Appendix D. Quantity Survey

Project Name: Buronga Landfill Expansion

Report: Concept Design Estimate No. 2

Introduction

A Capisce Qs has been requested by Tonkin to provide a Concept Design Estimate based upon current documentation for the Buronga Landfill Expansion Wentworth Shire Council, New South Wales.

B Works comprise of the following:

Stage 1 & Stage 2
- Excavation and stockile of material materials to form landfill area
- Lining of landfill base in accordance with NSW guildlines (as advised)
- Incorporation of stormwater pond including swale drainage channels
- Forming leachate pond including pipework

Cell Cap (to entire site)
- 1000m subsoil / overburden
- 200mm topsoil
- Light vegetation covering

Additional Facilities
- 35m x 20m Front End Recycling Facility / Resource Recover area (rubble hardstand, 150m2 enclosure with 15m2 carport adjacent)
- 35m x 25m Community Transfer Area (concrete hardstand with 15m x 10m unenclosed open canopy)
- Relocation of tranportable Administration Building (to alternate location within site)
- New Administation Building and Amenities (ATCO transportables or similar)
- 20m x 15m Maintenance Area (concrete hardstand with 150m2 unenclosed open canopy)
- 4,200m of unsealed haul road around perimeter of landfill
- 15m x 20m Residual Drop-Off Area (concrete hardstand)

Assumption

A Our estimate is based on a single construction utilising Lump Sum procurement approach and excludes GST;

B We have priced the works based on current rates. We have not been informed when works will commence or to be completed therefore we have made no allowance for escalation costs;

C We have allowed for an approximate site area of 280,000m2 (Stage 1) and 215,000m2 (Stage 2) as measured on plan from the Proposed Cell Layout Drawing;

D We assume a cell lining for the entire Stage 1 area is carried out concurrently, and Stage 2 site area is carried out concurrently (ie. no allowance for individual staged cell lining within Stage 1 and Stage 2);

E We assume there is sufficient area on site to stockpile excavated material;

F We have included cut volumes of 2,103,453m3 (Stage 1) and 1,185,441m3 (Stage 2) as advised by Tonkin;

G We have included PC Sum allowance for the clearance of vegetation (trees / shrubs, etc.) within Stage 1 and Stage 2 works - pending investigation;

H We have assume a 1:3 batter (based on a 2m depth) to the perimeter of Stage 1 and Stage 2 areas;

I We assume compacted engineered fill material is locally sourced - pending investigation;

J We have included a cell cap to the entirety of stage 1 and stage 2. This does not take into consideration staging of capping works or escalation in costs to the date of capping completion (timeline or program of capping not defined). This is an indicative figure only in order to understand cost implications for capping;

K We assume stormwater drainage will be in the form of open swales (no allowance for in-ground pipework and pits);

L We have assumed thicknesses of pavements for the Additional Infrastructure areas as detailed within the Cost Estimate;

M We assume a width of 8m for the unsealed haulage road;

N We have made no allowance for locality loading - we assume all contractors will be locally based;

O We have made the following allowances for the project and they are:

P - 5% of construction cost for Design Development Contingency;

Q - 8% of construction cost for Contractors Preliminaries and Supervision;

R - 3% of construction cost for Contractors Margin and Overheads;

S - 5% of construction cost for construction contingency;

T Refer to estimate for detailed assumptions;

Exclusion

A Professional fees;

B Statutory fees;

C Interest & Holding charges;

D Land & Legal costs;

E Escalation cost;

F Latent conditions;

G Hazardous and contaminated material removal (such as asbestos);

H Contaminated material removal or rectification works;

I De-watering / site drainage (construction drainage);

J Gross pollutant traps / silt traps;

K Soil stabilisation;

L Dust control;

M Filtering Stations;

N Processing Plants;

O Weigh Stations.

