Job No: 1016996
12 July 2021

Mansfield Shire Council
Private Bag 1000
Mansfield VIC 3724

Attention: Shaun Langlands

Dear Shaun

Operational assessment report
Mansfield Resource Recovery Centre

1 Introduction

Tonkin & Taylor Pty Ltd (T+T) has been engaged by Mansfield Shire Council (Council) to develop a site masterplan for the Mansfield Resource Recovery Centre (MRRC). We understand that the MRRC is intended to service the residents and businesses of Mansfield and is currently located at 163 Monkey Gully Road, Mansfield.

The current MRRC does not meet industry better practice guidelines. Council has the option to either invest in upgrading the current site or establish a new site. A proposed new site location has been identified on vacant land located to the south and adjacent to the back of the Council depot located at 141 Lakins Road.

The purpose of this operational assessment report is to summarise ongoing discussions with Council, identify opportunities and constraints for each of the proposed sites, and to assist Council in the selection of a suitable site to advance to the master planning stage.

Layouts of the sites with existing key features are shown in Appendix A. Sketches illustrating potential options for development at each of the sites are shown in Appendix B. Indicative cost estimates are included as Appendix C.

The work was carried out under T+T's Letter of Engagement[1] dated 10 March 2021 and subsequent variations.

2 Sources

In preparing this operational assessment report, we have relied on communications with Council. We have also reviewed the following documents and references supplied by Council:

[1] T+T (2021). *Proposal – Masterplan Development for Mansfield Resource Recovery Centre. Concept Plan*. 10 March 2021. T+T Ref No. 1016996. Approved via email letter from Mansfield Shire Council to T+T dated 15 April 2021.

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Existing waste streams and management practices:

- Mansfield Waste Strategy 2020-2025, RM Consulting Group Pty Ltd, February 2020.

Information on the current MRRC site:

- Monkey Gully Landfill, Annual Performance Report, January 2020 - December 2020, Mansfield Shire Council.
- Feature survey of part of Mansfield Resource Recovery Centre Monkey Gully Road Mansfield, H.J. Macey, June 2012.

Information on the proposed Lakins Road site

- Proposed subdivision Shire Depot Lakins Road Mansfield Crown Allotment 40 Parish of Mansfield (Aerial Survey), H.J. Macey, 2003.

Design of the MRRC will also need to comply with the most recent versions of Australian and EPA Victoria standards, Mansfield design requirements, and should be in general accordance with guidance documents published by Sustainability Victoria[2].

Our understanding of the site and Council requirements was supplemented by discussions with Council waste and infrastructure maintenance departments during a kick-off meeting on 27 April 2021. The purpose of this meeting (and subsequent discussions) was to gain a better understanding of Council requirements for development of the new facilities, and to provide concepts to initiate the initial options assessment for the sites.

The kick-off workshop was followed by a T+T site visit on 5 May 2021. During this site visit, T+T observed the current operation of the MRRC and the surrounding site. T+T also visited the proposed new site location at Lakins Road. T+T met with Council staff to discuss limitations of the existing facility and any potential development constraints at each site.

T+T presented the preliminary findings of the options assessment for each site to Mansfield Shire Councillors on the 1st of June.

3 Existing waste management

3.1 Existing MRRC site – Monkey Gully Road

The current MRRC site is located on a 29 Ha property located approximately 3 km south of Mansfield town centre. The site was constructed in 2007 and was operated by a contractor until 2019 when Council took over operations of the facility. Key resource recovery activity currently takes place in an approximately 1.5 Ha area, including utilizing additional area in the vacant land to the south and east for stockpiling rubble, scrap metal and green waste. The location of the existing MRRC is shown in Appendix A, Figure 1.

The MRRC accepts waste and recycled goods from domestic and small commercial customers. Key infrastructure at the site consists of:

- Three bays for general waste drop off and sort floor (approx. 250 m^2 of concrete pavement with roof over)
- Paved concrete skip storage adjacent to general waste drop off
- Steel shed (current re-use shop)
- E-waste shed
- Motor oil recycle

[2] 1. Guide to Better Practice at Resource Recovery Centres, Sustainability Victoria, Revised 2019

- Sealed access road
- Crushed rock pavement hardstand in the public drop off area and in the operations area
- Site office/kiosk.

The site is operated by two staff during opening hours. Equipment on site includes a small excavator, forklift, and cardboard compactor. Electricity is supplied to the site through PV solar panels.

3.1.1 Key site features

The existing MRRC site is located on a 29 Ha property owned by Council. The property consists of three lots:

- Lot 1 TP161184: Rectangular lot containing MRRC, stockpiles, and closed landfill
- Lot 2 TP161184: Northern most lot containing MRRC, closed landfill and site access road
- Allot. 83A: Vacant land currently not utilized

The MRRC area is located adjacent to the former Mansfield Landfill which ceased accepting waste in June 2007 after approximately 20 years in operation. The extent of landfilled area covers approximately 2 Ha (across Lots 1 and 2) and runs adjacent to the site access road and borders the resource recovery area to the south and west.

Allot 83A is approximately 16.5 Ha in size and is currently vacant land. Conversations with Council staff have indicated that the land may contain natural rock material that could be quarried, subject to further investigation.

The site is located in a gully with undulating hills surrounding the site to the northwest, south and west. The general topography of the site is sloping from south to north with the closed landfill creating a large mounded area in the centre. There are two small creeks adjacent to the site on the east and west boundary.

Key site features and lot boundaries are shown in Appendix A, Figure 1.

