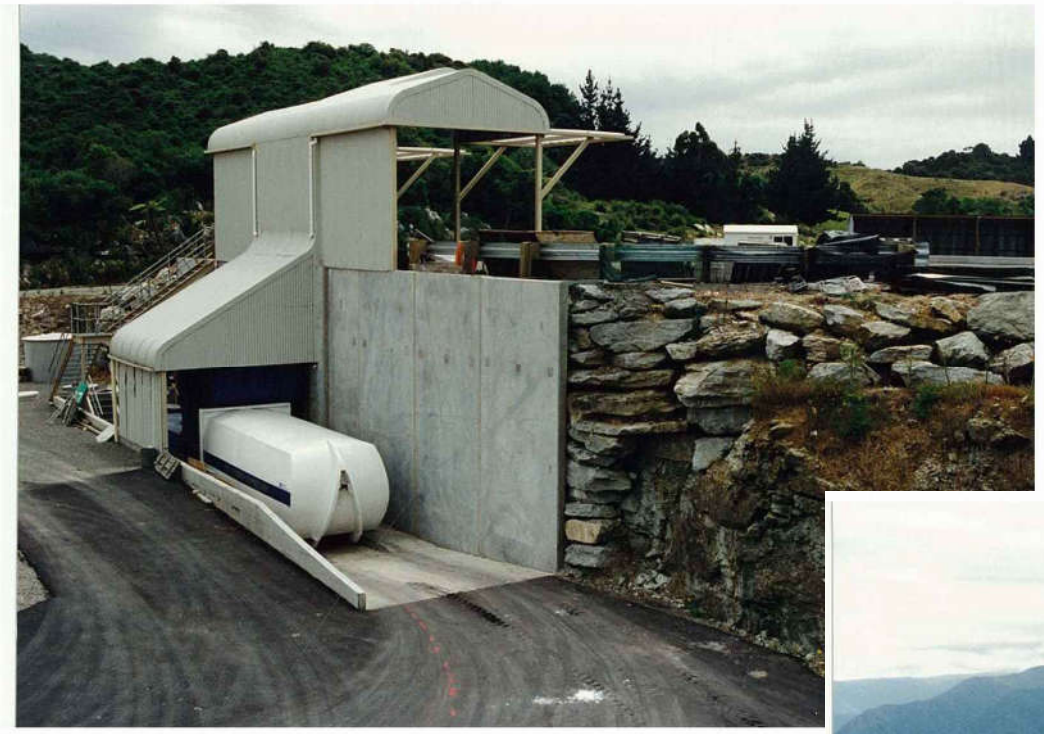
Addressing Safety Issues – Takaka Resource Recovery Centre Upgrade

Making Tasman Great

Takaka Resource Recovery Centre



- Opened in 1996
- Site previously a quarry


Existing layout
Greenwaste
Scrap metal
Waste
Recycling
Reuse Shop
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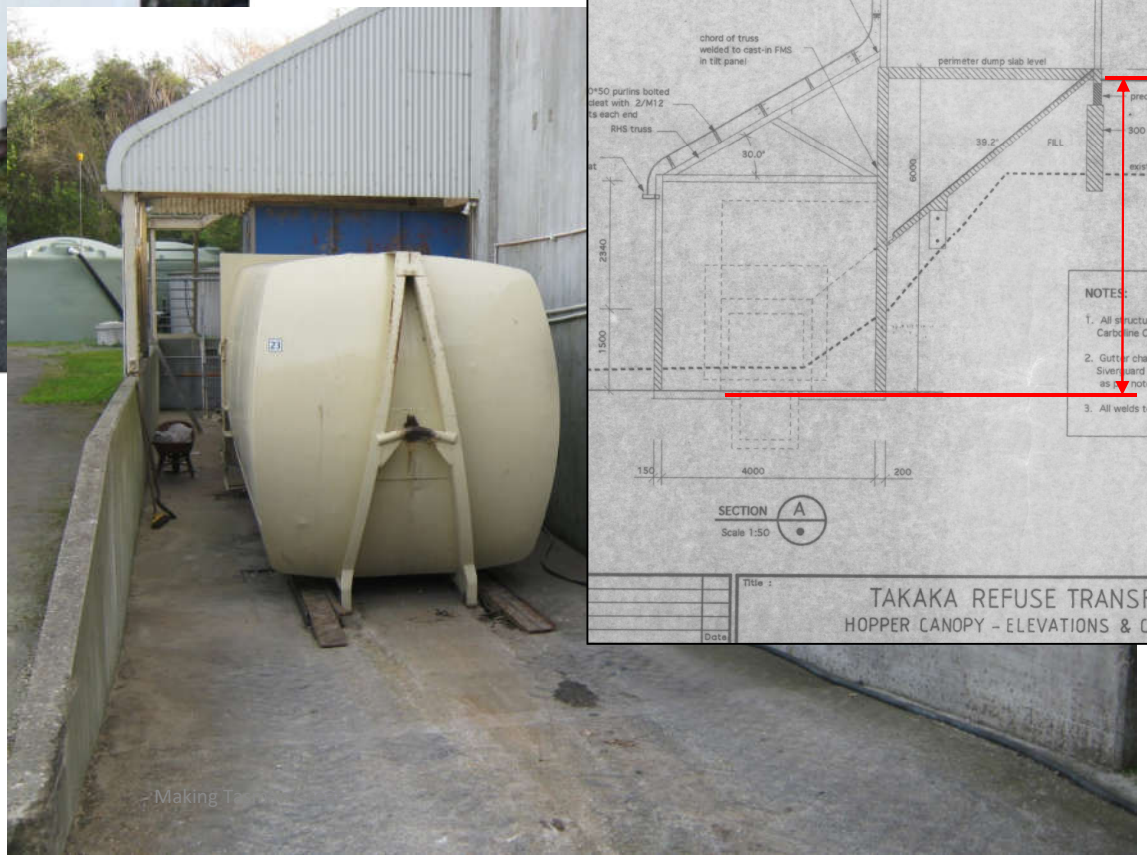
Drivers for upgrade

