing rubbish on site	1	Item	$110,000.00	$110,000.00	1	Item	$110,000.00	$110,000.00		-	-	-
Clear and grub	21,900	pt	$3.50	$76,650.00	22,264	m2	$6.70	$149,168.80	Site requires heavy bush clearance	364.00	3.20	72,518.80
Strip topsoil and stockpile	4,380	m3	$7.00	$30,660.00	2,226	m3	$13.20	$29,388.48	WTP assessment of quantities and rates	-2,153.60	6.20	-1,271.52
Cut to fill, spread and compact	133	m3	$14.00	$1,862.00	2,385	m3	$33.00	$78,705.00	WTP assessment of quantities and rates	2,252.00	19.00	76,843.00
Cut to stockpile	41,800	m3	$9.00	$376,200.00	13,621	m3	$20.50	$279,222.30	WTP assessment of quantities and rates	-28,179.40	11.50	-96,977.70
Tip fees (VENM) - 80%	66,880	t	$25.00	$1,672,000.00	21,793	t	$79.00	$1,721,643.84	Disposal rate is $60/tonne	-45,087.04	54.00	49,643.84
Tip fees (GSW) - 10% (based on Council and Landcom work in Scheduled Lands)	8,360	t	$225.00	$1,881,000.00	2,724	t	$94.00	$256,067.28	WTP assessment of quantities and rates	-5,635.88	-131.00	-1,624,932.72
Tip fees (GSW special ACM including PPE, suppression, air monitors and hygienists) - 10%	8,360	t	$285.00	$2,382,600.00	2,724	t	$419.00	$1,141,406.28	WTP assessment of quantities and rates	-5,635.88	134.00	-1,241,193.72
Respread topsoil to depth onsite	4,380	m3	$10.00	$43,800.00	4,380	m3	$10.00	$43,800.00		-	-	-
Trim and compact raingarden and batters	6,296	m2	$6.00	$37,776.00	6,296	m2	$6.00	$37,776.00		-	-	-
Trim and compact channel	123	m2	$12.00	$1,476.00	123	m2	$12.00	$1,476.00		-	-	-
Construct detention basin	3,481	m2	$8.00	$27,848.00	3,481	m2	$8.00	$27,848.00		-	-	-
TOTAL EARTHWORKS				**$6,641,872.00**				**$3,876,501.98**			**96.90**	**-2,765,370.02**
DRAINAGE												
Excavate for trenches and structures in all classes of material, supply, bed, lay, joint and backfill stormwater pipes												
Excavate, supply, bed, lay and joint stormwater pipes as specified:												
300mm dia. uPVC	125	m	$165.00	$20,625.00	125	m	$165.00	$20,625.00		-	$-	$-
600mm dia. RRJ2	19	m	$380.00	$7,220.00	19	m	$701.00	$13,319.00		-	$321.00	$6,099.00
900mm dia. RRJ2	25	m	$540.00	$13,500.00	25	m	$1,478.00	$36,950.00		-	$938.00	$23,450.00
1050mm dia. RRJ2	30	m	$785.00	$23,550.00	30	m	$1,930.00	$57,900.00		-	$1,145.00	$34,350.00
CCTV inspection	74	m	$8.00	$592.00	74	m	$8.00	$592.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct RCBC culvert including base slab to detail:										-	$-	$-
1500 x 900mm RCBC	60	m	$2,800.00	$168,000.00	60	m	$3,300.00	$198,000.00		-	$500.00	$30,000.00
2400 x 900mm RCBC	42	m	$3,100.00	$130,200.00	42	m	$6,450.00	$270,900.00		-	$3,350.00	$140,700.00
Excavate in all classes of material, supply all materials and construct standard drainage structures including sub-soil drainage connections and trench drainage facilities to detail:												
Kerb inlet pits				Excluded				Excluded				
900x900mm Grated surface inlet pit	3	No.	$4,000.00	$12,000.00	3	No.	$4,000.00	$12,000.00		-	$-	$-
Structural certification of pits	3	Each	$170.00	$510.00	3	Each	$170.00	$510.00				
Excavate in all classes of material, supply all materials and construct bioretention pits including sub-soil drainage connections and trench drainage facilities to detail:										-	$-	$-
Raingarden Outlet Pit combined system (3no. Precast 900x900 GSIP)	8	No.	$17,500.00	$140,000.00	8	No.	$17,500.00	$140,000.00		-	$-	$-
Construct 150mm concrete apron surrounding pit to detail	88	m^2	$140.00	$12,320.00	88	m^2	$140.00	$12,320.00		-	$-	$-
150mm Lean mix concrete (5%)	88	m^2	$95.00	$8,360.00	88	m^2	$95.00	$8,360.00		-	$-	$-
150mm Cement stabilised crushed granite	32	m^2	$75.00	$2,400.00	32	m^2	$75.00	$2,400.00				
Supply, bed, lay, joint subsoil drainage pipes and structures as required:										-	$-	$-
150mm dia slotted uPVC pipe subsoil drain including rodding eyes as required.	231	m	$42.00	$9,702.00	231	m	$42.00	$9,702.00		-	$-	$-
Flush point including temporary concrete collar and connecting to subsoil with 150mm dia. non-slotted pipe	8	No	$175.00	$1,400.00	8	No	$175.00	$1,400.00		-	$-	$-
Excavate in all classes of material, supply all materials, and construct rock headwalls complete (including rock erosion protection) to detail for:												
Precast concrete headwall to accommodate 1500 x 900mm RCBC	1	Item	$8,900.00	$8,900.00	1	Item	$8,900.00	$8,900.00		-	$-	$-
Precast concrete headwall to accommodate 2400 x 900mm RCBC	1	Item	$9,500.00	$9,500.00	1	Item	$9,500.00	$9,500.00		-	$-	$-
Scour protection	1	Item	$3,000.00	$3,000.00	1	Item	$3,000.00	$3,000.00		-	$-	$-
Pool Fence powder coated dulux	30	m	$350.00	$10,500.00	30	m	$350.00	$10,500.00		-	$-	$-
Construct GPT												
Supply and construct gross pollutant trap Rocla GPT CDS3018 incl. access platform and cleaning at the time of Practical Completion	1	No	$355,000.00	$355,000.00	1	No	$355,000.00	$355,000.00		-	$-	$-
TOTAL DRAINAGE				**$937,279.00**				**$1,171,878.00**				**$234,599.00**
RAINGARDEN												
Stage 1: Interim Raingarden												
Trim and grade temporary sediment basin	913	m2	$4.50	$4,108.50	913	m2	$4.50	$4,108.50		-	$-	$-
Supply and place liner to detail including:												
HDPE liner incl. temporary liner	1,105	m2	$30.00	$33,138.00	1,105	m2	$30.00	$33,138.00		-	$-	$-
"BIDIM A44" A44 geotextile liner (Temporary)	1,052	m2	$5.00	$5,260.00	1,052	m2	$5.00	$5,260.00		-	$-	$-
"BIDIM A44" geotextile liner (2 layers)	1,052	m2	$10.00	$10,520.00	1,052	m2	$10.00	$10,520.00		-	$-	$-
Supply and place Drainage Layer [Aggregate (200mm thick)]	183	m3	$205.00	$37,515.00	183	m3	$205.00	$37,515.00		-	$-	$-
Supply and place Transition Layer [Coarse Sand (250mm thick)]	229	m3	$190.00	$43,510.00	229	m3	$190.00	$43,510.00		-	$-	$-
Supply and place recycled sand/loam media (150mm thick)	137	m3	$210.00	$28,770.00	137	m3	$210.00	$28,770.00		-	$-	$-
Supply and place sacrificial geotextile layer	913	m2	$7.50	$6,847.50	913	m2	$7.50	$6,847.50		-	$-	$-
Supply and place sacrificial turf layer	913	m2	$12.00	$10,956.00	913	m2	$12.00	$10,956.00		-	$-	$-
Stage 2: Ultimate Raingarden												
Remove interim geotextile, filter media and washed turf layer	1	Item	$9,130.00	$9,130.00	1	Item	$9,130.00	$9,130.00		-	$-	$-
Supply and place liner to detail including:												
Supply and place Transition Layer [Coarse Sand (450mm thick)]	411	m3	$190.00	$78,090.00	411	m3	$190.00	$78,090.00		-	$-	$-
Supply and place recycled sand/loam media (500mm thick)	457	m3	$210.00	$95,970.00	457	m3	$210.00	$95,970.00		-	$-	$-
Planting of bioretention garden (measured in Landscaping)		Note				Note						
Escalation on ultimate raingarden and planting (estimated at 5-10 years - say 7 years at 3% p.a. after initial Stage 1 completion)	1	Item	$51,000.00	$51,000.00	1	Item	$51,000.00	$51,000.00		-	$-	$-
TOTAL RAINGARDEN				**$414.815.00**				**$414.815.00**				**$-**
LANDSCAPING												
Preliminaries												
Contractors and suppliers, site establishment, site compound, amenities, insurances, sediment and erosion control, WAE survey, disposal of spoil off site. Assuming no contamination. Based on one contract for all stages of work	1	Item	$10,000.00	$10,000.00	1	Item	$10,000.00	$10,000.00		-	$-	$-
Topsoil												
Ameliorate site topsoil	4,380	m3	$4.00	$17,520.00	4,380	m3	$4.00	$17,520.00		-	$-	$-
Allowance for upgrading existing soil with compost or imported topsoil (say 50%)	2,190	m3	$45.00	$98,550.00	2,190	m3	$45.00	$98,550.00		-	$-	$-
Turf												
Subgrade preparation inc cultivation & gypsum	14,178	m2	$5.00	$70,890.00	14,178	m2	$5.00	$70,890.00		-	$-	$-
Import 150mm topsoil (80/20)	2,127	m3	$95.00	$202,036.50	2,127	m3	$95.00	$202,036.50		-	$-	$-
Supply and lay couch turf	14,178	m^2	$12.00	$170,136.00	14,178	m^2	$12.00	$170,136.00		-	$-	$-
Planting												
Raingarden												
Subgrade preparation inc cultivation & gypsum	913	m2	$5.00	$4,565.00	913	m2	$5.00	$4,565.00		-	$-	$-
Import 250mm topsoil (Premium garden mix)	228	m3	$95.00	$21,684.00	228	m3	$95.00	$21,684.00		-	$-	$-
Mulching (75mm)	913	m2	$8.00	$7,304.00	913	m2	$8.00	$7,304.00		-	$-	$-
Macrophyte tubestock (Assume 8 per m^2)	7,304	No.	$3.50	$25,564.00	7,304	No.	$3.50	$25,564.00		-	$-	$-
Tree Planting												
Allowance for 100L street tree planting including pit excavation, soil mix, ag line, stakes, trees and mulch	168	No	$400.00	$67,200.00	168	No	$400.00	$67,200.00		-	$-	$-
Maintenance Track												
Supply all materials and construct all weather access to detail:												
Trim, grade and compact subgrade to maintenance access track	390	m2	$3.00	$1,170.00	390	m2	$3.00	$1,170.00		-	$-	$-
150mm Concrete (25MPa) with SL82 Mesh and 30mm sand	390	m2	$120.00	$46,800.00	390	m2	$120.00	$46,800.00		-	$-	$-
Construct commercial vehicle crossing	6	m	$190.00	$1,140.00	6	m	$190.00	$1,140.00		-	$-	$-
Miscellaneous												
Allowance for linemarking				Excluded				Excluded				
Allowance for fence or bollards on street frontages (approx. 495m)	1	Item	$123,750.00	$123,750.00	1	Item	$123,750.00	$123,750.00		-	$-	$-
Floodway signage	2	No	$425.00	$850.00	2	No	$425.00	$850.00		-	$-	$-
Establishment Maintenance / Defects Liability												
Watering and maintenance for 36 months defects liability period	36	mths	$1,500.00	$54,000.00	36	mths	$1,500.00	$54,000.00		-	$-	$-
Fence												
Allowance for pool fence to perimeter of basin				Excluded				Excluded				
TOTAL: LANDSCAPING				**$923,160.00**				**$923,160.00**				**$-**
SUB-TOTAL TRADE WORKS				**$8,933,370.50**				**$6,402,599.48**				**-$2,530,771.02**
PRELIMINARIES (10%)				**$893,400.00**				**$640,300.00**				**-$253,100.00**
MARGIN (8%)				**$786,200.00**				**$563,500.00**				**-$222,700.00**
TOTAL CONSTRUCTION WORKS				**$ 10,612,971.00**				**$ 7,606,399.00**				**-$ 3,006,572.00**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)
WTP BULK CHECK REVIEW - F19.1 HAMILTON ST
DATE: 12/12/23
REVISION: 00