3.1.2 Separation distances

The property is located in a Public Use Zone – Local Government (PUZ6) and is bordered by a farming zone to the south and west, public conservation and resource zone to the east and industrial zone to the north (Figure 3.1).

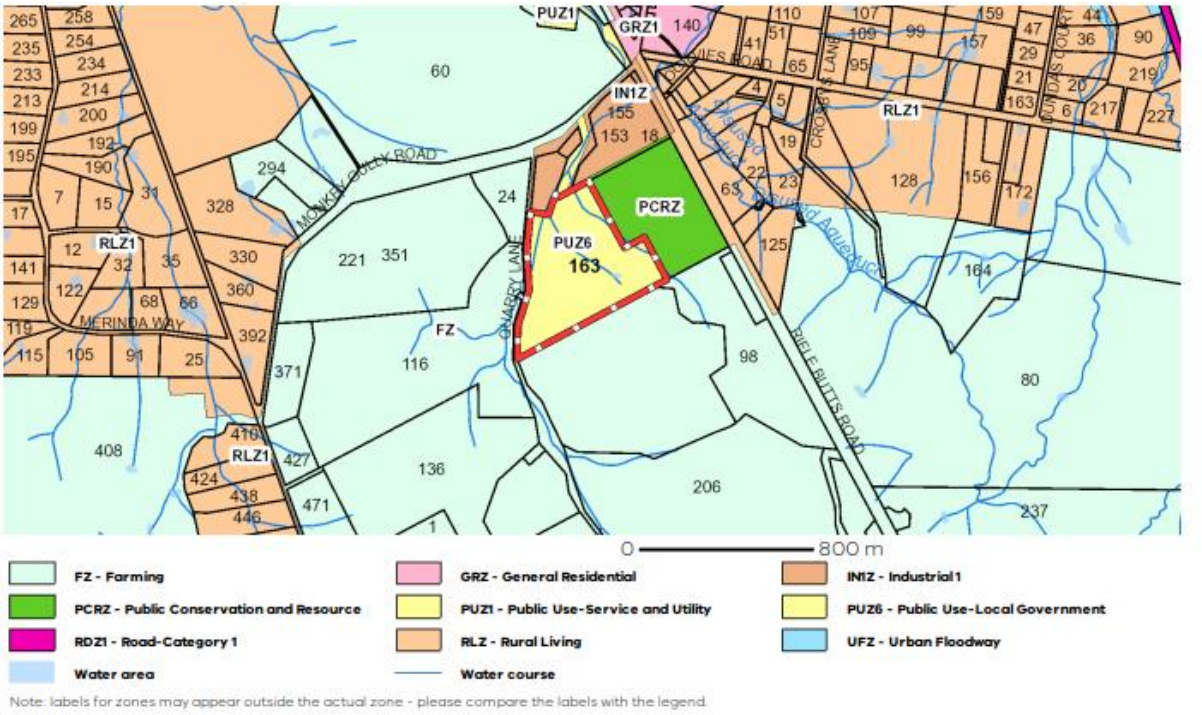

Figure 3.1: Planning zones surrounding the current MRRC (source: https://mapshare.vic.gov.au/vicplan)

The nearest residential houses are located 360 m and 480 m to the northeast of the site boundary.

There are two business receptors located 200 m and 260 m to the northwest of the site boundary. One business receptor is located 440 m to the north east of the site boundary. A quarry neighbours the site to the west.

We have not identified any other receptors within a 250 m radius.

Given the site is located in a gully amongst steep and undulating topography the chance of nearby residential or industrial development is considered to be low.

3.1.3 Traffic flow

There is a single point of entry to the site via tip access road (off Monkey Gully Road). The site access road is narrow in places. The road is bordered on one side by the closed landfill. The existing facility lacks space to provide sufficient separation of truck, car, and pedestrian traffic movements. The site layout also provides limited ability for traffic to manoeuvre. We understand that there is congestion at periods of high demands, or when site users are dropping off multiple waste streams. At peak periods, such as during the Christmas/New Year Period, we understand that prospective site users que along the narrow entrance road for over 100 m. The narrow road makes it difficult for vehicles to pass each other and the small turning area adjacent to the drop off makes it difficult for vehicles to manoeuvre. Commercial vehicles are generally directed to the operations area to unload waste, except for metals, which are dropped off in the back paddock. Occasionally, commercial operators are also directed to drop off larger loads of construction debris or green waste directly into stockpiles in the back paddock, although smaller loads are typically directed to the operations area.

Larger trucks that access the site to collect general waste, recyclables and other material arrange their pickups and drop offs for when the site is closed to the public avoid the traffic associated with general public drop offs.

3.2 Alternative site – Lakins Road

3.2.1 Location

An alternative location for the MRRC is on a section of land adjacent to the Council depot located at 141 Lakins Road. The depot sits on a 25 Ha parcel of land owned by Council and is located approximately 1.5 km north east of the Mansfield town centre. There is a rectangular area of vacant land behind the depot that has been identified as a potential location for a new MRRC. Conversation with Council staff has indicated that the extents available for development are flexible and the southern boundary of the depot could shift to accommodate more space for a MRRC to the south of the site.

3.2.2 Infrastructure

The development of an MRRC at this site would be a greenfield exercise. The land is currently vacant with no existing infrastructure. The adjacent depot has power and water services on site.