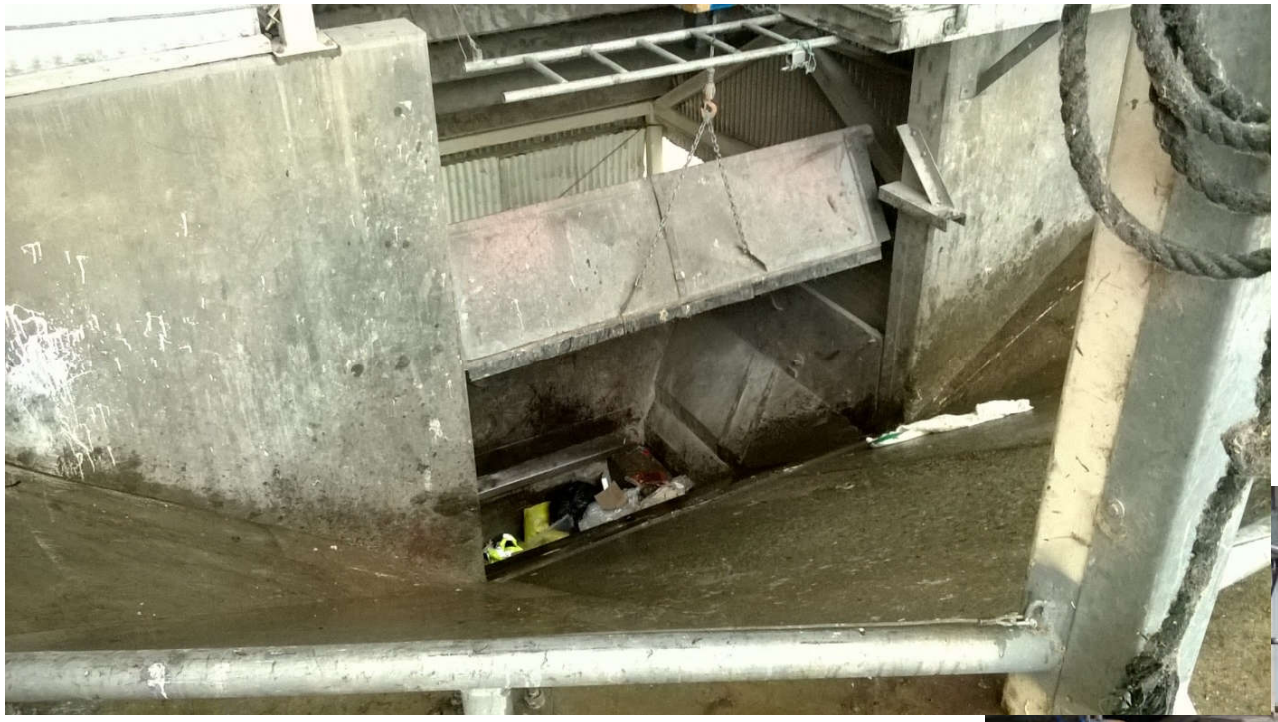
- Compactor renewal + falling and jamming risks in compactor
- Congestion on upper level – delays and risks
- Potential conflicts: customer traffic, pedestrians and contractor's plant
- Wasted space on lower level
- Inefficient handling of recycling
- Need to weigh incoming customer loads