P Costs associated within services infrastructure such as electrical, com,munication, water, gas etc;

Q Gas management / LFG Flare location - as the gas generation rates are unknown, it is not possible to quantify required gas flares;

R Removal or modification to Aboriginal Artifact Site;

S Locality Loading;

T After hours work;

U Goods & Services Taxation (GST);

V Refer to Estimate for other detailed exclusions;

Documents Used

A This estimate is based on the following documentation received:

B 202597 - 011 - Proposed Cell Layout

C 202597 - 012 - Proposed Top of Cap Contours

D 202597 - 013 - Stormwater Management Stage 1

E 202597 - 014 - Stormwater Management Stage 2

F Subsequent scope of works discussions with Tonkin;

G 202597 - 010 Concept Design of Upgraded Recycling & Resources Recovery Areas

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Project Summary

Ref	Description	Quantity	Unit	Rate	Total
N	**Basis of Estimate**				0
1	Stage 1	1	Item		46,382,157
2	Stage 2	1	Item		30,988,203
3	Additional Infrastructure	1	Item		1,486,894
4	Cell Cap to Entire Site	1	Item		21,292,938
	Civil Works Sub-Total (Excl. GST)				**100,150,192**
5	Design Development Contingency	5	%	100,150,192	5,007,510
6	Contractors Preliminaries and Supervision	8	%	105,157,701	8,412,616
7	Contractors Margin and Overheads	3	%	113,570,318	3,407,110
	Civil Works Total (Excl. GST)				**116,977,427**
8	Construction Contingency	5	%	116,977,427	5,848,871
9	Professional Fees	1	Item	Excl.	Excl.
	Project Total (Excl. GST)				**122,826,299**
	Cost Range				
10	Cost Range +10%				135,110,000
11	Cost Range -10%				111,670,000

Ref	Description	Quantity	Unit	Rate	Total
1	**Stage 1**				**46,382,157**
1.1	Site Preparation				
1.2	PC Sum allowance to clear site of vegetation (grubbing up trees / shrubs and stockpile as mulch)	1	Item	50,000.00	50,000
1.3	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	280,846	m2	1.75	492,808
1.4	Allowance to excavate / cut to form landfill area including stockpile on site (quantity as advised by Tonkin)	2,103,453	m3	7.50	15,775,898
1.5	Allowance for fill (quantity as advised by Tonkin)	693	m3	5.00	3,465
1.6	Allowance to form batter (assumed 1:3) to perimeter of Stage 1 area	2,187	m	20.00	43,745
1.7	Cell Lining				
1.8	Level and grade subgrade ready to receive sub-base	280,846	m2	1.50	421,269
1.9	Supply and place 300mm compacted engineered fill including trimming and compacting (assume material locally sourced)	280,846	m2	27.00	7,582,842
1.10	Supply and place geosynthetic clay liner	280,846	m2	11.20	3,144,456
1.11	Supply and place 2.0mm HDPE geomembrane	280,846	m2	9.00	2,527,614
1.12	Supply and place cushion geotextile	280,846	m2	6.20	1,740,788
1.13	Supply and place 300mm leachate drainage gravel	280,846	m2	29.00	8,144,534
1.14	Supply and place separation geotextile	280,846	m2	6.20	1,740,788
1.15	Allowance for leachate pipework to cells - assumes DN110 PN8 PE 100 pipe including excavation and backfill (quantity as advised by Tonkin + wastage)	15,785	m	120.00	1,894,200
1.16	No allowance for dust control - TBA	1	Item	Excl.	0.00
1.17	Allowance for compaction testing	1	Item	80,000.00	80,000
1.18	Allowance for site surveys	1	Item	30,000.00	30,000
1.19	Allowance for independed HPDE testing	1	Item	80,000.00	80,000
1.20	Allowance for supervision for testing being carried out	1	Item	84,000.00	84,000
1.21	Drainage				
1.22	No allowance for cap drain - included in Cell Cap to Entire Site	2,549	m	Incl.	0.00
1.23	Allowance for stormwater drainage - assumed open swale	2,866	m	50.00	143,320
1.24	Allowance for grassing to swales including topsoil (assumes swales 1500mm W)	2,866	m	26.40	75,674
1.25	No allowance for AG drains / soakage pits (TBC)	1	Item	Excl.	0.00
1.26	No allowance for junction boxes / pits (open swale)	1	Item	Excl.	0.00
1.27	PC Sum allowance for pumping / de-watering - RISK ITEM - potential latent condition	1	Item	50,000.00	50,000
1.28	Stormwater Pond				
1.29	Allowance for excavation / cut to form stormwater pond (assume 1.5m deep) including stockpile material on site	16,669	m3	7.50	125,020
1.30	Allowance to form levee to perimeter of stormwater pond	770	m	40.00	30,817
1.31	Allowance for pond base (details unknown)	11,113	m2	40.00	444,515
1.32	No allowance for headwalls / pits (served by open swale drainage)	1	Item	Excl.	0.00