3.2.3 Key site features

The proposed MRRC site sits in a 25 Ha parcel of land owned by Council. The property consists of two lots:

- Lot 1: Rectangular lot containing the depot in the centre, proposed MRRC site to the south and vacant land to the north bordering Lakins Road
- Lot 2: Rectangular lot that is currently vacant land

The Mansfield Shire Depot in the centre of the site occupies approximately 2 Ha. We understand that Lot 2 and the vacant land located to the north of Lot 1 are currently being earmarked for development into an industrial subdivision.

The site topography is relatively flat and slopes from north to south with Ford Creek bordering the site to the south. Key site features and lot boundaries are shown in Appendix A, Figure 2.

The portion of the site proposed as an alternative location for development of the MRRC is located along the southeast corner of the property, between the depot to the north and Ford Creek to the south. The amount of land available for MRRC development is up to approximately 2.5 ha.

3.2.4 Separation distances

The Lakins Road property is located in an Industrial 1 Zone (IN1Z) and is bordered by Farming Zone to the north, south and east, Urban Floodway then General Residential Zone 1 to the south (Figure 3.2).

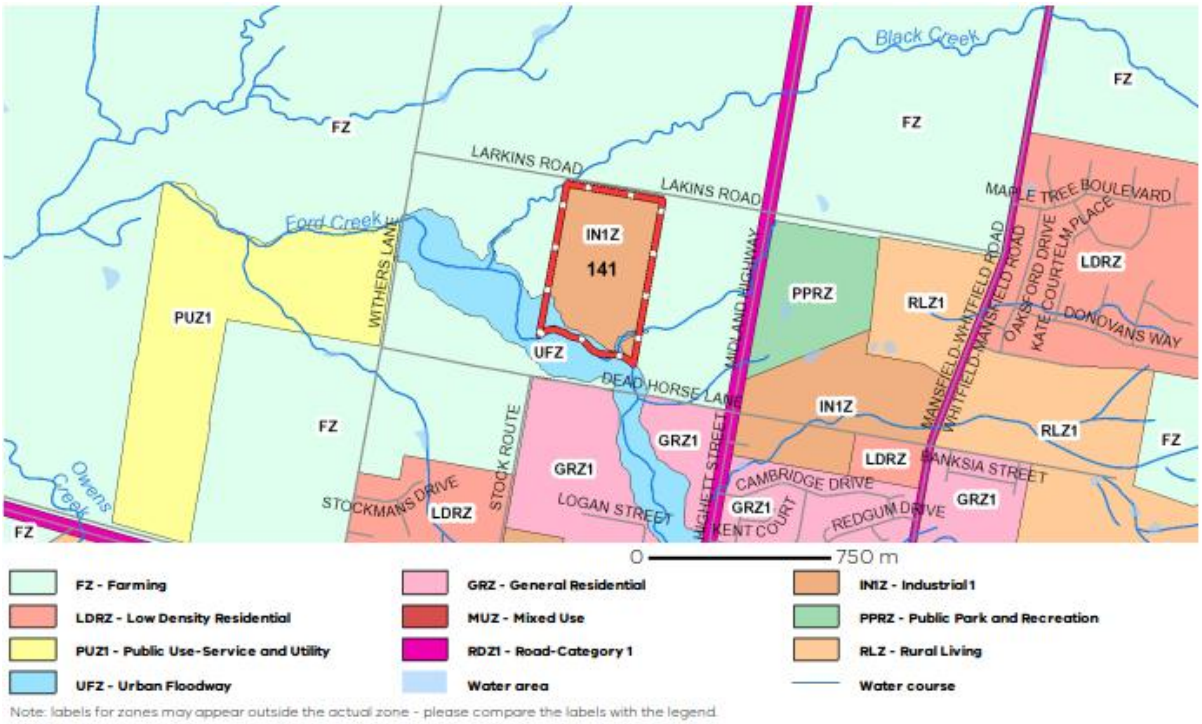

Figure 3.2: Planning zones surrounding the proposed alternative MRRC location (source: https://mapshare.vic.gov.au/vicplan)

The nearest residential houses are located approximately 240m south east, 340 m and 410 m to the south west of the site (noting that the separation distance to the nearest receptor will vary dependent on the location of proposed MRRC activities on site).

If it proceeds, a significant portion of the proposed industrial subdivision within Lot 1 could be within a 250 m radius of certain activities at the alternative MRRC site. Council has also indicated that there is an additional industrial subdivision proposed on the property directly to the east of the site. If this development proceeds there will also be a number of industrial business receptors that could be within a 250 m radius of activities at the alternative MRCC site.

3.2.5 Traffic flow

Traffic currently enters the depot off Lakins Road. This entrance could also be a potential traffic entrance for access to the MRRC. If the industrial sub division proceeds there may potentially be an access road built between Lot 1 and Lot 2. If industrial subdivisions are developed both east and west of the site, the option has also been discussed to build a road perpendicular to Lakins Road that connects the two sites, passing between the depot and the alternative MRRC site.

For the purpose of the preliminary concept design, it has been assumed that the site will be accessed from the current depot access road. The configuration of the layout has been designed in a way that access points could easily be altered to capitalize off the potential roads being built as part of the subdivision.

4 Design considerations

4.1 Existing waste management

An understanding of current and projected future waste stream is required for concept design of the MRRC. Table 4.1 presents a summary of the total waste volumes/tonnes material streams entering and being removed from the MRRC in the 2019 financial year.

Incoming material is recorded in the point of sales (POS) system. Council staff commented that during busy periods not all material that does not incur a charge (such as recyclables) is logged in the POS system. This is one reason why the recorded value of material entering the facility does not always reflect the items coming into the facility.