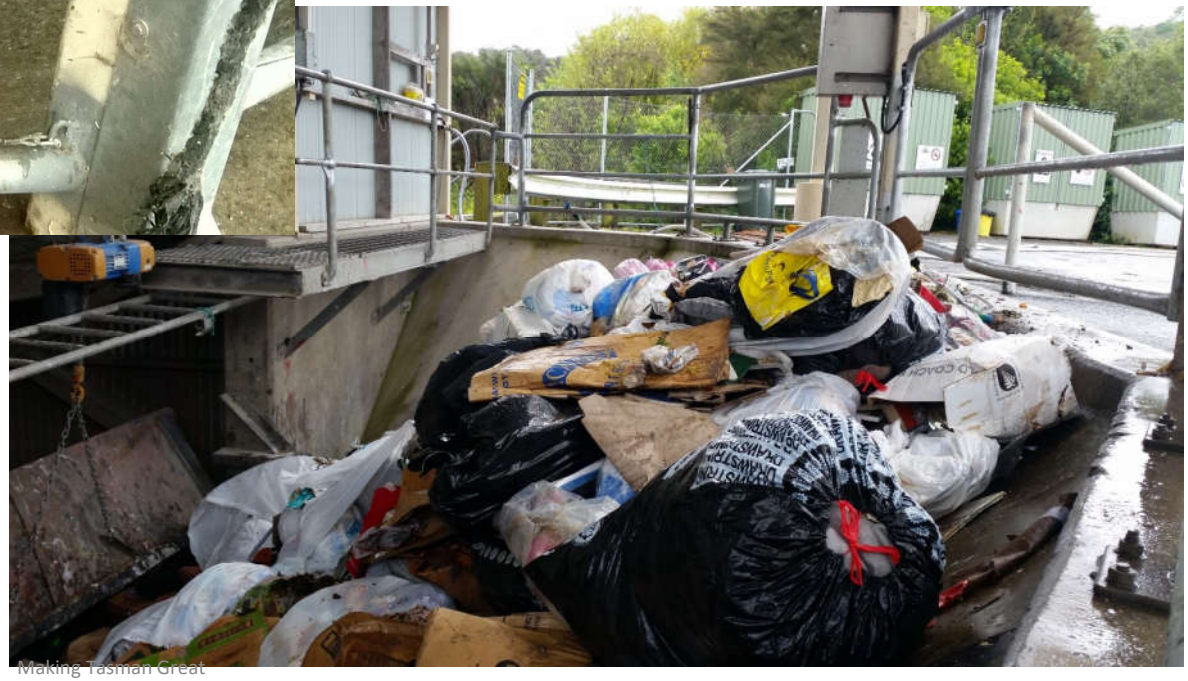


Compactor renewal

Falling risks

Compactor jamming





Congestion on upper level

19 – 42 vehicles in peak hours

high recycling demand

Wasted space on lower level