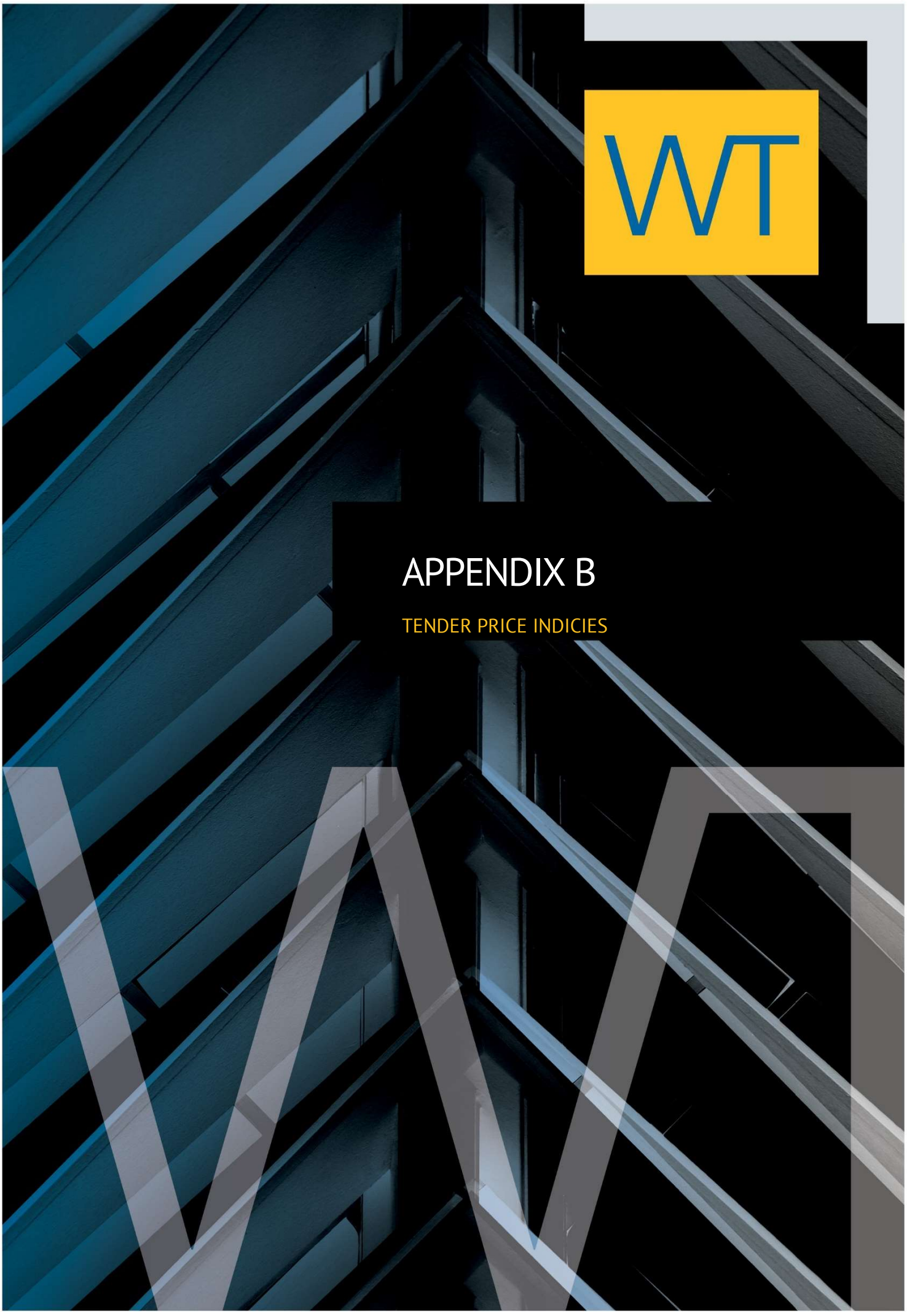
	MITCHELL BRADTMAN COST ESTIMATE MARCH 2023				WT PARTNERSHIP PEER REVIEW - BULK CHECK DECEMBER 2023					DIFFERNECE WTP - MB		
DESCRIPTION	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**COMMENT**	**QUANTITY**	**RATE**	**TOTAL**
SOIL AND WATER MANAGEMENT												
Supply all materials and construct sediment control devices, maintain for the duration of the contract and remove when instructed, to include but not limited to:												
Stabilised site access	1	No	$5,500.00	$5,500.00	1	No	$5,500.00	$5,500.00		-	$-	$-
Sediment fence	956	m	$15.00	$14,340.00	956	m	$15.00	$14,340.00		-	$-	$-
Geotextile inlet filter	14	No	$85.00	$1,190.00	14	No	$85.00	$1,190.00		-	$-	$-
Straw bale	9	No	$55.00	$495.00	9	No	$55.00	$495.00		-	$-	$-
Maintenance of soil and erosion control devices	1	Item	$2,200.00	$2,200.00	1	Item	$2,200.00	$2,200.00		-	$-	$-
TOTAL SOIL AND WATER MANAGEMENT				**$23,725.00**				**$23,725.00**				**$-**
EARTHWORKS												
Demolition or clearing rubbish on site	1	Item	$185,000.00	$185,000.00	1	Item	$185,000.00	$185,000.00		-	$-	$-
Clear and grub	36,835	pt	$3.50	$128,923.00	36,835	m2	$3.00	$110,505.50	Unknown site location	-	-$0.50	-$18,417.50
Strip topsoil and stockpile	7,367	m3	$7.00	$51,569.00	7,367	m3	$13.20	$97,244.40	WTP assessment of quantities and rates	-	$6.20	$45,675.40
Cut to fill, spread and compact	2,500	m3	$14.00	$35,000.00	2,500	m3	$33.00	$82,500.00	WTP assessment of quantities and rates	-	$19.00	$47,500.00
Cut to stockpile	62,600	m3	$8.00	$500,800.00	62,600	m3	$20.50	$1,283,300.00	WTP assessment of quantities and rates	-	$12.50	$782,500.00
Tip fees (VENM) - 80%	100,160	t	$25.00	$2,504,000.00	100,160	t	$79.00	$7,912,640.00	Disposal rate is $60/tonne	-	$54.00	$5,408,640.00
Tip fees (GSW) - 10% (based on Council and Landcom work in Scheduled Lands)	12,520	t	$225.00	$2,817,000.00	12,520	t	$94.00	$1,176,880.00	WTP assessment of quantities and rates	-	-$131.00	-$1,640,120.00
Tip fees (GSW special ACM including PPE, suppression, air monitors and hygienists) - 10%	12,520	t	$285.00	$3,568,200.00	12,520	t	$419.00	$5,245,880.00	WTP assessment of quantities and rates	-	$134.00	$1,677,680.00
Allowance for retaining wall to perimeters due to constricted site (could be over 3m height)	750	m	$2,550.00	$1,912,500.00	750	m	$3,000.00	$2,250,000.00	Unkown specification requirements for retaining wall.	-	$450.00	$337,500.00
Respread topsoil to depth onsite	7,367	m3	$10.00	$73,670.00	7,367	m3	$10.00	$73,670.00		-	$-	$-
Trim and compact raingarden and batters	19,842	m2	$6.00	$119,052.00	19,842	m2	$6.00	$119,052.00		-	$-	$-
TOTAL EARTHWORKS				**$11,895,714.00**				**$18,536,671.90**				**$6,640,957.90**
DRAINAGE												
Excavate for trenches and structures in all classes of material, supply, bed, lay, joint and backfill stormwater pipes												
Excavate, supply, bed, lay and joint stormwater pipes as specified:												
375mm dia. RRJ2	185	m	$245.00	$45,325.00	185	m	$357.00	$66,045.00		-	$112.00	$20,720.00
450mm dia. RRJ2	142	m	$295.00	$41,890.00	142	m	$432.00	$61,344.00		-	$137.00	$19,454.00
600mm dia. RRJ2	86	m	$380.00	$32,680.00	86	m	$701.00	$60,286.00		-	$321.00	$27,606.00
900mm dia. RRJ2	185	m	$540.00	$99,900.00	185	m	$1,478.00	$273,430.00		-	$938.00	$173,530.00
1050mm dia. RRJ2	344	m	$785.00	$270,040.00	344	m	$1,930.00	$663,920.00		-	$1,145.00	$393,880.00
CCTV inspection	942	m	$8.00	$7,536.00	942	m	$8.00	$7,536.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct RCBC culvert including base slab to detail:												
1500 x 900mm RCBC	29	m	$2,800.00	$81,200.00	29	m	$3,300.00	$95,700.00		-	$500.00	$14,500.00
Excavate in all classes of material, supply all materials and construct standard drainage structures including sub-soil drainage connections and trench drainage facilities to detail:												
Kerb inlet pits				Excluded				Excluded				
900x900mm Grated surface inlet pit	14	No.	$4,000.00	$56,000.00	14	No.	$4,000.00	$56,000.00		-	$-	$-
Structural certification of pits	14	Each	$170.00	$2,380.00	14	Each	$170.00	$2,380.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct bioretention pits including sub-soil drainage connections and trench drainage facilities to detail:												
Raingarden Outlet Pit combined system (3no. Precast 900x900 GSIP)	1	No.	$17,500.00	$17,500.00	1	No.	$17,500.00	$17,500.00		-	$-	$-
Construct 150mm concrete apron surrounding pit to detail	11	m2	$140.00	$1,540.00	11	m2	$140.00	$1,540.00		-	$-	$-
150mm Lean mix concrete (5%)	11	m2	$95.00	$1,045.00	11	m2	$95.00	$1,045.00		-	$-	$-
150mm Cement stabilised crushed granite	4	m2	$75.00	$300.00	4	m2	$75.00	$300.00		-	$-	$-
Supply, bed, lay, joint subsoil drainage pipes and structures as required:												
150mm dia slotted uPVC pipe subsoil drain including rodding eyes as required.	216	m	$42.00	$9,072.00	216	m	$42.00	$9,072.00		-	$-	$-
Flush point including temporary concrete collar and connecting to subsoil with 150mm dia. non-slotted pipe	8	No	$175.00	$1,400.00	8	No	$175.00	$1,400.00		-	$-	$-
Excavate in all classes of material, supply all materials, and construct rock headwalls complete (including rock erosion protection) to detail for:												
Precast concrete headwalls	5	No	$8,900.00	$44,500.00	5	No	$8,900.00	$44,500.00		-	$-	$-
Scour protection	1	Item	$34,155.00	$34,155.00	1	Item	$34,155.00	$34,155.00		-	$-	$-
Pool Fence powder coated dulux	65	m	$350.00	$22,750.00	65	m	$350.00	$22,750.00		-	$-	$-