Table 4.1: Materials received and exported from the Mansfield MRRC for the 2019 financial year[3]

Waste stream	Unit	In	Out
Residual waste	Tonnes	-	1861.1
Domestic waste	m^3	2320.5	-
Minimum charge loads	<0.5 m^3	1686	-
Commercial waste	m^3	1068	-
Skips	Tonnes	1635.75	-
Greenwaste	m^3/tonnes	1985.5	242.8
Timber waste	m^3/tonnes	-	33.32
Concrete	m^3/tonnes	-	297.75
Cardboard/paper	m^3/tonnes	162	162
Comingled	m^3/tonnes	2.5	24
Scrap steel	Tonnes	0	312.32
Non-ferrous metals	Tonnes	0	16.04
Car bodies	Tonnes	1	2
Oil	Litres	3	4250
Tyres	Each	289	-
Gas bottles	Each	68	-
Batteries	Tonnes	-	10.3
Mattresses	Each	530	736
Mattresses – springs	Each	61	-
E-waste	Tonnes	276	3.56
Freezer/fridge	Each	166	82

Customer counts for the most recent year were not available. The New Year period is reported to be one of the busiest times at the current facility. Customer counts were available for the period between 26 December 2020 and Sunday 3 January 2021. During that period, 506 customers entered the site.

[3] Mansfield Waste Management Strategy 2020-2025

Materials are taken offsite by various contractors. The largest truck collects 30 m^3 skip bins of general waste that are delivered to Benalla Landfill approximately four times per week. Due to the low volumes of material at the site, collection frequency varies. Some materials such as metals are only collected three times per year. Co-mingled recycling is collected approximately once every two months. Haulage is a significant cost to Council, so capacity to safely store material to accumulate enough material to be cost efficient to transport is a priority of Council for the site concepts.

Greenwaste is currently stockpiled on the vacant land at the back of the site. A mulcher is bought in on an ad-hoc basis to mulch Greenwaste. The mulch is left on site, however, Council is currently looking into opportunities to distribute mulch to the community..

Council has indicated that the preliminary concept design should consider the collection of all the materials listed in Table 4.1. In addition, the Council has requested the opportunity for food organics and garden organics (FOGO) drop off be considered. Currently no food waste collection is offered to Mansfield shire residents. Planning for FOGO collection and processing is listed as one of the goals in the Mansfield Waste Management Strategy 2020-2025. Both kerbside collection and drop off models are under consideration. Drop-off of garden organics but not food organics may also be considered, to reduce the requirement for additional engineering controls that would need to be implemented for combined FOGO drop-off.

4.2 Demographics and population growth

The proposed MRRC should be designed to accommodate both the current as well as the projected future population growth. In the short to medium term (5-15 years), we consider that the facilities should be designed to allow for projected increases in waste streams and infrastructure maintenance requirements. In the long term, population growth can be accommodated by effective site layout allowing for future facility expansion, designing spaces to be flexible in response to changing user needs, and planning for the staged expansion and continuous investment in Council infrastructure.

The population of Mansfield in 2016 was 8,400. Due to its proximity to Melbourne and attractive lifestyle offering the population has been growing and is predicted to reach 11,000 by 2036. Population growth in Mansfield and the surrounding regions is reported to expect to increase total waste generation by 36 percent by 2042[4]. Seasonal visitors, such as skiers in the winter visiting local mountains, create fluctuations in waste material volumes.

4.3 Key design principles

The preliminary concepts for each site have been developed in general accordance with guidance documents published by Sustainability Victoria[5] using the following key principles:

- The layout should have clear separation of truck, car, and pedestrian traffic, and be situated so that staff members can more easily supervise and manage traffic;
- Recycling drop-off areas should be placed prior to residual waste disposal areas;
- Considers future expansion and diversion objectives; and
- Separation of domestic and commercial customers, including development of separate drop-off areas for large loads of commercial waste.

[4] Mansfield 2040: Background and Discussion Paper, SGS Economics and Planning Ltd, August 2020
[5] Guide to Better Practice at Resource Recovery Centres, Sustainability Victoria, Revised 2019

5 Site option assessments

5.1 Evaluation criteria

Evaluation criteria were developed to assess each site. Criteria were developed from better practice guidance and informed by discussion with Council to identify Council priorities. The proposed evaluation criteria are shown in Table 5.1.

Table 5.1: Proposed evaluation criteria

Criteria	Reference from Better Practice[1]
Cost	Not considered by guidance but requested by Council.
Community acceptance	Siting new facilities at an established waste management site, such as a rehabilitated landfill, may be better accepted by the community than using a new site.
Compliance with better practice	Recommended Separation Distances for Industrial Residual Air Emissions (EPA Guidelines 1518): 250 m for transfer station from sensitive land use. Adequate space for segregation of materials to meet guidelines on management and storage of combustible recyclable and waste materials[6].
Synergies/ consolidation	Not considered by guidance but requested by Council. Does the site maximise opportunities for synergy with existing Council operations and/or consolidate work for Council in managing infrastructure/land?
Development challenges	Investigate previous site uses and planning controls to identify any restrictions on site functions and activities including sites listed on the Victorian Heritage Register or the Victorian Aboriginal Heritage Register. Also to consider; vehicle movements, earthworks, space, natural conditions, supporting infrastructure.
Council land use and planning objectives	Consider any potential future land use planning conflicts that could affect onsite expansion or development activities. For example, encroachment of incompatible land uses (e.g., residential) and re-zoning activities (e.g., buffer zones).
Environmental impacts	Stormwater, vermin, ecology, dust and mud, litter, odour, noise
Future expansion (incl. diversion objectives)	Consideration of site layout ability to meet future expansion requirements driven by the likes of: · More throughput (population growth) · Processing of different materials not currently managed at the existing MRRC (e.g., FOGO) · Processing capability · Allowance for seasonal fluctuations

1. Guide to Better Practice at Resource Recovery Centres, Sustainability Victoria, Revised 2019

[6] EPA Publication 1667.3 provides guidance on the distances required between stockpiled materials based on pile length. Better practice design considers whether there is adequate space for distance between storage stockpiles and access to and around for firefighting authorities.