Need to weigh customer loads


Existing layout
Greenwaste
Glass
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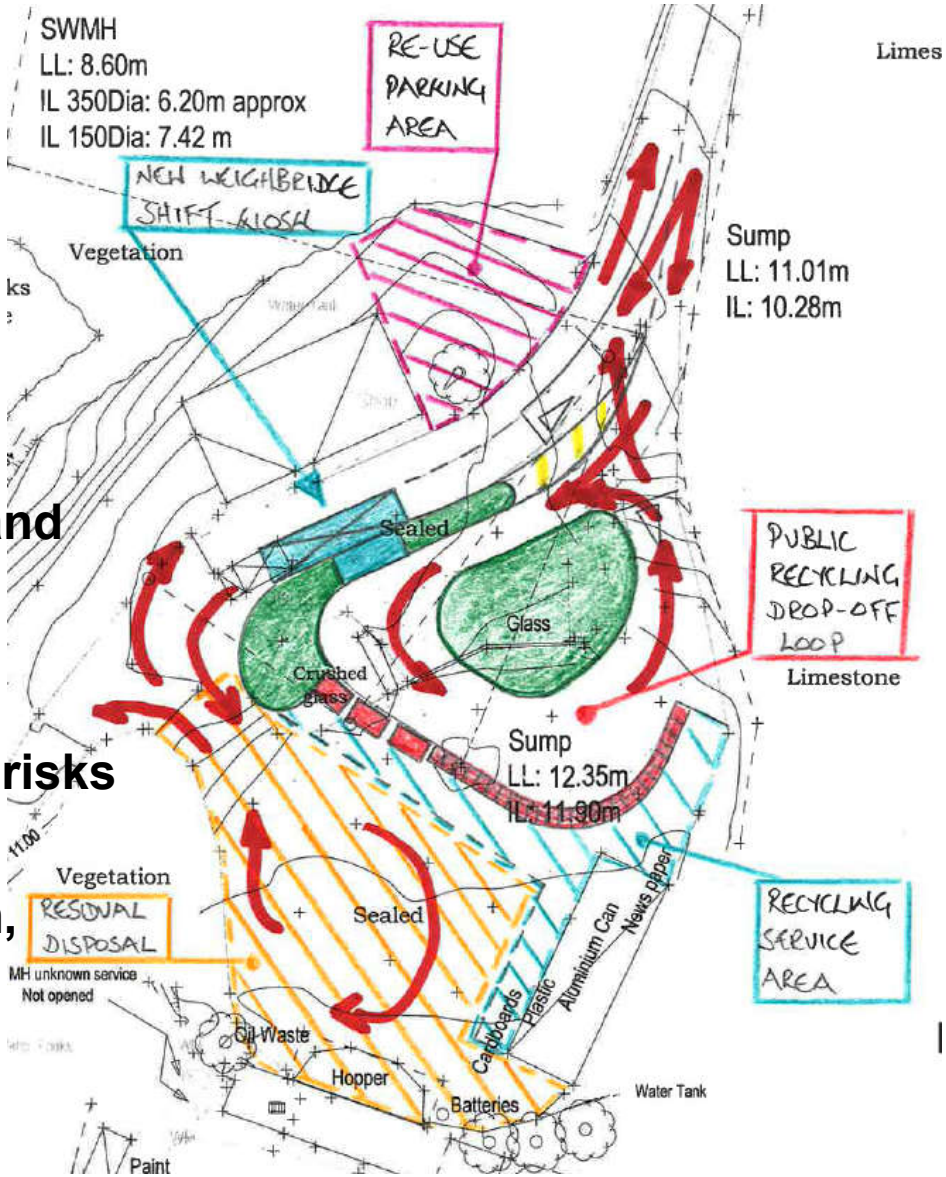
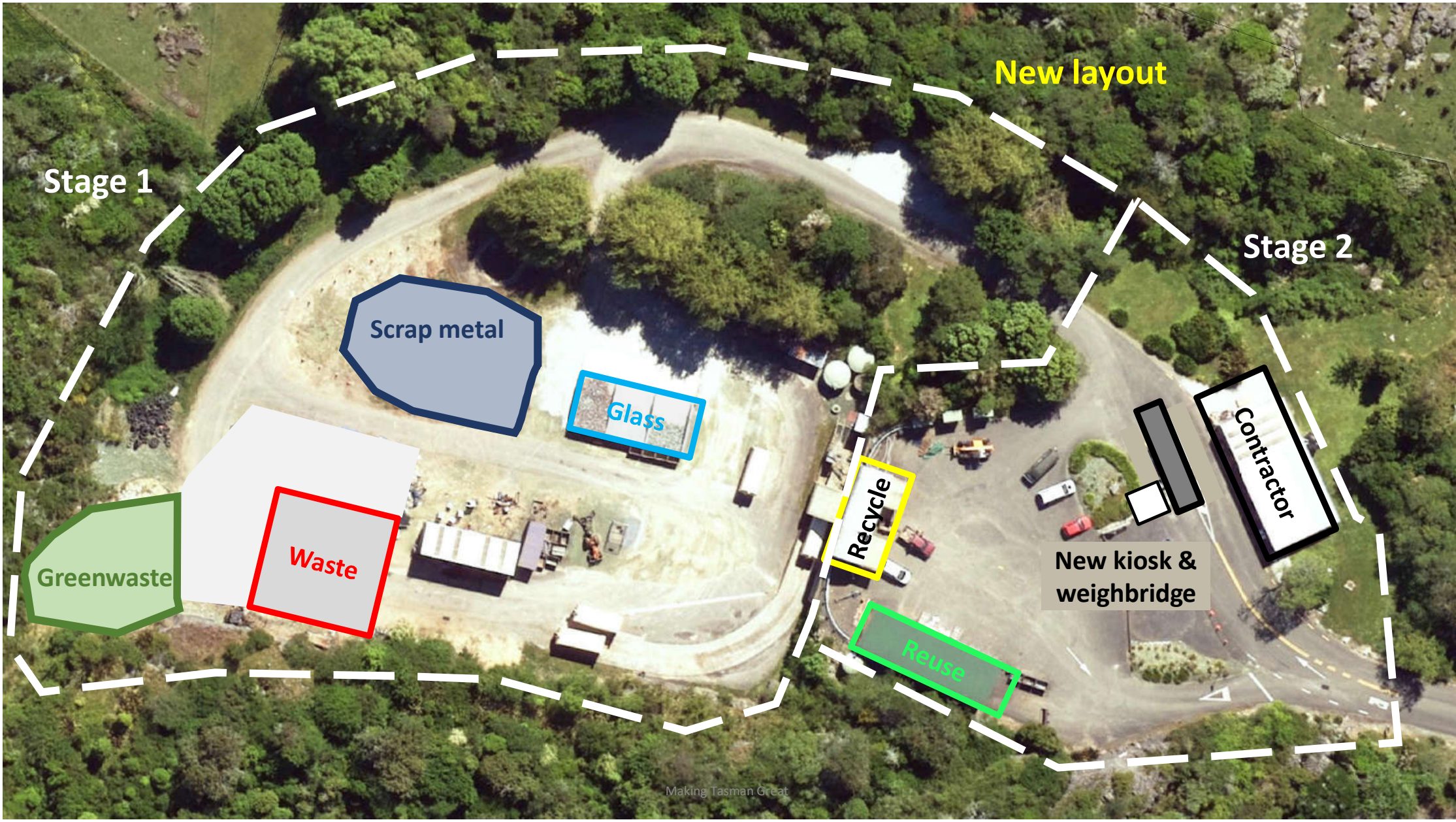
Design timeline