Construct GPT												
Supply and construct gross pollutant trap Rocla GPT CDS3018 incl. access platform and cleaning at the time of Practical Completion	3	No	$355,000.00	$1,065,000.00	3	No	$355,000.00	$1,065,000.00		-	$-	$-
Spillway												
Construct spillway	713	m2	$190.00	$135,470.00	713	m2	$190.00	$135,470.00		-	$-	$-
TOTAL DRAINAGE				**$1,969,683.00**				**$2,619,373.00**				**$649,690.00**
RAINGARDEN												
Stage 1: Interim Rainoarden												
Trim and grade temporary sediment basin	1,486	m2	$4.50	$6,687.00	1,486	m2	$4.50	$6,687.00		-	$-	$-
Supply and place liner to detail including:												
HDPE liner incl. temporary liner	1,651	m2	$30.00	$49,518.00	1,651	m2	$30.00	$49,518.00		-	$-	$-
"BIDIM A44" geotextile liner (Temporary)	1,572	m2	$5.00	$7,860.00	1,572	m2	$5.00	$7,860.00		-	$-	$-
"BIDIM A44" geotextile liner (2 layers)	1,572	m2	$10.00	$15,720.00	1,572	m2	$10.00	$15,720.00		-	$-	$-
Supply and place Drainage Layer [Aggregate (200mm thick)]	298	m3	$205.00	$61,090.00	298	m3	$205.00	$61,090.00		-	$-	$-
Supply and place Transition Layer [Coarse Sand (250mm thick)]	372	m3	$190.00	$70,680.00	372	m3	$190.00	$70,680.00		-	$-	$-
Supply and place recycled sand/loam media (150mm thick)	223	m3	$210.00	$46,830.00	223	m3	$210.00	$46,830.00		-	$-	$-
Supply and place sacrificial geotextile layer	1,486	m2	$7.50	$11,145.00	1,486	m2	$7.50	$11,145.00		-	$-	$-
Supply and place sacrificial turf layer	1,486	m2	$12.00	$17,832.00	1,486	m2	$12.00	$17,832.00		-	$-	$-
Stage 2: Ultimate Raingarden												
Remove interim geotextile, filter media and washed turf layer	1	Item	$14,860.00	$14,860.00	1	Item	$14,860.00	$14,860.00		-	$-	$-
Supply and place liner to detail including:												
Supply and place Transition Layer [Coarse Sand (450mm thick)]	669	m3	$190.00	$127,110.00	669	m3	$190.00	$127,110.00		-	$-	$-
Supply and place recycled sand/loam media (500mm thick)	743	m3	$210.00	$156,030.00	743	m3	$210.00	$156,030.00		-	$-	$-
Planting of bioretention garden (measured in Landscaping)		Note				Note						
Escalation on ultimate raingarden and planting (estimated at 5-10 years - say 7 years at 3% p.a. after initial Stage 1 completion)	1	Item	$83,000.00	$83,000.00	1	Item	$83,000.00	$83,000.00		-	$-	$-
TOTAL RAINGARDEN				**$668,362.00**				**$668,362.00**				**$-**
LANDSCAPING												
Preliminaries												
Contractors and suppliers, site establishment, site compound, amenities, insurances, sediment and erosion control, WAE survey, disposal of spoil off site. Assuming no contamination. Based on one contract for all stages of work	1	Item	$10,000.00	$10,000.00	1	Item	$10,000.00	$10,000.00		-	$-	$-
Topsoil												
Ameliorate site topsoil	7,367	m3	$4.00	$29,468.00	7,367	m3	$4.00	$29,468.00		-	$-	$-
Allowance for upgrading existing soil with compost or imported topsoil (say 50%)	3,684	m3	$45.00	$165,780.00	3,684	m3	$45.00	$165,780.00		-	$-	$-
Turf												
Subgrade preparation inc cultivation & gypsum	14,214	m2	$5.00	$71,070.00	14,214	m2	$5.00	$71,070.00		-	$-	$-
Import 150mm topsoil (80/20)	2,132	m3	$95.00	$202,549.50	2,132	m3	$95.00	$202,549.50		-	$-	$-
Supply and lay couch turf	14,214	m2	$12.00	$170,568.00	14,214	m2	$12.00	$170,568.00		-	$-	$-
Planting												
Raingarden												
Subgrade preparation inc cultivation & gypsum	1,486	m2	$5.00	$7,430.00	1,486	m2	$5.00	$7,430.00		-	$-	$-
Import 250mm topsoil (Premium garden mix)	372	m3	$95.00	$35,293.00	372	m3	$95.00	$35,293.00		-	$-	$-
Mulching (75mm)	1,486	m2	$8.00	$11,888.00	1,486	m2	$8.00	$11,888.00		-	$-	$-
Macrophyte tubestock (Assume 8 per m^2)	11,888	No.	$3.50	$41,608.00	11,888	No.	$3.50	$41,608.00		-	$-	$-
Tree Planting												
Allowance for 100L street tree planting including pit excavation, soil mix, ag line, stakes, trees and mulch	283	No	$400.00	$113,200.00	283	No	$400.00	$113,200.00		-	$-	$-
Maintenance Track												
Supply all materials and construct all weather access to detail:												
Trim, grade and compact subgrade to maintenance access track	1,293	m2	$3.00	$3,879.00	1,293	m2	$3.00	$3,879.00		-	$-	$-
150mm Concrete (25MPa) with SL82 Mesh and 30mm sand	1,293	m2	$120.00	$155,160.00	1,293	m2	$120.00	$155,160.00		-	$-	$-
Construct commercial vehicle crossing	6	m	$190.00	$1,140.00	6	m	$190.00	$1,140.00		-	$-	$-
Miscellaneous												
Allowance for linemarking				Excluded				Excluded				
Allowance for fence or bollards on street frontages (approx. 580m)	1	Item	$145,000.00	$145,000.00	1	Item	$145,000.00	$145,000.00		-	$-	$-
Floodway signage	2	No	$425.00	$850.00	2	No	$425.00	$850.00		-	$-	$-
Establishment Maintenance / Defects Liability												
Watering and maintenance for 36 months defects liability period	36	mths	$1,850.00	$66,600.00	36	mths	$1,850.00	$66,600.00		-	$-	$-
Fence												
Allowance for pool fence to perimeter of basin				Excluded				Excluded				
TOTAL: LANDSCAPING				**$1,231,484.00**				**$1,231,484.00**				**$-**
SUB-TOTAL TRADE WORKS				**$15,788,967.50**				**$23,079,615.40**				**$7,290,647.90**
PRELIMINARIES (10%)				**$1,578,900.00**				**$2,308,000.00**				**$729,100.00**
MARGIN (8%)				**$1,389,500.00**				**$2,031,100.00**				**$641,600.00**
TOTAL CONSTRUCTION WORKS				**$ 18,757,368.00**				**$ 27,418,715.00**				**$ 8,661,347.00**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)
WTP BULK CHECK REVIEW - F23.1 WOODLAND ST
DATE: 12/12/23
REVISION: 00