5.2 Summary of opportunities and constraints

5.2.1 Option 1: Expand existing resource recovery centre

Expansion of the existing MRRC site presents the opportunity to utilize existing resource recovery infrastructure. Given the activity is established at the site the environmental and development risks are expected to be reasonably well characterized. The relatively secluded location, and surrounding undulating topography are likely to have contribute to a lack of complaints for the site. The location and surrounding topography also mean the chance of development encroachment is low. The development of a preliminary concept layout has indicated that there is adequate space available at the site to develop a facility compliant with good practice.

Constraints identified at the site include the single point of entry and narrow access road. The single point of entry is not ideal but can be accommodated by having adequate turning area in at the top of the site, by widening the access road near future MRRC infrastructure and installing laybys along the access road into the site.

There were also constraints identified in meeting Council's broader land use planning objectives. Specifically retrofitting the MRRC does not consolidate Council's operational sites. Ongoing use may limit the potential for future quarrying of the vacant land parcel adjacent.

It is important to recognise that Council will retain responsibility for management of the closed landfill on site.

A summary of opportunities and constraints for the option of expanding the current resource recovery centre against evaluation criteria are listed in Table 5.2.

Table 5.2: Opportunities and constraints associated with expanding existing MRRC site

Criteria	Opportunity	Constraint	Comment
Cost	· Reuse of existing infrastructure · Easier to stage development and associated costs.	· Road widening · Sewage treatment and water supply · Drainage improvements and water treatment infrastructure · May be some additional site rehabilitation costs associated with historic contamination (extent and cost associated unknown). · Weighbridge	· See Section 5.3 for discussion on high level costs.
Community acceptance	· Siting on an existing facility site increases likelihood of community acceptance. · We understand no complaints on amenity were received from the site in the previous year[1].	- -	- -
Compliance with better practice	· There is adequate space at the site to be able to design a concept that would be compliant with better practice.	· Retrofitting or reusing existing infrastructure may mean achieving compliance is more difficult.	- -

Criteria	Opportunity	Constraint	Comment
Synergies/ consolidation	· Beneficial re-use of the land associated with the closed landfill site. · Possible shared use of materials/ equipment/ capital expenditure with future quarry operator (if applicable) · Boundary allotment and sale of land to the South – potential to sell off a component of the un-used area to the south of the landfill potentially for use as a quarry. The sale of the quarry could offset some of the costs involved in the upgrade of the current site. · Opportunity for alternative access from Quarry Lane and possibility separate commercial vehicles (large trucks) from domestic customers and also to allow access to the quarry.	· Currently no synergies with other Council operations. · Selling off the southern portion of the site for quarrying activity may introduce some potential constraints, such as restriction on activity hours (if quarry requires blasting) and introduction of a new access point to the site. The cost of alternative access through Quarry Lane needs to be taken into account.	· There could be opportunities to consolidate with other Council operations in the future (e.g., drop-off and stockpiling of depot materials at the MRRC)
Development challenges	· Large space available at the back of the site for turning circles and stockpiling material. · Brownfield site where activity is established and will need to be maintained during construction. · Approval pathway to expand existing MRRC site may be more straightforward than for development of a greenfield site	· Single site entry · Narrow entrance road constrained by closed landfill. · Need to work around existing infrastructure and changes in level (retaining walls) around site. · Power, water and sewer mains are currently not connected at the site.	· Preliminary concept planning indicates that retrofit that meets better practice guideline and Council priorities can be achieved through engineering design.
Council land use and planning objectives	· Beneficial re-use of the closed landfill site that will remain a responsibility for Council.	· Council would like to consider whether the parcel of land adjacent to the site could be quarried.	· Would need to consider constraints relating to site access and potential impacts of activities. Would require further investigation but initial assessment would suggest these two activities

Criteria	Opportunity	Constraint	Comment
		· Council is seeking opportunities to consolidate land ownership.	could happen concurrently with proper design and management considerations.
Environmental impacts	· Brownfield site where activity is established. · Greater separation distances to sensitive receptors (compared to Lakins Road) · Existing topography around site may help reduce off-site amenity impacts (for example noise and odour	· Site is adjacent to creek · Existing contamination at the site means all overland flow needs to be treated before entering creek.	· Measures to address environmental impacts of existing landfill and historic MRRC operation may be required regardless of which site is selected for future expansion of the MRRC. Costs to mitigate historic environmental impacts could be partially offset by implementing better practice guidelines for future expansion
Future expansion (incl. diversion objectives)	· Adequate space to expand activities. · Chance of development encroachment is low	- -	- -

1.Monkey Gully Landfill Annual Report 2020

5.2.2 Option 2: Develop a new site at Lakins Road

Development of a new MRRC at the Lakins Road site presents the opportunity to develop a better practice facility without the constraints of retrofitting existing infrastructure. The development of a preliminary concept layout has indicated that there is adequate space available at the site to develop a facility compliant with better practice with the flexibility to expand into adjacent vacant land or some of the depot area if necessary. There is an opportunity to utilise various forms of traffic layouts proposed as part of the adjacent industrial subdivision to allow for easy traffic flow through the site. Adopting this site would meet Council objectives relating to site consolidation. There may also be synergies between the MRRC and the depot (such as shared use of equipment, personnel, or stockpile access) to be realised.