- Initially planed in a staged manner, as per strategic development plan (2011)
- Initially no plan for relocation of compactor and concentration of services on upper level
- In 2017 compactor renewal due – end of life, prone to blockage and flooding and high fall risks
- Considered safety in use and in construction, current site issues and constructability
- This led us to compactor relocation




New layout
Stage 1
Stage 2
Scrap metal
Glass
Greenwaste
Waste
Recycle
Contractor
New kiosk &
weighbridge
Reuse
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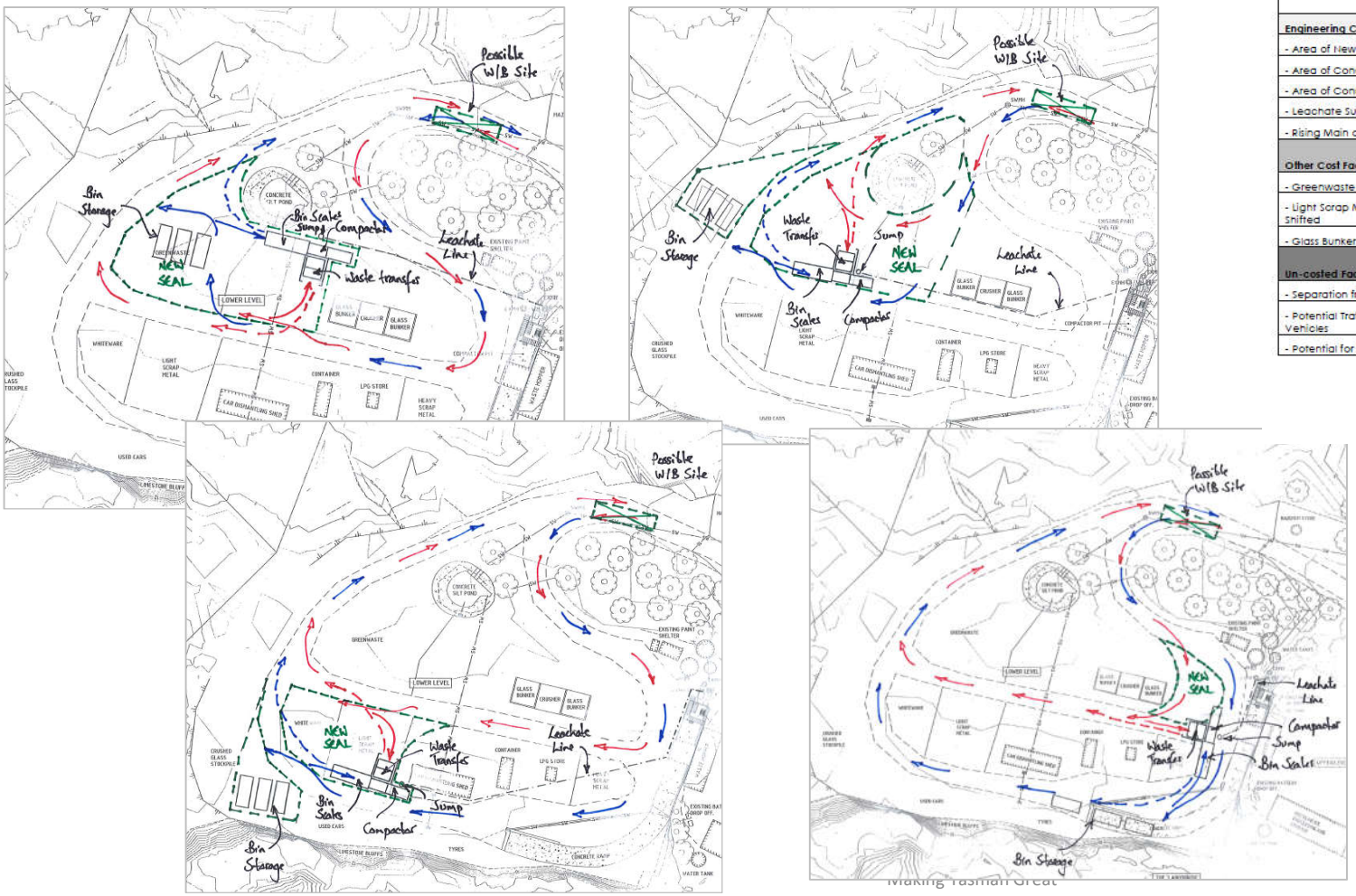
Lower level – options analysis

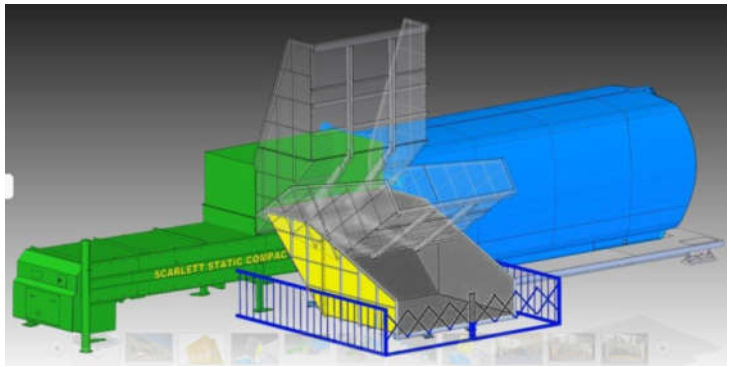


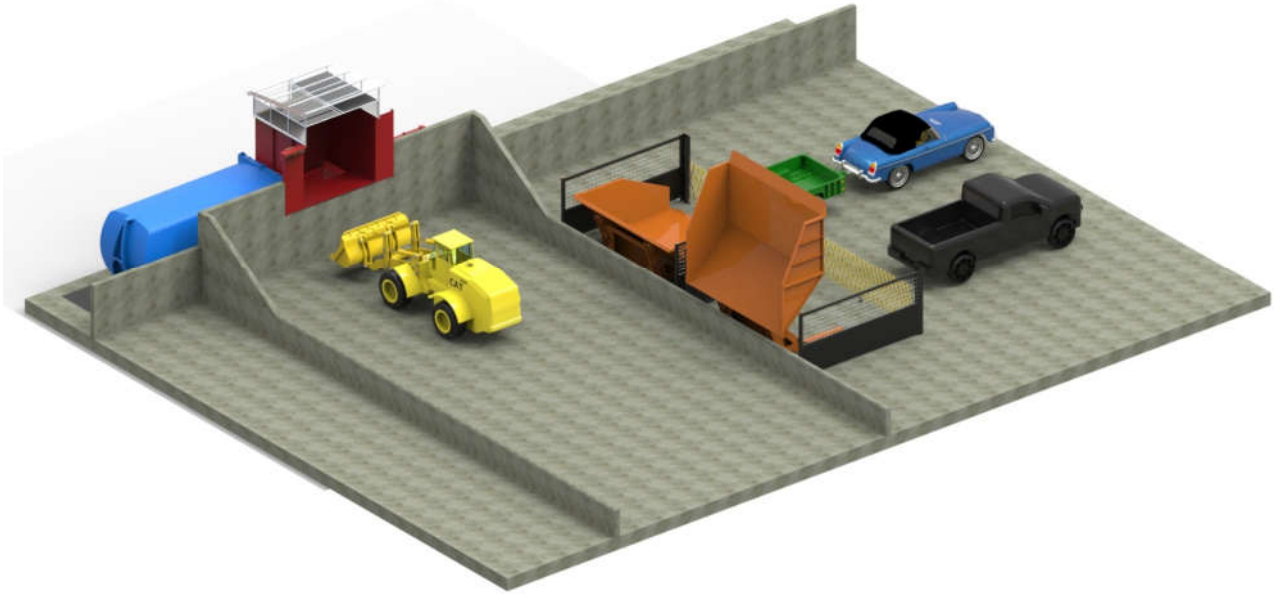
1 – Worst | 2 – Poor | 3 – Neutral | 4 - Good | 5 - Best