DESCRIPTION	MITCHELL BRADTMAN COST ESTIMATE MARCH 2023				WT PARTNERSHIP PEER REVIEW - BULK CHECK DECEMBER 2023					DIFFERNECE WTP - MB		
	QUANTITY	UNIT	RATE	SUBTOTAL	QUANTITY	UNIT	RATE	SUBTOTAL	COMMENT	QUANTITY	RATE	TOTAL
SOIL AND WATER MANAGEMENT												
Supply all materials and construct sediment control devices, maintain for the duration of the contract and remove when instructed, to include but not limited to:												
Stabilised site access	1	No	$5,500.00	$5,500.00	1	No	$5,500.00	$5,500.00		-	$-	$-
Sediment fence	580	m	$15.00	$8,700.00	580	m	$15.00	$8,700.00		-	$-	$-
Geotextile inlet filter	15	No	$85.00	$1,275.00	15	No	$85.00	$1,275.00		-	$-	$-
Straw bale	9	No	$55.00	$495.00	9	No	$55.00	$495.00		-	$-	$-
Maintenance of soil and erosion control devices	1	Item	$1,600.00	$1,600.00	1	Item	$1,600.00	$1,600.00		-	$-	$-
TOTAL SOIL AND WATER MANAGEMENT				**$17,570.00**				**$17,570.00**				**$-**
EARTHWORKS												
Demolition or clearing rubbish on site	1	Item	$100,000.00	$100,000.00	1	Item	$100,000.00	$100,000.00		-	$-	$-
Clear and grub	17,865	pt	$3.50	$62,528.00	18,039	m2	$3.00	$54,117.50	WTP assessment of quantities and rates	174.00	-$0.50	-$8,410.50
Strip topsoil and stockpile	3,573	m3	$7.00	$25,011.00	1,804	m3	$13.20	$23,811.48	WTP assessment of quantities and rates	-1,769.10	$6.20	-$1,199.52
Cut to fill, spread and compact	500	m3	$14.00	$7,000.00	793	m3	$33.00	$26,169.00	WTP assessment of quantities and rates	293.00	$19.00	$19,169.00
Cut to stockpile	18,500	m3	$8.00	$148,000.00	16,317	m3	$20.50	$334,500.55	WTP assessment of quantities and rates	-2,182.90	$12.50	$186,500.55
Tip fees (VENM) - 80%	29,600	t	$25.00	$740,000.00	26,107	t	$79.00	$2,062,481.44	Disposal rate is $60/tonne	-3,492.64	$54.00	$1,322,481.44
Tip fees (GSW) - 10% (based on Council and Landcom work in Scheduled Lands)	3,700	t	$225.00	$832,500.00	3,263	t	$94.00	$306,761.48	WTP assessment of quantities and rates	-436.58	-$131.00	-$525,738.52
Tip fees (GSW special ACM including PPE, suppression, air monitors and hygienists) - 10%	3,700	t	$285.00	$1,054,500.00	3,263	t	$419.00	$1,367,372.98	WTP assessment of quantities and rates	-436.58	$134.00	$312,872.98
Respread topsoil to depth onsite	3,573	m3	$10.00	$35,730.00	3,573	m3	$10.00	$35,730.00		-	$-	$-
Trim and compact raingarden and batters	2,862	m2	$6.00	$17,172.00	2,862	m2	$6.00	$17,172.00		-	$-	$-
Trim and compact channel	1,128	m2	$12.00	$13,536.00	1,128	m2	$12.00	$13,536.00		-	$-	$-
TOTAL EARTHWORKS				**$3,035,977.00**				**$4,341,652.43**				**$1,305,675.43**
DRAINAGE												
Excavate for trenches and structures in all classes of material, supply, bed, lay, joint and backfill stormwater pipes												
Excavate, supply, bed, lay and joint stormwater pipes as specified:												
375mm dia. RRJ2	160	m	$245.00	$39,200.00	160	m	$357.00	$57,120.00		-	$112.00	$17,920.00
450mm dia. RRJ2	47	m	$295.00	$13,865.00	47	m	$432.00	$20,304.00		-	$137.00	$6,439.00
600mm dia. RRJ2	66	m	$380.00	$25,080.00	66	m	$701.00	$46,266.00		-	$321.00	$21,186.00
CCTV inspection	273	m	$8.00	$2,184.00	273	m	$8.00	$2,184.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct RCBC culvert including base slab to detail:												
2400 x 1200mm RCBC	55	m	$5,200.00	$286,000.00	55	m	$6,450.00	$354,750.00		-	$1,250.00	$68,750.00
Excavate in all classes of material, supply all materials and construct standard drainage structures including sub-soil drainage connections and trench drainage facilities to detail:												
Kerb inlet pits				Excluded				Excluded				
900x900mm Grated surface inlet pit	14	No.	$4,000.00	$56,000.00	14	No.	$4,000.00	$56,000.00		-	$-	$-
Splitter pit	1	No.	$13,000.00	$13,000.00	1	No.	$13,000.00	$13,000.00		-	$-	$-
Structural certification of pits	15	Each	$170.00	$2,550.00	15	Each	$170.00	$2,550.00		-	$-	$-
Excavate in all classes of material, supply all materials and construct bioretention pits including sub-soil drainage connections and trench drainage facilities to detail:												
Raingarden Outlet Pit combined system (3no. Precast 900x900 GSIP)	3	No.	$17,500.00	$52,500.00	3	No.	$17,500.00	$52,500.00		-	$-	$-
Construct 150mm concrete apron surrounding pit to detail	33	m2	$140.00	$4,620.00	33	m2	$140.00	$4,620.00		-	$-	$-
150mm Lean mix concrete (5%)	33	m2	$95.00	$3,135.00	33	m2	$95.00	$3,135.00		-	$-	$-
150mm Cement stabilised crushed granite	12	m2	$75.00	$900.00	12	m2	$75.00	$900.00		-	$-	$-
Supply, bed, lay, joint subsoil drainage pipes and structures as required:												
150mm dia slotted uPVC pipe subsoil drain including rodding eyes as required.	255	m	$42.00	$10,710.00	255	m	$42.00	$10,710.00		-	$-	$-
Flush point including temporary concrete collar and connecting to subsoil with 150mm dia. non-slotted pipe	9	No	$175.00	$1,575.00	9	No	$175.00	$1,575.00		-	$-	$-
Excavate in all classes of material, supply all materials, and construct sandstone headwalls complete (including rock erosion protection) to detail for:												
Sandstone log to accommodate 2400 x 1200mm RCBC	1	Item	$20,700.00	$20,700.00	1	Item	$20,700.00	$20,700.00		-	$-	$-
Scour protection	1	Item	$8,190.00	$8,190.00	1	Item	$8,190.00	$8,190.00		-	$-	$-
Construct GPT												
Supply and construct gross pollutant trap Rocla GPT CDS3018 incl. access platform and cleaning at the time of Practical Completion	1	No	$355,000.00	$355,000.00	1	No	$355,000.00	$355,000.00		-	$-	$-
TOTAL DRAINAGE				**$895,209.00**				**$1,009,504.00**				**$114,295.00**
Stage 1: Interim Raingarden												
Trim and grade temporary sediment basin	1,155	m2	$4.50	$5,197.50	1,155	m2	$4.50	$5,197.50		-	$-	$-
Supply and place liner to detail including:												
HDPE liner incl. temporary liner	1,310	m2	$30.00	$39,312.00	1,310	m2	$30.00	$39,312.00		-	$-	$-
"BIDIM A44" A44 geotextile liner (Temporary)	1,248	m2	$5.00	$6,240.00	1,248	m2	$5.00	$6,240.00		-	$-	$-
"BIDIM A44" geotextile liner (2 layers)	1,248	m2	$10.00	$12,480.00	1,248	m2	$10.00	$12,480.00		-	$-	$-
Supply and place Drainage Layer [Aggregate (200mm thick)]	231	m3	$205.00	$47,355.00	231	m3	$205.00	$47,355.00		-	$-	$-
Supply and place Transition Layer [Coarse Sand (250mm thick)]	289	m3	$190.00	$54,910.00	289	m3	$190.00	$54,910.00		-	$-	$-
Supply and place recycled sand/loam media (150mm thick)	174	m3	$210.00	$36,540.00	174	m3	$210.00	$36,540.00		-	$-	$-
Supply and place sacrificial geotextile layer	1,155	m2	$7.50	$8,662.50	1,155	m2	$7.50	$8,662.50		-	$-	$-
Supply and place sacrificial turf layer	1,155	m2	$12.00	$13,860.00	1,155	m2	$12.00	$13,860.00		-	$-	$-
Stage 2: Ultimate Raingarden												
Remove interim geotextile, filter media and washed turf layer	1	Item	$11,550.00	$11,550.00	1	Item	$11,550.00	$11,550.00		-	$-	$-
Supply and place liner to detail including:												
Supply and place Transition Layer [Coarse Sand (450mm thick)]	520	m3	$190.00	$98,800.00	520	m3	$190.00	$98,800.00		-	$-	$-
Supply and place recycled sand/loam media (500mm thick)	578	m3	$210.00	$121,380.00	578	m3	$210.00	$121,380.00		-	$-	$-
Escalation on ultimate raingarden and planting (estimated at 5-10 years - say 7 years at 3% p.a. after initial Stage 1 completion)	1	Item	$65,000.00	$65,000.00	1	Item	$65,000.00	$65,000.00		-	$-	$-
Planting of bioretention garden (measured in Landscaping)		Note				Note						
TOTAL RAINGARDEN				**$521.287.00**				**$521.287.00**				**$-**
LANDSCAPING												
Preliminaries												
Contractors and suppliers, site establishment, site compound, amenities, insurances, sediment and erosion control, WAE survey, disposal of spoil off site. Assuming no contamination. Based on one contract for all stages of work	1	Item	$10,000.00	$10,000.00	1	Item	$10,000.00	$10,000.00		-	$-	$-
Topsoil												
Ameliorate site topsoil	3,573	m3	$4.00	$14,292.00	3,573	m3	$4.00	$14,292.00		-	$-	$-
Allowance for upgrading existing soil with compost or imported topsoil (say 50%)	1,787	m3	$45.00	$80,415.00	1,787	m3	$45.00	$80,415.00		-	$-	$-
Turf												
Subgrade preparation inc cultivation & gypsum	11,013	m2	$5.00	$55,065.00	11,013	m2	$5.00	$55,065.00		-	$-	$-
Import 150mm topsoil (80/20)	1,652	m3	$95.00	$156,935.25	1,652	m3	$95.00	$156,935.25		-	$-	$-
Supply and lay couch turf	11,013	m2	$12.00	$132,156.00	11,013	m2	$12.00	$132,156.00		-	$-	$-
Planting												
Raingarden												
Subgrade preparation inc cultivation & gypsum	1,155	m2	$5.00	$5,775.00	1,155	m2	$5.00	$5,775.00		-	$-	$-
Import 250mm topsoil (Premium garden mix)	289	m3	$95.00	$27,432.00	289	m3	$95.00	$27,432.00		-	$-	$-
Mulching (75mm)	1,155	m2	$8.00	$9,240.00	1,155	m2	$8.00	$9,240.00		-	$-	$-
Macrophyte tubestock (Assume 8 per m^2)	9,240	No.	$3.50	$32,340.00	9,240	No.	$3.50	$32,340.00		-	$-	$-
Tree Planting												
Allowance for 100L street tree planting including pit excavation, soil mix, ag line, stakes, trees and mulch	134	No	$400.00	$53,600.00	134	No	$400.00	$53,600.00		-	$-	$-
Maintenance Track												
Supply all materials and construct all weather access to detail:												
Trim, grade and compact subgrade to maintenance access track	1,707	m2	$3.00	$5,121.00	1,707	m2	$3.00	$5,121.00		-	$-	$-
150mm Concrete (25MPa) with SL82 Mesh and 30mm sand	1,707	m2	$120.00	$204,840.00	1,707	m2	$120.00	$204,840.00		-	$-	$-
Construct commercial vehicle crossing	6	m	$190.00	$1,140.00	6	m	$190.00	$1,140.00		-	$-	$-
Miscellaneous												
Allowance for linemarking				Excluded				Excluded				
Allowance for fence or bollards on street frontages (approx. 420m)	1	Item	$105,000.00	$105,000.00	1	Item	$105,000.00	$105,000.00		-	$-	$-
Floodway signage	3	No	$425.00	$1,275.00	3	No	$425.00	$1,275.00		-	$-	$-
Establishment Maintenance / Defects Liability												
Watering and maintenance for 36 months defects liability period	36	mths	$2,000.00	$72,000.00	36	mths	$2,000.00	$72,000.00		-	$-	$-
Fence												
Allowance for pool fence to perimeter of basin				Excluded				Excluded				
TOTAL: LANDSCAPING				**$966,627.00**				**$966,627.00**				**$-**
SUB-TOTAL TRADE WORKS				**$5,436,669.25**				**$6,856,639.68**				**$1,419,970.43**
PRELIMINARIES (10%)				**$543,700.00**				**$685,700.00**				**$142,000.00**
MARGIN (8%)				**$478,500.00**				**$603,400.00**				**$124,900.00**
TOTAL CONSTRUCTION WORKS				**$ 6,458,870.00**				**$ 8,145,740.00**				**$ 0.00**