Constraints identified at the site include the risk associated with a greenfield site development including potential cultural heritage impacts and the floodplain near the creek. Given activities at the site are new it is likely that the EPA development approvals pathway for the site will be more involved than a brownfields site and detailed studies are likely to be required to better understand and mitigate environmental and cultural heritage risks due to development. All of this can be managed through engaging appropriate risk assessments and professional advice. Council has indicated that some of this work may be required for the proposed subdivision potentially saving some resources.

The proposed neighbouring industrial development is considered to be a risk for achieving compliance with recommended separation distances for transfer station and resource recovery activities and future expansion objectives. Experience with resource recovery activities elsewhere suggest that industrial or residential development adjacent to a resource recovery site increases the chances of complaints from receptors about the likes of odour, dust, or noise. This is the basis for the recommended separation distances[7] .

A summary of opportunities and constraints for the option of developing the Lakins Road site against evaluation criteria are listed in Table 5.3.

[7] Recommended Separation Distances for Industrial Residual Air Emissions (EPA Guidelines 1518).

Table 5.3: Opportunities and constraints associated with developing a new site at Lakins Road

Criteria	Opportunity	Constraint	Comment
Cost	· Utilise roads built for subdivision. · Re-use material from old MRRC site (such as sheds)	· Greenfield site meaning development from scratch including costs of planning and approvals. · Difficult to stage development and associated costs. · Weighbridge	· See Section 5.3 for details
Community acceptance	· New MRRC, purpose built for ease of use and amenity. · Site is slightly closer to Mansfield; increased site visibility and access (particularly if industrial subdivision roads are constructed) may help increase community use and improve resource recovery · Divert heavy vehicle traffic from their current route that passes through town and residential areas.	· Opposition to a new site is possible. · Nearby receptors may complain about loss of amenity after the facility is constructed. This could include both existing residential receptors, and future users of nearby property.	- -

Criteria	Opportunity	Constraint	Comment
Compliance with better practice	· There is adequate space at the site to be able to design a concept that would be compliant with better practice. · A Greenfields site provides the opportunity to start from scratch and align layout with better practice.	· Separation distance to existing residential receptors is smaller. · Industrial subdivision will introduce new receptors, some within recommended separation distances. · Accepting a smaller separation distance is likely to mean that acceptance of new material types (e.g., FOGO waste), or additional processing capabilities (e.g., composting) may not be viable, or may require extensive engineering controls to implement	· Separation distances from certain activities can be increased through location of activities within the site footprint. · Industrial subdivision planning can work around transfer station requirements. · Low throughput of organic waste may mean that engineering controls to reduce off-site odour impacts and the required separation distance may not be cost effective (e.g., enclosed organics acceptance/processing with secondary odour capture)
Synergies/ consolidation	· High opportunity for synergy with depot · Consolidation of sites	· Loss of some land at the back of the depot, including areas occasionally used for stockpile/material storage. May limit future expansion opportunities for the depot	· Can share stockpiles, equipment, personnel (including out of hours support) with depot.
Development challenges	· Smaller area available for development compared to land available at existing site · Mains power is available at the site.	· Further investigation required of floodplain impacts and Cultural Heritage. · Greenfield site meaning development approvals pathway is expected to be more challenging compared to expansion of an existing brownfield site	· Council have indicated some of this work has been done as part of proposed subdivision development. · All elements can be worked around through engaging relevant professionals to complete risk assessments/management plans.
Council land use and planning objectives	· Consolidation of sites.	· Proposed activity may influence land use options in subdivision or perceived land value[1]	- -

Criteria	Opportunity	Constraint	Comment
Environmental impacts	· Reasonably flat and exposed topography may mean greater likelihood of off-site noise and odour impacts	· Greenfield site will require more challenging approvals pathway compared to expansion of existing brownfield site. There is a risk that the proposed site/uses may not be approved, or that additional conditions may be applied (relative to expansion of brownfield site) · Site is adjacent to creek	· All elements can be worked around through engaging relevant professionals to complete risk assessments/management plans.
Future expansion (incl. diversion objectives)	· Adequate space to expand activities.	· The smaller separation distances to receptors may limit future expansion opportunities associated with diversion activities	· Both sites are assessed to have sufficient space for future expansion, however, the existing site has more space for future expansion and stockpiling of materials.

1 Specialist input from a commercial/industrial land valuation specialist could provide advice on potential impacts.

5.3 Development costs

High-level cost estimates have been included as Appendix C and is based on current rates at the time of writing. These costs are based on the indicative layout for each site shown in Appendix B. The purpose of this cost estimate is to provide an indicative comparison of the costs of various elements of the project.

Option 1 – Expand existing MRRC site (as shown on the sketches in Appendix A.)

Key costs associated with expanding the existing site at Monkey Gully Road include the upgrade and widening of the road, establishment of a covered recycling drop off and the establishment of the new general waste drop off area. Cost savings include the ability to re-use site infrastructure such as hardstand areas and the existing waste drop off.

Developing the existing site presents the opportunity to stage development (and the associated costs) more easily because existing infrastructure can be used in the interim.

- *Indicative estimate $2.1- $3.4 M*

Option 2 – Development a new MRRC site at Lakins Road.