Ref	Description	Quantity	Unit	Rate	Total
1	**Stage 1**				**46,382,157**
1.33	Leachate Pond				
1.34	Allowance for excavation / cut to form leachate pond (assume 1.5m deep)	27,428	m3	7.50	205,708
1.35	Allowance to form levee to perimeter of leachate pond	546	m	70.00	38,189
1.36	Trim and compact sub-grade ready for works	18,285	m2	1.50	27,428
1.37	Supply and place 300mm compacted engineered fill (assume material locally sourced)	18,285	m2	27.00	493,700
1.38	Supply and place geosynthetic clay liner	18,285	m2	11.20	204,814
1.39	Supply and place 2.0mm HDPE geomembrane	18,285	m2	9.00	164,567
1.40	No allowance for filtering stations	1	Item	Excl.	0.00
1.41	Leachate Pipework				
1.42	Allowance for leachate pipework including excavation, supply and place DN110 PN8 PE 100 pipe and backfill (quantity as advised by Tonkin)	2,600	m	120.00	312,000
1.43	Allowance for leachate pipework pumps (quantity as advised by Tonkin) - assumed skid-mounted pump - details TBA	18	No	10,000.00	180,000
1.44	Provisional allowance for pits, junctions, headwalls, etc. - TBA	1	Item	50,000.00	50,000
1.45	No allowance for generators / power supplies / swtichboards to pumps (assumed operational cost) - TBA	1	Item	Excl.	0.00
1.46	Cell Cap (entire site)				
1.47	Indicative cost included in Cell Cap for Entire Site cost breakdown	1	Note	Excl.	0.00
2	**Stage 2**				**30,988,203**
2.1	Site Preparation				
2.2	PC Sum allowance to clear site of vegetation (grubbing up trees / shrubs and stockpile as mulch)	1	Item	50,000.00	50,000
2.3	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	216,030	m2	1.75	378,000
2.4	Allowance to excavate / cut to form landfill area including stockpile on site (quantity as advised by Tonkin)	1,185,441	m3	7.50	8,890,808
2.5	No allowance for fill - not required as advised by Tonkin	1	Note	Excl.	0.00
2.6	Allowance to form batter (assumed 1:3) to perimeter of Stage 1 area	1,833	m	20.00	36,657
2.7	Cell Lining				
2.8	Level and grade subgrade ready to receive sub-base	216,030	m2	1.50	324,045
2.9	Supply and place 300mm compacted engineered fill including trimming and compacting (assume material locally sourced)	216,030	m2	27.00	5,832,810
2.10	Supply and place geosynthetic clay liner	216,030	m2	11.20	2,418,870
2.11	Supply and place 2.0mm HDPE geomembrane	216,030	m2	9.00	1,944,270
2.12	Supply and place cushion geotextile	216,030	m2	6.20	1,339,152
2.13	Supply and place 300mm leachate drainage gravel	216,030	m2	29.00	6,264,870