MITCHELL BRANDTMAN - COST ESTIMATE (MARCH 2023)
WTP BULK CHECK REVIEW - F24.1 VICTORIA ST
DATE: 12/12/23
REVISION: 00

	MITCHELL BRADTMAN COST ESTIMATE MARCH 2023				WT PARTNERSHIP PEER REVIEW - BULK CHECK DECEMBER 2023					DIFFERNECE WTP - MB		
DESCRIPTION	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**QUANTITY**	**UNIT**	**RATE**	**SUBTOTAL**	**COMMENT**	**QUANTITY**	**RATE**	**TOTAL**
SOIL AND WATER MANAGEMENT												
Supply all materials and construct sediment control devices, maintain for the duration of the contract and remove when instructed, to include but not limited to:												
Stabilised site access	1	No	$5,500.00	$5,500.00	1	No	$5,500.00	$5,500.00		-	-	$-
Sediment fence	2,400	m	$15.00	$36,000.00	2,400	m	$15.00	$36,000.00		-	-	$-
Geotextile inlet filter	22	No	$85.00	$1,870.00	22	No	$85.00	$1,870.00		-	-	$-
Straw bale	30	No	$55.00	$1,650.00	30	No	$55.00	$1,650.00		-	-	$-
Maintenance of soil and erosion control devices	1	Item	$4,600.00	$4,600.00	1	Item	$4,600.00	$4,600.00		-	-	$-
TOTAL SOIL AND WATER MANAGEMENT				**$49,620.00**				**$49,620.00**				**$-**
EARTHWORKS												
Demolition or clearing rubbish on site	1	Item	$175,000.00	$175,000.00	1	Item	$175,000	$175,000.00		-	-	$-
Clear and grub	85,600	m2	$3.50	$299,600.00	85,548	m2	$6.70	$573,171.60	Heavy bush clearance required	-52.00	3.20	$273,571.60
Strip topsoil and stockpile	17,120	m3	$7.00	$119,840.00	8,555	m3	$13.20	$112,923.36	WTP assessment of quantities and rates	-8,565.20	6.20	-$6,916.64
Cut to fill, spread and compact	11,335	m3	$14.00	$158,690.00	13,350	m3	$33.00	$440,550.00	WTP assessment of quantities and rates	2,015.00	19.00	$281,860.00
Excavation in shale	2,440	m3	$16.00	$39,040.00	2,440	m3	$16.00	$39,040.00	WTP assessment of quantities and rates	-	-	$-
Disposal of surplus VENM from site	36,505	m3	$8.00	$292,040.00	20,684	m3	$8.00	$165,553.60	WTP assessment of quantities and rates	-15,810.80	-	-$126,486.40
Tip fees (VENM) - 80%	58,408	t	$25.00	$1,460,200.00	33,111	t	$79.00	$2,615,746.88	Disposal rate is $60/tonne	-25,297.28	54.00	$1,155,546.88
Tip fees (GSW) - 10% (based on Council and Landcom work in Scheduled Lands)	7,301	t	$225.00	$1,642,725.00	4,139	t	$94.00	$389,050.96	WTP assessment of quantities and rates	-3,162.16	-131.00	-$1,253,674.04
Tip fees (GSW special ACM including PPE, suppression, air monitors and hygienists) - 10%	7,301	t	$285.00	$2,080,785.00	4,139	t	$419.00	$1,734,173.96	WTP assessment of quantities and rates	-3,162.16	134.00	-$346,611.04
Respread topsoil to depth onsite	17,120	m3	$10.00	$171,200.00	17,120	m3	$10.00	$171,200.00		-	-	$-
Trim and compact raingarden and batters	24,803	m2	$6.00	$148,818.00	24,803	m2	$6.00	$148,818.00		-	-	$-
Trim and compact channel	1,516	m2	$12.00	$18,192.00	1,516	m2	$12.00	$18,192.00		-	-	$-
Construct detention basins	16,591	m2	$6.00	$99,546.00	16,591	m2	$6.00	$99,546.00		-	-	$-
TOTAL EARTHWORKS				**$6,705,676.00**				**$6,682,966.36**				**-$22,709.64**
DRAINAGE												
Excavate for trenches and structures in all classes of material, supply, bed, lay, joint and backfill stormwater pipes												
Excavate, supply, bed, lay and joint stormwater pipes as specified:												
375mm dia. RRJ2	120	m	$245.00	$29,400.00	120	m	$357.00	$42,840.00		-	112.00	$13,440.00
450mm dia. RRJ2	135	m	$295.00	$39,825.00	135	m	$432.00	$58,320.00		-	137.00	$18,495.00
600mm dia. RRJ2	31	m	$380.00	$11,780.00	31	m	$701.00	$21,731.00		-	321.00	$9,951.00
675mm dia. RRJ2	220	m	$342.00	$75,240.00	220	m	$906.00	$199,320.00		-	564.00	$124,080.00
750mm dia. RRJ2	66	m	$425.00	$28,050.00	66	m	$1,037.00	$68,442.00		-	612.00	$40,392.00
1200mm dia. RRJ2	80	m	$975.00	$78,000.00	80	m	$1,168.00	$93,440.00		-	193.00	$15,440.00
CCTV inspection	652	m	$8.00	$5,216.00	652	m	$8.00	$5,216.00		-	-	$-
Excavate in all classes of material, supply all materials and construct standard drainage structures including sub-soil drainage connections and trench drainage facilities to detail:												
900x900mm Grated surface inlet pit	18	No.	$4,000.00	$72,000.00	18	No.	$4,000.00	$72,000.00		-	-	$-
Splitter pit	1	No.	$13,000.00	$13,000.00	1	No.	$13,000.00	$13,000.00		-	-	$-
Custom pit	3	No	$16,000.00	$48,000.00	3	No	$16,000.00	$48,000.00		-	-	$-
Structural certification of pits	22	Each	$170.00	$3,740.00	22	Each	$170.00	$3,740.00		-	-	$-
Excavate in all classes of material, supply all materials and construct bioretention pits including sub-soil drainage connections and trench drainage facilities to detail:												
Raingarden Outlet Pit combined system (3no. Precast 900x900 GSIP)	6	No.	$17,500.00	$105,000.00	6	No.	$17,500.00	$105,000.00		-	-	$-
225mm dia uPVC pipe.	27	m	$110.00	$2,970.00	27	m	$110.00	$2,970.00		-	-	$-
Construct 150mm concrete apron surrounding pit to detail	66	m2	$140.00	$9,240.00	66	m2	$140.00	$9,240.00		-	-	$-
150mm Lean mix concrete (5%)	66	m2	$95.00	$6,270.00	66	m2	$95.00	$6,270.00		-	-	$-
150mm Cement stabilised crushed granite	24	m2	$75.00	$1,800.00	24	m2	$75.00	$1,800.00		-	-	$-
Supply, bed, lay, joint subsoil drainage pipes and structures as required:												
150mm dia slotted uPVC pipe subsoil drain including rodding eyes as required.	851	m	$42.00	$35,742.00	851	m	$42.00	$35,742.00		-	-	$-
Flush point including temporary concrete collar and connecting to subsoil with 150mm dia. non-slotted pipe	29	No	$175.00	$5,075.00	29	No	$175.00	$5,075.00		-	-	$-
Excavate in all classes of material, supply all materials, and construct rock headwalls complete (including rock erosion protection) to detail for:												
Precast concrete headwall to accommodate 2 x 1500mm RCP	1	Item	$16,000.00	$16,000.00	1	Item	$16,000.00	$16,000.00		-	-	$-
Scour protection	1	Item	$3,000.00	$3,000.00	1	Item	$3,000.00	$3,000.00		-	-	$-
Pool Fence powder coated dulux	15	m	$350.00	$5,250.00	15	m	$350.00	$5,250.00		-	-	$-
Construct GPT												
Supply and construct gross pollutant trap Rocla GPT CDS3018 incl. access platform and cleaning at the time of Practical Completion	2	No	$355,000.00	$710,000.00	2	No	$355,000	$710,000.00		-	-	$-
TOTAL DRAINAGE				**$1,304,598.00**				**$1,526,396.00**				**$221,798.00**
RAINGARDEN												
Stage 1: Interim Raingarden												
Trim and grade temporary sediment basin	4,511	m2	$4.50	$20,299.50	4,511	m2	$4.50	$20,299.50		-	-	$-
Supply and place liner to detail including:												
HDPE liner incl. temporary liner	5,046	m2	$30.00	$151,389.00	5,046	m2	$30.00	$151,389.00		-	-	$-
"BIDIM A44" A44 geotextile liner (Temporary)	4,806	m2	$5.00	$24,030.00	4,806	m2	$5.00	$24,030.00		-	-	$-
"BIDIM A44" geotextile liner (2 layers)	4,806	m2	$10.00	$48,060.00	4,806	m2	$10.00	$48,060.00		-	-	$-
Supply and place Drainage Layer [Aggregate (200mm thick)]	903	m3	$205.00	$185,115.00	903	m3	$205.00	$185,115.00		-	-	$-
Supply and place Transition Layer [Coarse Sand (250mm thick)]	1,128	m3	$190.00	$214,320.00	1,128	m3	$190.00	$214,320.00		-	-	$-
Supply and place recycled sand/loam media (150mm thick)	677	m3	$210.00	$142,170.00	677	m3	$210.00	$142,170.00		-	-	$-
Supply and place sacrificial geotextile layer	4,511	m2	$7.50	$33,832.50	4,511	m2	$7.50	$33,832.50		-	-	$-
Supply and place sacrificial turf layer	4,511	m2	$12.00	$54,132.00	4,511	m2	$12.00	$54,132.00		-	-	$-
Stage 2: Ultimate Raingarden												
Remove interim geotextile, filter media and washed turf layer	1	Item	$45,110.00	$45,110.00	1	Item	$45,110.00	$45,110.00		-	-	$-
Supply and place liner to detail including:												
Supply and place Transition Layer [Coarse Sand (450mm thick)]	2,030	m3	$190.00	$385,700.00	2,030	m3	$190.00	$385,700.00		-	-	$-
Supply and place recycled sand/loam media (500mm thick)	2,256	m3	$210.00	$473,760.00	2,256	m3	$210.00	$473,760.00		-	-	$-
Planting of bioretention garden (measured in Landscaping)		Note				Note						
Escalation on ultimate raingarden and planting (estimated at 5-10 years - say 7 years at 3% p.a. after initial Stage 1 completion)	1	Item	$252,000.00	$252,000.00	1	Item	$252,000	$252,000.00		-	-	$-
TOTAL RAINGARDEN				**$2,029,918.00**				**$2,029,918.00**				**$-**
LANDSCAPING												
Preliminaries												
Contractors and suppliers, site establishment, site compound, amenities, insurances, sediment and erosion control, WAE survey, disposal of spoil off site. Assuming no contamination. Based on one contract for all stages of work	1	Item	$12,500.00	$12,500.00	1	Item	$12,500.00	$12,500.00		-	-	$-
Topsoil												
Ameliorate site topsoil	17,120	m3	$4.00	$68,480.00	17,120	m3	$4.00	$68,480.00		-	-	$-
Allowance for upgrading existing soil with compost or imported topsoil (say 50%)	8,560	m3	$45.00	$385,200.00	8,560	m3	$45.00	$385,200.00		-	-	$-
Turf												
Subgrade preparation inc cultivation & gypsum	51,030	m2	$5.00	$255,150.00	51,030	m2	$5.00	$255,150.00		-	-	$-
Import 150mm topsoil (80/20)	7,655	m3	$95.00	$727,177.50	7,655	m3	$95.00	$727,177.50		-	-	$-
Supply and lay couch turf	51,030	m2	$12.00	$612,360.00	51,030	m2	$12.00	$612,360.00		-	-	$-
Planting												
Raingarden												
Subgrade preparation inc cultivation & gypsum	4,511	m2	$5.00	$22,555.00	4,511	m2	$5.00	$22,555.00		-	-	$-
Import 250mm topsoil (Premium garden mix)	1,128	m3	$95.00	$107,137.00	1,128	m3	$95.00	$107,137.00		-	-	$-
Mulching (75mm)	4,511	m2	$8.00	$36,088.00	4,511	m2	$8.00	$36,088.00		-	-	$-
Macrophyte tubestock (Assume 8 per m^2)	36,088	No.	$3.50	$126,308.00	36,088	No.	$3.50	$126,308.00		-	-	$-
Tree Planting												
Allowance for 100L street tree planting including pit excavation, soil mix, ag line, stakes, trees and mulch	649	No	$400.00	$259,600.00	649	No	$400.00	$259,600.00		-	-	$-
Maintenance Track												
Supply all materials and construct all weather access to detail:												
Trim, grade and compact subgrade to maintenance access track	3,740	m2	$3.00	$11,220.00	3,740	m2	$3.00	$11,220.00		-	-	$-
150mm Concrete (25MPa) with SL82 Mesh and 30mm sand	3,740	m2	$120.00	$448,800.00	3,740	m2	$120.00	$448,800.00		-	-	$-
Construct commercial vehicle crossing	6	m	$190.00	$1,140.00	6	m	$190.00	$1,140.00		-	-	$-
Miscellaneous												
Allowance for linemarking				Excluded				Excluded				
Allowance for fence or bollards on street frontages (approx. 570m)	1	Item	$142,500.00	$142,500.00	1	Item	$142,500.00	$142,500.00		-	-	$-
Allowance for linemarking				Excluded				Excluded				
Floodway signage	4	No	$425.00	$1,700.00	4	No	$425.00	$1,700.00		-	-	$-
Establishment Maintenance / Defects Liability												
Watering and maintenance for 36 months defects liability period	36	mths	$3,500.00	$126,000.00	36	mths	$3,500.00	$126,000.00		-	-	$-
Fence												
Allowance for pool fence to perimeter of basin				Excluded				Excluded				
TOTAL: LANDSCAPING				**$3,343,916.00**				**$3,343,916.00**				**$-**
SUB-TOTAL TRADE WORKS				**$13,433,727.50**				**$13,632,815.86**				**$199,088.36**
PRELIMINARIES (10%)				**$1,343,400.00**				**$1,363,300.00**				**$19,900.00**
MARGIN (8%)				**$1,182,200.00**				**$1,199,700.00**				**$17,500.00**
TOTAL CONSTRUCTION WORKS				**$15,959,328.00**				**$16,195,816.00**				**$236,488.00**



APPENDIX B

TENDER PRICE INDICIES

AUSTRALIAN CONSTRUCTION MARKET CONDITIONS REPORT

November 2023

INTRODUCTION

ESCALATION HAS BEEN HIGHER THAN MOST EXPECTED THROUGH 2023. WHAT IS THE PATH FORWARD FOR ESCALATION TO 2026?