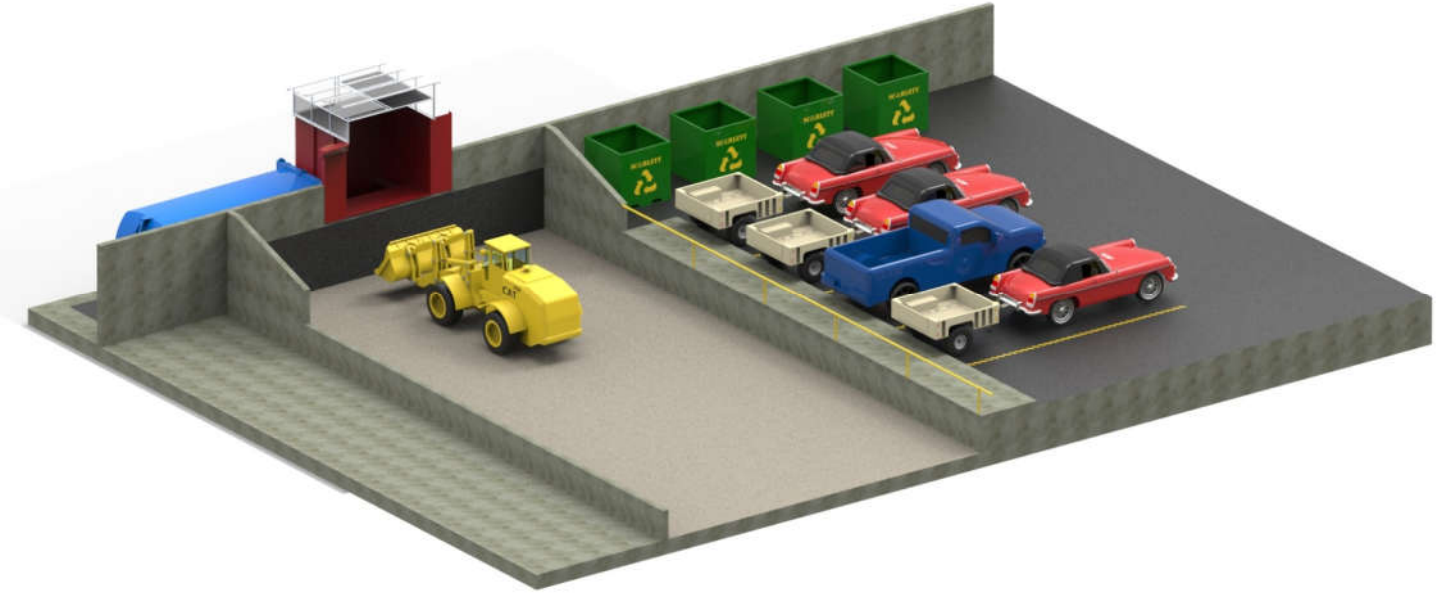
Factor areas have also been weighted by applying twice the weighting to un-costed factors.

Table 9: Evaluation of Options A to D

Factor	Option A	Option B	Option C	Option D	SCORING A	B	C	D
Engineering Construction								
- Area of New Roading (asphalt)	530m²	750m²	580m²	150m²	2	1	4	5
- Area of Concrete to Plant	75m²	75m²	75m²	75m²	3	3	3	3
- Area of Concrete to Bin Storage	90m²	90m²	90m²	0m²	2	2	2	5
- Leachate Sump and Submersible Pump	Required	Required	Required	Required	3	3	3	3
- Rising Main and Electric Cable	42m	58m	69m	19m	4	2	1	5
Other Cost Factors				Sub-total	14	11	13	21
- Greenwaste Area Shifted					1	1	5	5
- Light Scrap Metal & Whiteware Areas Shifted					5	5	1	5
- Glass Bunker Shifted					5	5	5	1
Un-costed Factors				Sub-total	11	11	11	11
- Separation from Other Activities					4	5	2	1
- Potential Traffic Conflicts for Waste Vehicles					2	4	4	4
- Potential for Storing Queuing Vehicles					4	1	5	2
				Sub-total	10	10	11	7
				Unweighted Total	35	32	35	39
				Weighted Total	11.3	10.5	11.5	11.5







Compactor concepts

Waste pit options – Amberley (Hurunui District)

Lower level – options analysis

Figure 6: Tipping pit option

Table 13: Evaluation of "detailed" concept designs for lower level

Factor	Tipping Slab Option	Tipping Pit Option	Tipping Hopper Option
Construction Costs	$658,999	$785,410	$731,787
Score based on cost estimate	3	1	2
Impact on Adjoining Activities			
Effect on scrap metal area	3	2	3
Effect on greenwaste area	3	2	1
Potential for Traffic Conflicts			
General traffic flow (clockwise - 3 or anti-clockwise - 2))	3	3	3
Potential for traffic conflicts between customers	2	2	2
Factors Affecting Operations			
Choice of drop-off bays (1 side - 1; 2 sides - 2; 3 sides - 3)	2	2	1
Usability - options for ramp drop-off (skip bins) and at floor level	2	3	2
Availability - provision of storage in case of breakdowns	3	3	2
Need for front end loader (No - 3; Sometimes - 2; Yes - 1)	1	1	2
Bin placement & pull out in straight line (3) or requires turning (1)	3	3	3
Customers can reverse straight (2) or must do so on a curve (1)	2	1	2
Total	27	23	23