Ref	Description	Quantity	Unit	Rate	Total
2	**Stage 2**				**30,988,203**
2.14	Supply and place separation geotextile	216,030	m2	6.20	1,339,152
2.15	Allowance for leachate pipework to cells - assumes DN110 PN8 PE 100 pipe including excavation and backfill (quantity as advised by Tonkin + wastage)	12,177	m	120.00	1,461,240
2.16	Allowance for dust control	1	Item	Excl.	0.00
2.17	Allowance for compaction testing	1	Item	65,000.00	65,000
2.18	Allowance for site surveys	1	Item	30,000.00	30,000
2.19	Allowance for independed HPDE testing	1	Item	65,000.00	65,000
2.20	Allowance for supervision for testing being carried out	1	Item	70,000.00	70,000
2.21	Drainage				
2.22	No allowance for cap drain - included in Cell Cap to Entire Site cost	431	m	Incl.	0.00
2.23	Allowance for stormwater drainage - assumed open swale	1,078	m	50.00	53,881
2.24	Allowance for grassing to swales including topsoil	1,078	m	26.40	28,449
2.25	No allowance for cell drainage - assume operational cost	1	Item	Excl.	0.00
2.26	No allowance for junction boxes / pits (open swale)	1	Item	Excl.	0.00
2.27	PC Sum allowance for pumping / de-watering - RISK ITEM - potential latent condition	1	Item	50,000.00	50,000
2.28	Stormwater Pond				
2.29	No allowance for stormwater pond (completed in Stage 1 works)	1	Item	Incl.	0.00
2.30	Leachate Pond				
2.31	No allowance for leachate pond (completed in Stage 1 works)	1	Item	Incl.	0.00
2.32	Leachate Pipework				
2.33	Allowance for leachate pipework including excavation, supply and place DN110 PN8 PE 100 pipe and backfill (quantity as advised by Tonkin)	1,300	m	120.00	156,000
2.34	Allowance for leachate pipework pumps (quantity as advised by Tonkin)	15	No	10,000.00	150,000
2.35	Allowance for pits, junctions, headwalls, etc. - TBC	1	Item	40,000.00	40,000
2.36	Cell Cap (entire site)				
2.37	Indicative cost included in Cell Cap for Entire Site cost breakdown	1	Note	Excl.	0.00
3	**Additional Infrastructure**				**1,486,894**
3.1	Front End Recycling Facility (30m x 15m)	1			
3.2	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	450	m2	5.00	2,250
3.3	Allowance to supply and place quarry rubble (assume 100mm thk) including trimming and compacting (assumed locally sourced)	450	m2	15.00	6,751
3.4	No allowance for concrete handstand - as advised	1	Item	Excl.	Excl.

Ref	Description	Quantity	Unit	Rate	Total
3	**Additional Infrastructure**				**1,486,894**
3.5	Allowance for perimeter fencing including entry and exit gates	1	Item	20,000.00	20,000
3.6	Allowance for covered area and enclosure to Front End Recycling Facility - allowed 150m2 enclosed shed with 15m2 covered carport area adjacent - design details TBA	1	Item	120,000.00	120,000
3.7	No allowance for power, lighting or water supply to Front End Recycling Facility	1	Item	Excl.	0.00
3.8	Allowance for RORO Bin Storage Area (8m x 15m) - allowed clearing of site, supply and place of quarry rubble (assume 100mm thk) including trimming and compacting	120	m2	25.00	3,000
3.9	Allowance for Drum Muster Drop-Off Area (12m x 12m) - allowed clearing of site, supply and place of quarry rubble (assume 100mm thk) including trimming and compacting	144	m2	25.00	3,600
3.10	Community Transfer Station / Resource Recovery Shed (35m x 25m)	1			
3.11	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	875	m2	5.00	4,375
3.12	Allowance to supply and place sub-base (assume 100mm thk) including trimming and compacting	875	m2	14.00	12,251
3.13	Allowance for concrete hardstand (assume 100mm thk) including surface finish	875	m2	90.00	78,750
3.14	Allowance for joints (extent TBC)	1	Item	2,500.00	2,500
3.15	Allowance for stormwater drainage to hardstand - allowed 5 No. GIPs + 50m pipework and connection to existing - details TBA	1	Item	25,000.00	25,000
3.16	Allowance for canopy to Community Transfer Station - allowed 15m x 10m steel framed canopy including metal roof sheeting, columns and roof drainge (not enclosed - assume no power / lighting)	1	Item	40,000.00	40,000
3.17	Allowance for directional signage (extent TBA)	1	Item	5,000.00	5,000
3.18	No allowance for power or lighting to Community Transfer Station	1	Note	Excl.	Excl.
3.19	Administration Building (assumed transportable building)				
3.20	Allowance to relocate existing transportable Administration Building (to be located somewhere within property boundaries - location TBA) - assume crane and transport vehicle locally sourced	1	Item	18,500.00	18,500
3.21	Allowance for new site office / lunchroom and amenities - allowed 1 x transportable office building and 1 x small amenities block (ATCO or similar) including delivery to site and craneage	1	Item	95,000.00	95,000
3.22	Maintenance Area (20m x 15m) - location TBA (not shown on drawing)				
3.23	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	300	m2	5.00	1,500
3.24	Allowance to supply and place sub-base (assume 100mm thk) including trimming and compacting	300	m2	14.00	4,200