WT VIEW ON AUSTRALIA COST ESCALATION BY KEY MARKET – BUILDING

	2020	2021	2022	2023	2024	2025	2026
SYDNEY	4.5%	6.0%	6.5%	5.2%	4.0%	3.5%	6.0%
MELBOURNE	2.0%	3.0%	9.5%	6.0%	3.5%	2.8%	5.8%
BRISBANE	3.0%	3.8%	8.5%	8.0%	6.0%	7.0%	5.0%
ADELAIDE	0.0%	15.0%	6.0%	5.0%	4.0%	4.5%	6.5%
PERTH	4.0%	16.0%	11.0%	4.5%	4.0%	5.0%	4.5%
HOBART	2.0%	10.2%	10.5%	6.0%	5.5%	4.5%	5.5%
CANBERRA	2.5%	6.5%	10.0%	6.0%	4.0%	4.0%	3.5%

CONTRIBUTION TO COST ESCALATION BY INPUT – BUILDING

- IMPROVES ESCALATION SIGNIFICANTLY
- IMPROVES ESCALATION SOMEWHAT
- HAS NO REAL IMPACT ON ESCALATION
- MAKES ESCALATION SOMEWHAT WORSE
- MAKES ESCALATION MUCH WORSE

	2023	2024
LABOUR (DIRECT)		
MATERIALS		
PLANT & EQUIPMENT		
ENERGY		
FREIGHT		
EXCHANGE RATES		
INDIRECT COSTS		
TOTAL		

Notions of a swift retracement of construction cost escalation to 'normal' levels, or even into negative territory, during 2023 were always highly fanciful. However, few expected cost pressures to remain as broadly stubborn as they have been.

Sure, Infrastructure construction levels climbing to record highs (when Mining-related works are excluded) has been crucial to escalation remaining elevated in that sector. But for escalation in Building to come in well above the 3% 'rule of thumb' is not in line with construction levels.

So... where to from here? How will escalation change moving forward? This short pack aims to provide insight on escalation, both from a broader market perspective and by input.

WT VIEW ON AUSTRALIA COST ESCALATION BY KEY MARKET – INFRASTRUCTURE

	2020	2021	2022	2023	2024	2025	2026
SYDNEY	3.0%	4.5%	9.0%	7.0%	4.5%	4.0%	4.0%
MELBOURNE	1.0%	3.5%	8.0%	5.5%	5.0%	6.5%	5.5%
BRISBANE	0.5%	3.0%	8.5%	5.3%	5.5%	7.0%	5.8%
ADELAIDE	0.8%	3.3%	9.3%	7.0%	4.0%	9.0%	6.5%
PERTH	0.7%	3.1%	8.6%	4.7%	3.6%	5.0%	6.0%
HOBART	1.6%	2.5%	8.3%	8.5%	4.5%	8.0%	5.0%
CANBERRA	1.3%	3.8%	8.8%	6.0%	6.0%	5.0%	5.0%

CONTRIBUTION TO COST ESCALATION BY INPUT – INFRASTRUCTURE

- IMPROVES ESCALATION SIGNIFICANTLY
- IMPROVES ESCALATION SOMEWHAT
- HAS NO REAL IMPACT ON ESCALATION
- MAKES ESCALATION SOMEWHAT WORSE
- MAKES ESCALATION MUCH WORSE

	2023	2024
LABOUR (DIRECT)		
MATERIALS		
PLANT & EQUIPMENT		
ENERGY		
FREIGHT		
EXCHANGE RATES		
INDIRECT COSTS		
TOTAL		

KEY POINTS TO ESCALATION OUTLOOK – BY MARKET

Sydney

Risk that Building escalation remains quite high in near term via stronger indirect cost pressures and new regulation (more so in Residential), and skills loss to SE Qld. Escalation set to move higher from 2026. Softer Infrastructure outlook via State Government cost-cutting.

Melbourne

Some current market softness offset by likely loss of skills to SE Qld. Elevated risk of near-term State Government cuts to add to downside risks before escalation strengthens from 2026 as next major projects proceed, made more urgent by robust population growth.

Brisbane

Sub-par capability plus surging pipeline of work has seen escalation almost at 2022 highs. Building will be higher in near-term (hospitals-led) but Infrastructure strength to come post-2026. Influx of trades from interstate crucial to keep a lid on escalation.

Adelaide

Steady flow of major projects to keep Building escalation elevated. Infrastructure outlook dependent on major Transport project timing (amidst very strong renewables spend).

Perth

Escalation has retraced more than in most markets despite strong population growth and healthy State Government finances. This points to an uplift in activity and escalation across Building and Infrastructure, with potential major Mining spend to heighten cost pressures.

Hobart

Spectre of game-changing Stadium project lingers amidst an undercurrent of elevated (Building) sector activity elsewhere – this suggests above-average escalation to persist. Infrastructure escalation to ride Bridgewater Bridge and then Martinus Link (or other renewables) waves.

Canberra

Some softness in the Commercial pipeline to weigh on the Building escalation outlook, although support expected from the Social side. Infrastructure to remain elevated via a combination of robust activity and complex projects (requiring higher % of FIFO trades).

KEY POINTS TO ESCALATION OUTLOOK – BY YEAR

2023

- While escalation is down from 2022 highs, it has not slowed as much as we predicted in our April Market Report. Ongoing tightness in labour markets (including initial signs of trades shifting to Queensland) and a prolonged impact from indirect costs via recent unusual market conditions have been key contributors.
- Building escalation is expected to end up between 4.5 and 6% for most cities – with Brisbane the exception at 8%. For Infrastructure, where construction is stronger, we expect escalation of 5-7% across most cities (with Perth at 4.7% and Hobart 8.5%).

2024 and 2025

- The economy is expected to enter a slowdown from mid-to-late 2024 through 2025. However, our view is that the slowdown is unlikely to be a significant one, while prospects for a number of construction sectors are better than those of the broader economy.
- This points to higher escalation than would otherwise have been expected at this point in the cycle. Furthermore, should initial signs of a sustained interstate move of labour to Qld be maintained, this will see higher escalation in Sydney and Melbourne.
- For Building, our escalation forecast is 3.5-5.5% across most cities. Brisbane, with its booming pipeline of work, is at 6-7% here but may soften if the interstate response is high.
- For Infrastructure, our forecast is 4-6.5% for most cities in these years. This is largely on the back of robust activity levels, but also the next round of major projects in a number of cities.

2026 and beyond

- By 2026, the economy is expected to be in the early stages of recovery. While a sharp jump out of recession is unlikely, construction activity should still be ahead of that indicated by economic growth in many sectors.
- In addition, ongoing strong conditions in Brisbane and SEQ, plus the potential for very strong levels of Residential construction, point to an elevated risk of increased escalation across many markets via aggressive competition for resources.
- This should see escalation at 4-6.5% in most markets across Building and Infrastructure.
- While this is higher for Building, it is lower for Infrastructure vs. 2025. With that said, our post-2026 view on Infrastructure remains 'higher for longer'. This is due to elevated construction levels (and a higher % of complex works), resilience being a higher priority and prolonged boom conditions (mostly rural areas) for renewable energy / transmission build.

ECONOMIC OUTLOOK, IMPLICATIONS FOR CONSTRUCTION AND COST ESCALATION

THE AUSTRALIAN ECONOMY APPEARS LIKELY TO ENTER INTO A PERIOD OF INCREASED ECONOMIC WEAKNESS. WHAT MIGHT THIS MEAN FOR CONSTRUCTION & COST ESCALATION?

The Australian economy has continued to record solid growth numbers through 2022 and 2023. While there are some similarities to much of the decade prior to the pandemic, there is scant similarity outside of headline growth numbers. Furthermore, today's economic climate is increasingly schizophrenic; a sample of economic indicators, which often provide reassuring direction, are now more confusing and counteracting. Economists reaching for the favoured "mixed bag" metaphor are missing the chance to highlight increasing nuance.

On the one hand, the return of soaring inflation (after a two to three-decade hiatus) has seen a regime of Reserve Bank cash rate increases unprecedented in the current central bank setting. This has led to increasingly acute cost-of-living and housing market crises, but also fears of a 'cliff' for those coming off low fixed-rate mortgages on to now-higher variable rates.

These higher borrowing costs are also concerning State Governments, notably those with expansive spending plans (New South Wales and Victoria, perhaps Queensland, although their key financial metrics had a better starting point). Leadership changes in two of these states could well mean these spending plans are recalibrated to changing market conditions.

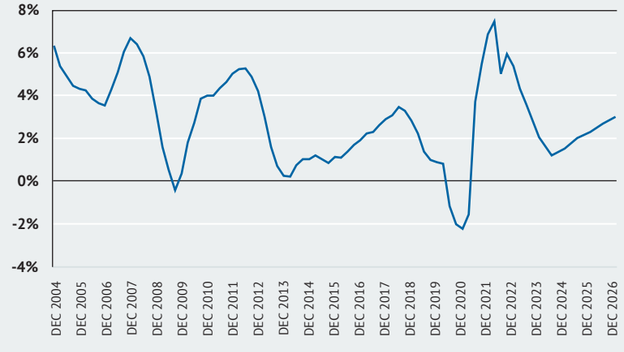
While Federal finances are in (rare) stellar health, they are pursuing an agenda of reined-in spending, largely to reduce the case for further Reserve Bank cash rate increases. Stubborn inflation numbers of late have seen the risk of additional Reserve Bank involvement persist, which would see consumer spending and housing come under increased pressure.

That these negatives have manifest in poor business and consumer sentiment numbers sits in stark contrast to the situation in much of the labour market, where metrics sit well above normal levels, even with the return of foreign labour after borders reopened. The softening of broader economic conditions saw predictions of mean reversion in these metrics, but this has only barely happened.

In all, given increased signs of decline in areas of weakness above, our base case view is for a recession starting in mid/late 2024. That the recent International Monetary Fund outlook called for a stronger downturn (vs. its April report) adds to this argument. However, the likely persistence of tight labour markets, robust Federal financial metrics and elevated population growth should mean the risk of a severe, 1990s-like recession is minimal. With that said, a historically typical post-recession bounce also seems unlikely; a return to recent "normal" conditions is most likely.

GROSS NATIONAL EXPENDITURE (GNE)

Annual % Change[1]
(September and December quarters 2023 – estimate, 2024 to 2026 – forecast)



Implications

While typically, the outlook for construction is generally linked to that of the economy, there can be periods where these become untethered and other drivers can emerge. This is especially so at present, which may see Building construction activity strengthen and hence help to soften the expected impact of a recession.