Upper level – options analysis

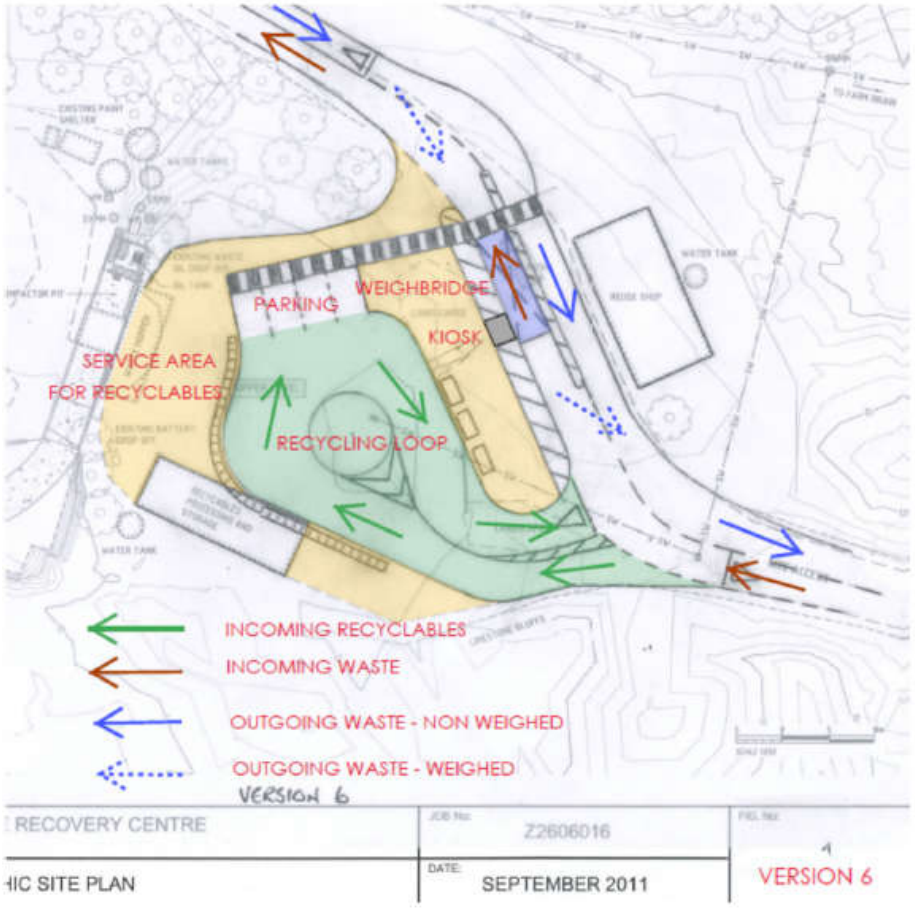


Table 6: Evaluation of recycling loop

FACTOR	Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Factors Affecting Construction Costs (described, not quantified)						
Uses existing ramps for entry and exit	1	3	2	2	2	2
Additional road construction required	3	3	1	1	1	1
Potential for Traffic Conflicts						
Accessibility - bypasses the kiosk and/or weighbridge.	2	1	3	3	3	3
Factors Affecting Operations						
Contractor access for recyclables service area	2	2	3	3	3	3
Security against non-paying customers	2	1	3	3	3	3
Room for Expansion						
Room for expansion of bin areas	2	2	3	3	3	3
Sub-Total	12	12	15	15	15	15

Table 7: Re-use shop area

FACTOR	Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Factors Affecting Construction Costs (described, not quantified)						
Extent of new construction area required	2	1	2	2	2	3
Potential for Traffic Conflicts						
Accessibility for customers to drop off or pick up goods.	2	3	2	2	2	1
Sub-Total	4	4	4	4	4	4
TOTAL (Add Sub-Totals from Tables 5, 6 and 7)	31	32	34	33	35	35