Ref	Description	Quantity	Unit	Rate	Total
3	**Additional Infrastructure**				**1,486,894**
3.25	Allowance for concrete hardstand (assume 100mm thk) including surface finish	300	m2	90.00	27,000
3.26	Allowance for joints (TBC)	1	Item	1,500.00	1,500
3.27	Allowance for stormwater drainage to hardstand - allowed 2 No. GIPs + 20m pipework and connection to existing - details TBA	1	Item	12,000.00	12,000
3.28	Allowance for directional signage (extent TBA)	1	Item	5,000.00	5,000
3.29	Allowance for canopy to Maintenance Area - allowed 15m x 10m steel framed canopy including metal roof sheeting, columns and roof drainge (not enclosed)	1	Item	40,000.00	40,000
3.30	Unsealed Haulage Road (4200m as advised)				
3.31	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	33,600	m2	5.00	168,000
3.32	Allowance to supply and place fill for unsealed road including trimming and compacting (length of road as advised by Tonkin - assume width of 8m) - assume to remain in position (ie. no allowance for removal upon completion of works)	33,600	m2	22.00	739,216
3.33	Residual Drop-Off Area (15m x 20m)	1			
3.34	Allowance to clear area of topsoil and debris ready for works (assume stockpile on site)	300	m2	5.00	1,500
3.35	Allowance to supply and place sub-base (assume 100mm thk) including trimming and compacting	300	m2	15.00	4,500
3.36	Allowance for concrete hardstand (assume 100mm thk) including surface finish	300	m2	90.00	27,000
3.37	Allowance for joints (TBC)	1	Item	1,500.00	1,500
3.38	Allowance for stormwater drainage to hardstand - allowed 2 No. GIPs + 20m pipework and connection to existing - details TBA	1	Item	12,000.00	12,000
3.39	Allowance for directional signage (extent TBA)	1	Item	5,000.00	5,000
3.40	Excluded Areas:				
3.41	No allowance for Future LFG Management Area - as the gas generation rates are unknown, it is not possible to quantify gas flare / LFG management facility	1	Item	Excl.	0.00
3.42	No allowance for carpark - assume existing	1	Item	Excl.	0.00
3.43	No allowance for Inert C&D Storage - excluded as advised	1	Item	Excl.	0.00
3.44	No allowance for Scrap Metal Storage - excluded as advised	1	Item	Excl.	0.00
3.45	No allowance for Greenwaste Storage - excluded as advised	1	Item	Excl.	0.00
3.46	No allowance for Tyres area - excluded as advised	1	Item	Excl.	0.00
3.47	No allowance for Weigh Bridge and Gate House - assume existing structures (to remain)	1	Item	Excl.	0.00
4	**Cell Cap to Entire Site**				**21,292,938**
4.1	Allowance to form 1000mm thk sub-soil cap (to entire site) - assumes use of stockpiled material from Stage 1 and Stage 2 (no allowance for imported fill)	521,720	m2	19.00	9,912,680

Ref	Description	Quantity	Unit	Rate	Total
4	**Cell Cap to Entire Site**				**21,292,938**
4.2	Allowance to supply and place 200mm topsoil including levelling	521,720	m2	12.00	6,260,640
4.3	Allowance for ground cover including planting (average cost - details TBA)	496,876	m2	9.00	4,471,884
4.4	Provisional allowance for small shrub covering - assumes 1 No. per 10m2 - required spacing / planting density TBA (no allowance for trees)	1	Item	450,000.00	450,000
4.5	Allowance for cap drainage - details TBA - assumed open swale	3,042	m	65.00	197,734
4.6	No allowance for escalation - estimated timeline / program for capping of entire landfill area is not known		Note	Excl.	0.00