Key costs associated with developing a new site at Lakins Road include developing all infrastructure, internal roading and hardstand areas from scratch. Cost savings include the potential development of the industrial subdivision meaning that roads to the site can be utilised and some investigations/ assessments may be completed for this larger piece of work. The potential cost of development approvals is more ambiguous at this site given it is a greenfield site and a new proposed activity. A larger provision for planning and approvals for the Lakins Road site has been made to account for this. Costs may include:

- Environmental/geotechnical investigations
- Cultural heritage assessments
- Ecology assessments
- Increased likelihood of community consultation costs

We have presented a range of indicative costs to demonstrate that although they have the potential these costs may not be recognised.

We note that it would be more difficult to stage the development and associated costs at Lakins Road given there is no infrastructure at the site to use in the interim.

- *Indicative estimate $2.4-$3.8 M*

The construction rates utilised for this high-level cost estimate are based on assumed design concepts, estimated quantities, experience with similar projects and documented case studies. Consequently, a significant margin of uncertainty exists on the cost estimate and the contingency we have allowed should be considered as part of the cost rather than a potential add on.

Council provided input into costs to utilize local and up to date knowledge where possible and the source of the estimate (council or T+T) is indicated in the cost breakdown supplied in Appendix C. The overhead percentage of 10 % has been recommended by council however we note the overhead can be larger for similar size projects.

Cost estimates do not include acquisition of new plant or machinery, nor does it account for ongoing operations and maintenance costs.

These costs are subject to change as the proposed layout and function of the facility is further developed during conceptual and schematic design. As such, for this options assessment, the

indicative costs are estimated to have a range of at least ± 30%. It is recommended that this cost estimate be used only as a rough guide to inform selection of preferred options to advance to concept design. It should not be used at this stage for detailed financial planning.

During the masterplan stage, we will continue to look for opportunities to improve the accuracy and reduce costs while maintaining the functional design of the facilities at the chosen site.

5.4 Assessment summary

The two sites have advantages and disadvantages. This means that selecting a site to develop will depend on how different aspects of the assessment of each site are weighted.

For the existing RRC, our assessment is that it would be easier to manage potential development risks and potential amenity impacts of future development due to its relatively isolated location and existing site activity. This and the infrastructure that exists at the site is likely to make development cheaper and with less uncertainty.

Development at the depot presents the opportunity to consolidate council operational sites and realise potential synergies with the depot. Acknowledging there are more unknowns associated with cost and potential development challenges, there was nothing identified in our assessment that would prevent development of a facility meeting better practice at the site. The likelihood of industrial development encroachment and potential impacts to receptors is higher and would need to be carefully managed in design and operations. As landowners, Council is able to do this through careful placement of activities and the management of land use in the proposed subdivision and on nearby properties.

6 Conclusion

The opportunities and constraints listed in this report outline important considerations for Council when selecting which site to establish the MRRC. Our initial findings indicate that either site is appropriate if selected for development, however there are pros and cons to each site.

Concept plans developed for each site are indicative that whichever site is selected a facility meeting better practice can be developed. Our initial assessment is that it would be easier to manage potential development risks and potential amenity impacts of future development at the existing site due to its relatively isolated location and existing site activity. This and the infrastructure that exists at the site is likely to make development cheaper and less uncertain.

Development at the depot presents the opportunity to consolidate sites and allows for synergies with the depot. Acknowledging there are more unknowns associated with cost and potential development challenges there was nothing identified in this assessment that would prevent development of a facility meeting better practice at the site. The likelihood of development encroachment and potential impacts to receptors is higher and would need to be carefully managed. However, as land owners, Council is in a position to do this through careful placement of activities or the management of land use in the proposed subdivision and on nearby properties.

Once Council has selected a proposed MRRC site, T+T will proceed to development of a Masterplan for the selected site.

7 Applicability

This report has been prepared for the exclusive use of our client Mansfield Shire Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

The construction rates utilised for this high level cost estimate are based on assumed design concepts, estimated quantities and a combination of inputs provided by council and our experience of similar construction at other sites. Consequently a significant margin of uncertainty exists on the cost estimate and the contingency we have allowed should be considered as part of the cost rather than a potential add on.

No allowance has been included for cost escalation beyond 2021.

The derived rates are based on information and data obtained prior to COVID-19 being declared a pandemic by the World Health Organisation. Australian states have subsequently entered various stages of "lockdown" plus the global economic impacts of COVID-19 will have an impact on the construction industry in at least the immediate and medium term future. The significance and extent of COVID-19 impacts is uncertain at this time but likely to impact both labour and materials rates.

We have not made any attempt to allow for the impact of COVID-19 in this estimate and recommend you seek specialist economic advice on what budgetary allowances you should make for escalation and changed construction costs post COVID-19.

Tonkin & Taylor Pty Ltd

Environmental and Engineering Consultants

Report prepared by:

.....

Caroline Turnbull/David Umberg
Environmental Engineer/
Senior Civil and Environmental Engineer

Authorised for Tonkin & Taylor Pty Ltd by:

.....