Chart 2 below highlights annual change in construction activity by broad sector. While Infrastructure has been almost the sole contributor to overall sector growth in recent years, it appears Non-Residential construction will soon return to growth, perhaps overtaking Infrastructure in the not-too-distant future.

CONSTRUCTION ACTIVITY BY BROAD SECTOR

Annual % Change[2]
(Commencements basis, inflation-adjusted)

But the nature of this change is of more immediate interest than the change itself. Commercial and Industrial sectors of Non-Residential construction are thought to be especially linked to broader economic conditions – but even this is not as strong a relationship as it once was.

Among key Commercial and Industrial sectors, Office is seeing construction activity (and indicators of construction activity) at a higher level than would be expected, given elevated uncertainty around occupancy rates (as the remote work revolution continues). Warehouses and Data Centres are the main sectors to benefit from digital and pandemic disruption; both are seeing signs of activity moving higher.

Retail and Hotels are perhaps on the other side of the disruption divide. However, Retail has seen disruptive conditions for some time now – activity oscillates around a somewhat elevated level, boosted by centre upgrades and other means to compete aggressively for customers. For Hotels and other accommodation, there was a brief spike post-COVID before falling back to decade lows, but the near-term sector momentum appears to be coming from student housing.

On the Infrastructure side, activity is at very strong levels generally (especially so ex-Mining construction). But much of the recent strong growth in the sector has come from the current round of Transport mega-projects. These either have very long lead times, are part of an ongoing catch-up after decades of neglect in major Rail spending, or both.

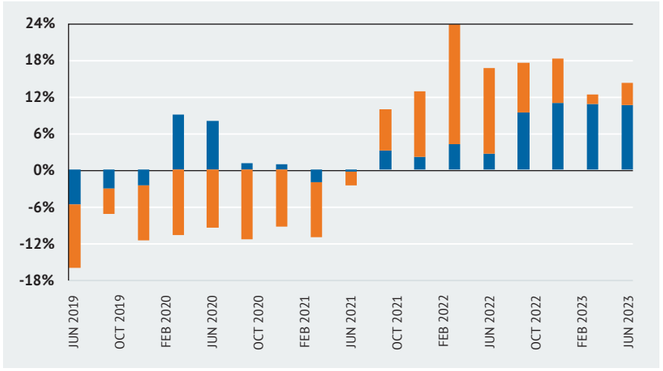
The other key driver of construction not mentioned above is Government spending (or initiatives). As seen in the next chart, this has become a crucial contributor to construction in the Non-Residential and Infrastructure sectors, and figures to be crucial (given a likely recession) for some years to come.

ECONOMIC OUTLOOK, IMPLICATIONS FOR CONSTRUCTION AND COST ESCALATION CONT.

Two main sectors where the influence of the public purse has been (and will be) seen are Health and Education, while (in addition to Transport), Electricity – both via new generation and new/upgraded transmission infrastructure – will be a key source of public-led growth on the Infrastructure side.

NON-RESIDENTIAL BUILDING AND INFRASTRUCTURE

Growth by Source[3]



Health may be the sector with the most significant direct Government involvement. An ongoing phase of major hospital construction and upgrades is underway across almost all states (but largely focusing on the eastern states). While the programs for these projects have been in train for many years, increasing lead times, especially for some larger or more complex projects, may yet result in a prolonged plateau of Health building, rather than the boom expected by many.

For Education, ongoing strength in funding – mostly for new public schools, but also for some significant university projects – remains an important contributor to elevated activity levels. However, the diverse nature of the sector means there are other key drivers of projects. These notably include very strong foreign student numbers and the ongoing 'battle of egos' among top-tier private schools for upgrades and improvements (often funded by well-off families).

The Non-Residential construction component associated with the ongoing rollout of major new Rail projects is in stations, typically underground. This has seen the Transport (building) sector hit record activity levels in recent years, and hence become a more public-led sector (it was previously more of a private-led sector, led by airport projects). With huge metro-style projects still to come in Sydney and Melbourne in the years ahead, Transport building should see new peaks and ongoing elevated activity levels for many years to come.

Lastly, while not slated to be fully driven by direct Government involvement, the expected strong growth ahead in Electricity (both in generation and transmission infrastructure) could well be the sector to see greatest growth in coming years. Such is the task ahead in meeting Net Zero mandates within specified timeframes and with a major increase in transmission infrastructure needed.

Our base case view is one which largely sees these public-led (or supported) projects proceed in coming years, and that this helps to support our view that the looming recession will not be severe. However, conditions for Government funding of major projects or initiatives can change quickly. This has been seen in recent months with the change of Premier in three of Australia's largest states, with strong spending plans in NSW and Victoria increasingly under the microscope.

From an escalation perspective, what happens with public-led construction, especially over the next few years, will be crucial to the path of construction activity and hence to escalation. As such, the strength (or otherwise) of public-led construction is a key risk to our forecasts.

More generally, however, softer economic conditions will detract from escalation, especially over 2024 and 2025. With that said, our view that construction activity will generally remain elevated, and will continue to feature an increasing proportion of major / complex projects (in Infrastructure but also Building) is forecast to see escalation levels bottom out on the higher side of the 3% 'rule of thumb'.

Lastly, recent policy developments point to a resurgent level of Residential construction in coming years. While inputs for detached Residential construction share little in common with those of attached Residential and of Non-Residential Building, a significant boost to construction of detached Residential would ultimately put pressure on costs across all construction sectors – albeit this may not eventuate until beyond our 2026 forecast horizon.

Our detailed analysis of contributors to escalation by construction component follows.

ESCALATION COMPONENT ANALYSIS

LABOUR (DIRECT)

AUSTRALIA – CONSTRUCTION WAGES

Annual % Change[4] (calendar years: 2023 – estimate, 2024 – forecast)

Recent Trends: While our previous view that construction wages growth (nation and sector wide) would peak in 2023 should still hold, this may not be the case. Trends across the demand side (via robust construction activity and associated strength in labour) and supply (reflected in flat construction labour force numbers and trades coming in from overseas) should see annual wages growth climb further over the rest of 2023. This would see wages growth hit an 11-year high of 3.9%.

Looking Forward: Various lead indicators point to overall wages growth moderating through 2024, which would likely continue into 2025. However, the view across the construction wages landscape can encapsulate a wide range of outcomes; this is quite likely to be the case in coming years. The following trades would usually see above-average growth (the premium these trades usually see could easily strengthen in coming years):

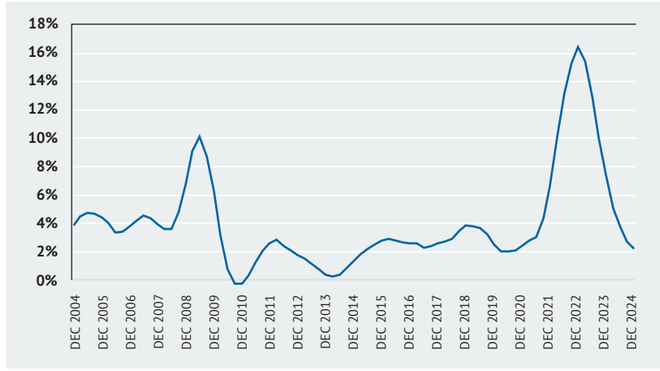
- Trades in higher demand on major/complex projects (often with Tier 1 builders and on enterprise bargaining agreements),
- with a focus on the Infrastructure side (or at least the ability to switch between Infrastructure and Building) and,
- perhaps the ability to relocate interstate (and take advantage of likely strong market conditions in Queensland; preliminary ABS data suggests this may already be underway)

That labour market conditions are set to remain somewhat tight through a weaker period of economic/construction activity suggests skills shortages could recur for much of the 2020s. Analysis of the pipeline of trades coming through vocational training gives some hope that this situation may be avoided but medium-term strength across much of construction could more than offset this.

MATERIALS

AUSTRALIA BUILDING MATERIALS COST INDEX

Annual % Change[4] (calendar years: 2023 – estimate, 2024 – forecast)



Recent Trends: While annual escalation (of proportions of materials for a 'typical project') remains at strong levels, these have eased from last year's peak. With supply chain disruptions largely passed and globally traded materials seeing much softer conditions, these have removed a major driver of escalation – but still leave escalation around 7% for 2023 overall: the highest (ex-2022) since 2009. For Infrastructure, oil-linked materials may see escalation remain somewhat higher into 2024.

Looking Forward: Our view suggests escalation could slow markedly (to almost 2%) in 2024. Two key drivers here could be the easing of what have been significant cost pressures in electricity (which would ultimately see production costs for energy-intensive materials follow suit) and from demand in general falling back in line with the expected economic downturn.

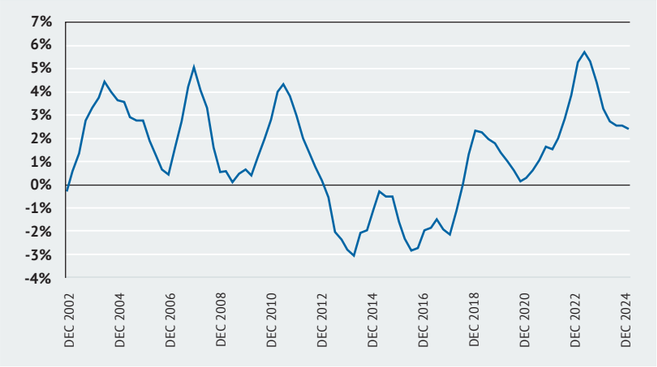
There are, however, two other key points to consider: if the pace of take-up of 'greener' materials and/or methods of producing materials is faster than currently slated, and if the Israel-Hamas tensions escalate further to involve major energy exporters. While the former may have a significant effect on costs, this is more likely to be gradual (possibly beyond 2026) and perhaps only in specific sectors. But for the latter, this would likely be near-term, perhaps quite sudden, and, depending how wide the involvement becomes, may see geopolitical-led cost pressures rise for many materials.

ESCALATION COMPONENT ANALYSIS CONT.

PLANT & EQUIPMENT

AUSTRALIA – PLANT & EQUIPMENT HIRE COST

Annual % Change[6] (calendar years: 2023 – estimate, 2024 – forecast)



Recent Trends: After a decade of escalation averaging around 0%, plant and equipment hire followed the trend across construction inputs, surging to multi-decade highs in 2022 and 2023. While a cooling appears certain, this could see escalation return only to average levels seen during the 2000s – i.e., above escalation seen for the better part of a decade.

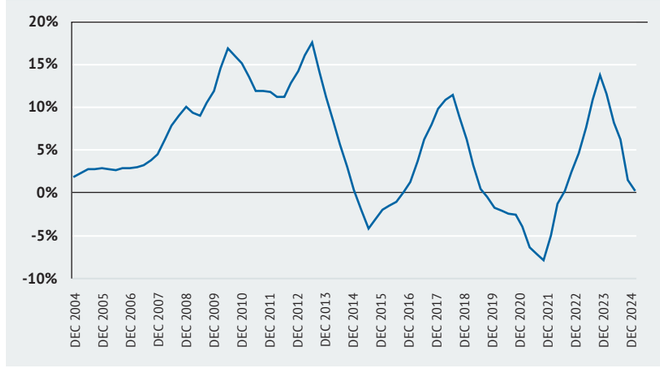
Looking Forward: While, in normal circumstances, the repair of supply chains would see a sector as international as plant and equipment be more likely to return to pre-COVID conditions, sector irregularities persist. Specifically, closures among major plant and equipment manufacturers in Europe (as a result of exorbitant electricity price increases). Plant and equipment from China could well increase to fill some of this void, but a weaker $A could negate some of these increases. Escalation may take several years to return to 1-2% levels for a prolonged period.