Upper level – concept design and cost estimate

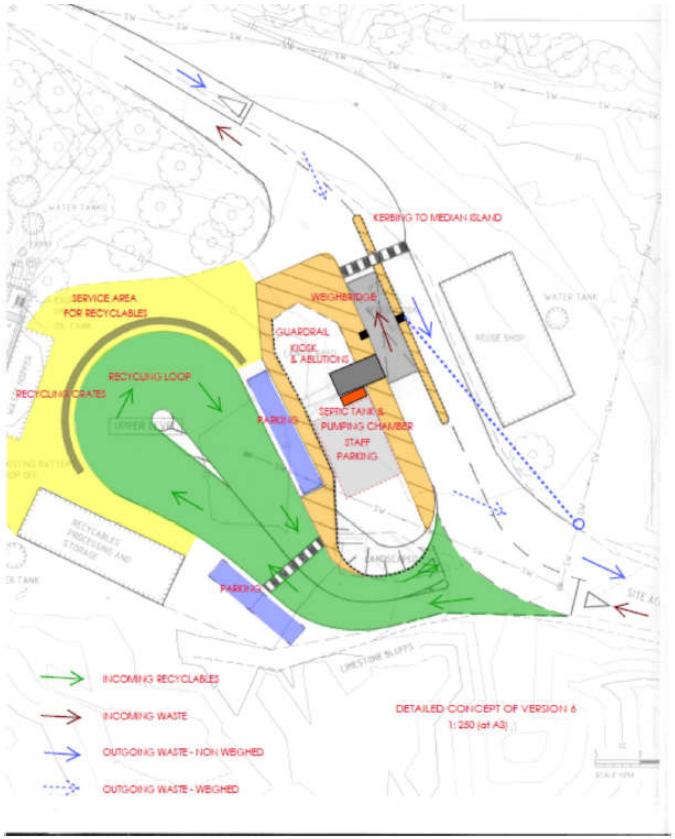
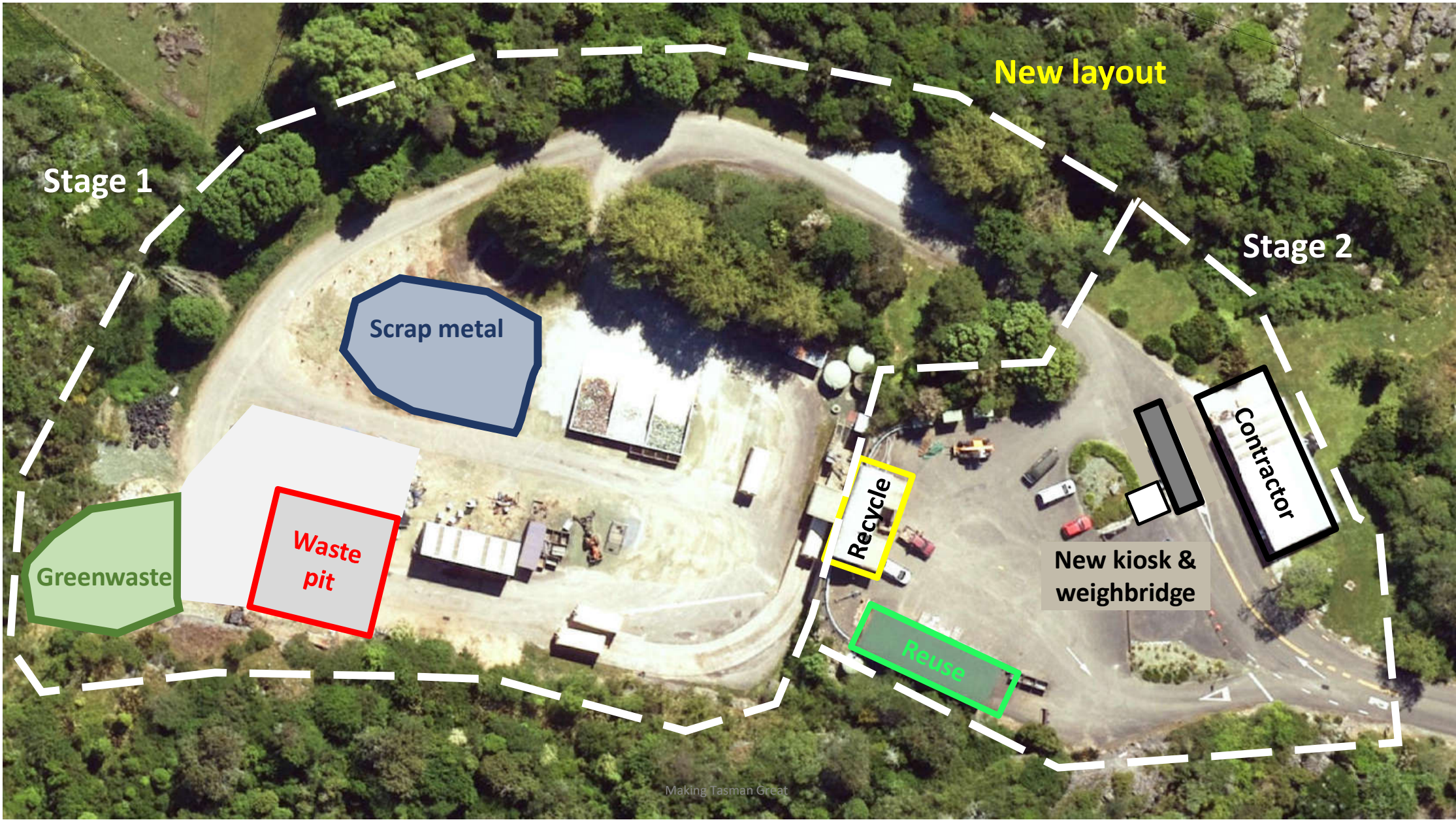


Table 8: Summary of cost estimate for the recycling drop-off loop, weighbridge and kiosk

Description	Estimate
Preliminary and General	$44,300
General Site Clearance	$3,000
Recycling Drop-off Loop	$26,000
Roadworks to Lower Level	$20,750
Civils for Weighbridge and Surrounding Area	$74,383
Weighbridge	$100,000
Kiosk and Ablutions	$71,000
SUB-TOTAL	**$339,433**
Contingency @ 20%	$68,000
Design Fees @ 5%	$20,372
Construction monitoring @ 5%	$20,372
TOTAL	**$448,176**

The final product (Stage 1)

The final product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Questions?

With thanks to:
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