77 Market St, Sydney

ENERGY

AUSTRALIA – ELECTRICITY PRICE (CPI)

Annual % Change[7] (calendar years: 2023 – estimate, 2024 – forecast)



Recent Trends: It was always going to be the case that the significant market ructions in early-to-mid 2022 would impact electricity for some time to come. The immediate surge in wholesale electricity prices (which, to be fair, had causes additional to the Russo-Ukraine War) 18 months ago has worked its way to the end user in Australia; electricity price escalation is estimated to have peaked in the September quarter at just under 14%.

Looking Forward: The industry / sector response to this surge in prices looks to have curtailed what could have been a period of sustained high escalation. This included the decision by the Federal Government to instigate price caps (for gas and coal) in late 2022, but also aggressive moves away from Russian gas use in Europe, continued fast pace of solar rollout in Australia as well as mild (winter) weather conditions across both continents. This should see electricity escalation slow from late this year, gathering pace from mid-2024.

The threat from geopolitical instability on energy prices is constant, especially in a world with elevated risk of instability. The recent escalation of Israel-Hamas tensions may well mushroom into something far more substantial, encompassing other significant (and energy-producing) players in the Middle East. In such a scenario, an impact similar to that seen from the onset of the Russo-Ukraine War could reasonably be expected, although the improvement in renewables capacity since February 2022 would help to negate some of this impact

ESCALATION COMPONENT ANALYSIS CONT.

FREIGHT

AUSTRALIA – FREIGHT COST

As % of Total Imported Goods Cost[8] (September to December 2023 – estimate, 2024 – forecast)

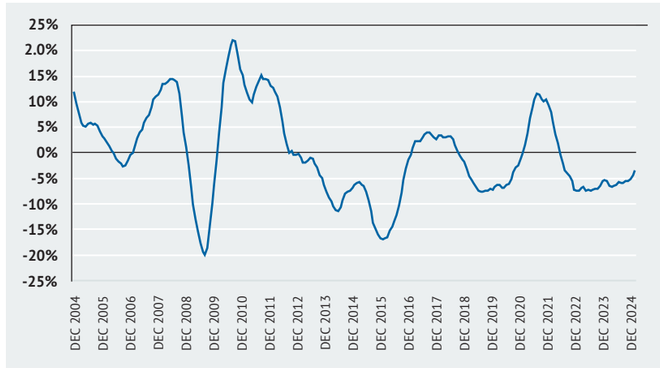
Recent Trends: The combination of less global demand for goods, increased shipping capacity and fixed-term freight contracts ending (and rolling on to either the spot market or a much lower new contract) have seen freight costs continue to fall back through 2023. Some significant recent weakness in the spot market has led to reports of shipping companies cutting back on capacity – and hence some signs of spot rates bouncing. This practice may periodically recur, but our view generally is for (blended i.e., mix of contract and spot) freight rates to soon settle at a level approaching pre-pandemic marks.

Looking Forward: The next hurdles for global shipping companies include a likely global economic slowdown leading into the arrival of significant new capacity coming online from 2025. Black Swan events notwithstanding, the outlook for freight escalation appears to be one of minor movements each way (after the level of freight costs bottoms out in the near future), before the next economic upturn sees excess shipping capacity absorbed and rates move higher.

EXCHANGE RATES

AUD / USD EXCHANGE RATE

Annual % Change[9] (calendar years: 2023 – estimate, 2024 – forecast)



Recent Trends: Exchange rates can vary for numerous reasons, but the continued decline in the AUD / USD rate has largely aligned with changes in its two fundamental drivers: the outlook for interest rates between Australia and the US, and recent data / outlook for commodity prices (for the most abundant Australian mineral and energy commodities). This has seen 1 AUD fall below 64 US cents with possibly further to fall – given ongoing 'higher for longer' talk in the US and persistent softness in key commodity prices.

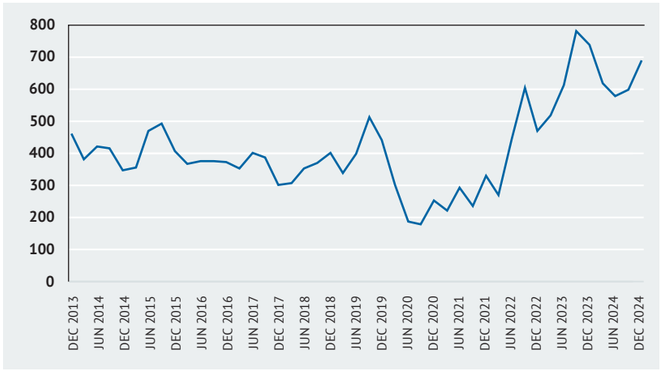
Looking Forward: Our view is for the AUD / USD to fall further (in annual average terms) through 2024 before moving higher through 2025. This is based upon our view that the prospect of US interest rates appearing more likely to rise (or remain elevated) vs. Australian rates begins to recede next year; should this not be the case, expect a further leg down in the AUD/USD, which will put upward pressure on escalation. The commodity prices driver is unlikely to turn positive in 2024.

ESCALATION COMPONENT ANALYSIS CONT.

INDIRECT COSTS (INCLUDING PRELIMINARIES, DESIGN, OVERHEADS)

AUSTRALIA – CONSTRUCTION INSOLVENCIES

Quarterly[10] (December quarter 2023 – estimate, 2024 – forecast)



Recent Trends: While most categories above have seen escalation at long-term highs in recent years, indirect costs has seen perhaps the most unfortunate combination of circumstances:

- Professional services wage growth at a 13-year high (both overall and for construction-specific sectors).
- Sector insolvencies at the highest level on record (i.e., since September 2013) in the September quarter. In addition, sector insolvencies were the highest % of total insolvencies seen since September 2013 (31%) in the September quarter.
- Insurance costs have surged. ABS CPI data on insurance is set to see annual growth of almost 13.5% by early 2024.
- Elevated construction activity and a higher % of more complex projects is making it more difficult to attract trades to jobs in smaller capital cities and regional areas. This means more FIFO workers and hence Living Away From Home Allowance (LAHFA) and other labour costs.
- Market weakness in some sectors and states has led to a higher % of projects being put on hold after the tender stage.

Combinations of these factors have seen the following impacts, driving indirect costs higher:

- Impact of insolvencies spread across overheads or new projects.
- Lower contractor and subcontractor competition, both in overall depth and due to lower levels of participation in tender opportunities.
- This is being seen more so among Tier 2 players, while in some sectors, there are also instances of additional risk contingencies.

Looking Forward: There may be scenarios by which most of the above drivers of strong indirect costs escalation begin to moderate. However, these appear unlikely to happen before the end of 2024. So, while there may be some improvement, another year of strong indirect costs escalation seems certain.

IMPLICATIONS AND RISKS

Implications

Labour (Capability):

- That various indicators of the state of play in construction labour point to broad sector tightness and ongoing skills shortages, at a time when construction activity is not super-strong, suggests this is an issue which will not be resolved quickly.
- While there is some hope from skilled migration and the pipeline of those studying to be in a trade, these sources of capability appear too limited to make a real impact.

Too Much Work (e.g., SE QLD):

- The concern over construction labour markets is amplified given the outlook in some parts of Australia, where demand is strong, but the supply response is typically limited.
- These are mostly smaller capital cities or – especially – regional areas (given expansive plans for Renewables and Defence) but appear to be of most concern in Brisbane and SE Qld.
- The 2000s saw trades shift from Sydney and (less so) Melbourne to work on the huge pipeline of work in SE Qld; if this happens again, it may dampen our view on Brisbane escalation, but at the expense of cost pressures in Sydney and Melbourne.

Prolonged Elevated Escalation:

- Our outlook does not see a return to 'normal' levels of escalation i.e., 3% before cost pressures rise again. Even allowing for an expected economic downturn, escalation is forecast to be somewhat higher than 3% in most markets through 2024 and 2025.
- This does suggest an environment where these escalation forecasts and elevated construction activity may find it difficult to co-exist where activity may see a marked decline.
- However, our view on the strength of growth drivers across the sector points to any such fall in activity being caught up again quite quickly.

Risks

Residential (Federal Government Programs):

- A key risk to the forecasts is if the Residential construction outlook materialises as Federal plans and sector growth drivers (e.g., population growth, rental vacancy rates) suggest.
- While Residential (especially detached) does not have significant overlap (in terms of inputs) vs. other construction, should the outlook in Residential match what is slated (or even faster), this could mean major pressure for resources in other construction sectors.

Geopolitics (Onshoring?):

- With the impact from the Russo-Ukraine War having eased, the escalation of Israel-Hamas tensions may yet result in similar, or even greater, impact on costs. Good judges also point to a China-Taiwan flashpoint before the end of the decade.
- It may be almost impossible for Australia to avoid costs impact of these events, but it does appear that a golden opportunity to substantially boost local manufacturing of key inputs (in the aftermath of COVID) has been missed.

China:

- The resurgent China economy theory (upon their late 2022 reopening after 'COVID Zero' policies) has largely disappointed. Recent attempts to provide further economic stimulus could see some improved economic performance but any benefit is likely to be fleeting.
- That is not to say the Chinese economy is in trouble, but more so that risks remain elevated and 'traditional' methods of stimulus could have less impact than they have in the past.
- So, our base case is ongoing patchy economic performance and solid manufacturing output to put downward pressure on materials costs. Hence, risks likely lie to the upside (i.e., stronger economic performance than expected) and upward pressure on materials costs.

METHODOLOGY

While our view is based on a variety of sources (not the least of which is WT market insight), the general approach in this pack is based on escalation from the input cost perspective. This aligns with the traditional QS approach to escalation but also allows rationalisation of bottom-up (i.e., input-level) and top-down (i.e., sector or economy level) escalation perspectives.

There is no single market-level data series which conceptually matches the above. However, data available by key inputs provides checks and balances on the overall WT view for key markets.

Points to note:

- All escalation shown is on a calendar year basis and is the % change between the full-year average vs. the previous year's full-year average.
- Escalation contribution by input is on a general, Australia-wide basis, while state-by-state figures are general across sub-sectors, project types and values. For more information on escalation relative to your project or sub-sector, please discuss with your usual contact or call your local WT office.
- In addition, escalation contribution by input assumes no other major drivers of escalation (e.g., large productivity increases, significant regulation changes re: approvals ('red tape')).

CONSTRUCTION ECONOMIST DAMON ROAST

Damon Roast
Construction Economist

Damon joined WT in June 2022 as Construction Economist to support the team and our clients in understanding economic conditions and their influence upon our projects. Damon joined us with a wealth of experience both in the local construction market and various global markets.

Damon provides research and analysis to help inform both our Market Reports and frequent reporting to our internal team and board. He is also available to assist our clients on research required for specific project opportunities.

Footnote references

1 Australian Bureau of Statistics, International Monetary Fund, WT.
2 ABS Building Activity, Engineering Construction
3 ABS Building Activity
4 ABS Wage Price Index, WT.
5 ABS Producer Price Index, WT.
6 ABS Producer Price Index, WT.
7 ABS Consumer Price Index, numerous State Government regulatory/pricing tribunals, WT.
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