Chris Purchas
Project Director

CATU
t:\south melbourne\projects\1016996\workingmaterial\5 operational report\final\1016996_operationalassessmentreport_final_120721.docx

Appendix A: Figures

P:\1016996\WorkingMaterial\CAD\FIG\1016996-F01.dwg 2021-Jun-18 3:42:50 PM Plotted By: KATHRYN JACKSON

LEGEND

- ALLOT 83A BOUNDARY (VACANT LAND)
- LOT 1 AND LOT 2 BOUNDARY (CURRENT RRC SITE AND CLOSED LANDFILL)
- EXISTING CONTOURS
- WATERCOURSE (LOCATION APPROXIMATE)
- APPROXIMATE CLOSED LANDFILL AREA
- CURRENT RRC ACTIVITY AREA
- STOCKPILE AREA

SINGLE LANE ACCESS ROAD (SITE ENTRANCE 400m TO THE NORTH EAST)

CREEK

CREEK

LOT 1 AND LOT 2 (CURRENT RRC SITE AND CLOSED LANDFILL)

ALLOT 83A (VACANT LAND)

RRC SITE PLAN
SCALE: 1:4000

MANSFIELD

OGILVIES ROAD

MONKEY GULLY ROAD

MANSFIELD RESOURCE RECOVERY CENTRE

SITE LOCATION PLAN
SCALE: 1:25,000

Tonkin+Taylor

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NOTES:
1. AERIAL IMAGE SOURCED FROM GOOGLE EARTH. COPYRIGHT 2021.
2. PROPERTY BOUNDARIES SOURCED FROM VICTORIA STATE GOVERNMENT ENVIRONMENT, LAND, WATER AND PLANNING.

A3 SCALE 1:4000
0 40 80 120 160 200 (m)

ORIGINAL IN COLOUR

PROJECT No.	1016996		
DESIGNED	CATU	Jun.21	
DRAWN	KMJA	Jun.21	
CHECKED			
APPROVED		DATE	

CLIENT **MANSFIELD SHIRE COUNCIL**
PROJECT **MANSFIELD RRC MASTERPLAN**
TITLE MONKEY GULLY ROAD MANSFIELD
EXISTING RRC SITE PLAN

UNDER REVISION 1

SCALE (A3) AS SHOWN FIG No. FIGURE 01 REV 1

P:\1016996\WorkingMaterial\CAD\FIG\1016996-F02.dwg 2021-Jun-18 2:30:29 PM Plotted By: KATHRYN JACKSON

LAKINS ROAD

REFER NOTE 2

FORD CREEK

DEAD HORSE LANE

MIDLAND HIGHWAY

MANSFIELD SHIRE COUNCIL DEPOT

MAROONDAH HIGHWAY

MANSFIELD

MONKEY GULLY ROAD

SITE LOCATION PLAN
SCALE: 1:50,000

LEGEND
- SITE BOUNDARY
- CURRENT COUNCIL DEPOT
- PROPOSED RRC LOCATION
- WATERCOURSE (LOCATION APPROXIMATE)
- PROPOSED INDUSTRIAL SUBDIVISION

141 LAKINS ROAD EXISTING SITE PLAN
SCALE: 1:5000

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 01/01/2005.
2. BASED ON DISCUSSIONS WITH COUNCIL, FUTURE LAND USE TO THE EAST OF THE SITE MAY INCLUDE FURTHER INDUSTRIAL SUBDIVISION DEVELOPMENT.
3. PROPERTY BOUNDARIES SOURCED FROM VICTORIA STATE GOVERNMENT ENVIRONMENT, LAND, WATER AND PLANNING.

A3 SCALE 1:5000
0 50 100 150 200 250 (m)

ORIGINAL IN COLOUR

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PROJECT No.	1016996		
DESIGNED	CATU	Jun.21	
DRAWN	KMJA	Jun.21	
CHECKED			
APPROVED		DATE	

CLIENT MANSFIELD SHIRE COUNCIL
PROJECT MANSFIELD RRC MASTERPLAN
TITLE LAKINS ROAD MANSFIELD
141 LAKINS ROAD EXISTING SITE PLAN

UNDER REVISION 1

SCALE (A3) AS SHOWN FIG No. FIGURE 02 REV 1

Appendix B: Concept design layout figures

Figure B.1 - Concept layout for expansion of existing MRRC site at 163 Monkey Gully Road

Install layby along access road (assume 1 layby per 150m) - note: council is considering extending a 2 lane road to site entrance

Stormwater treatment pond. Size to be determined

Relocate drainage channel and create level platform recyclables area

Recyclables- covered drive through shed. (500 m²)
-Cardboard
-Steel
-Batteries

Widen road to two lanes

Relocate garage. Parking for new reuse shop.

Reuse shop (100 m²)

Greenwaste drop off - covered area. Allow for separation of clean and potentially contaminated material.

Relocate e-waste shed. Becomes operations area for general refuse.

Drainage channel

Refuse drop off (500 m²) with push pit.

Operations vehicle road

Kiosk

Weighbridge

E-waste shed (100 m²)

Hazardous (100 m²) paved.

Commercial drop-off of bulk materials

Relocation of stockpiles further back (including into back paddock, where needed)

Alternative access to site for commercial vehicles from quarry lane. Road widening to 5 m where required. This is an option that could be considered.

Legend
- Compacted aggregate
- Paved road surface
- Traffic flow
- Revised earthwork contours

APPROX TRUE NORTH

CONCEPT DESIGN

PLAN
SCALE 1:500

ENLARGEMENT
SCALE 1:200

REVISION	DETAILS	DATE

OCCUPATION SHOWN NOT TO SCALE
CONTOUR INTERVAL 0·25m

THIS PLAN DOES NOT REPRESENT TITLE RE ESTABLISHMENT. THE LOCATION OF OCCUPATION RELATIVE TO TITLE BOUNDARIES IS INDICATIVE ONLY

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- LAND SURVEYORS

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PRINCIPAL
MANSFIELD SHIRE COUNCIL
HIGHETT STREET
MANSFIELD 3722

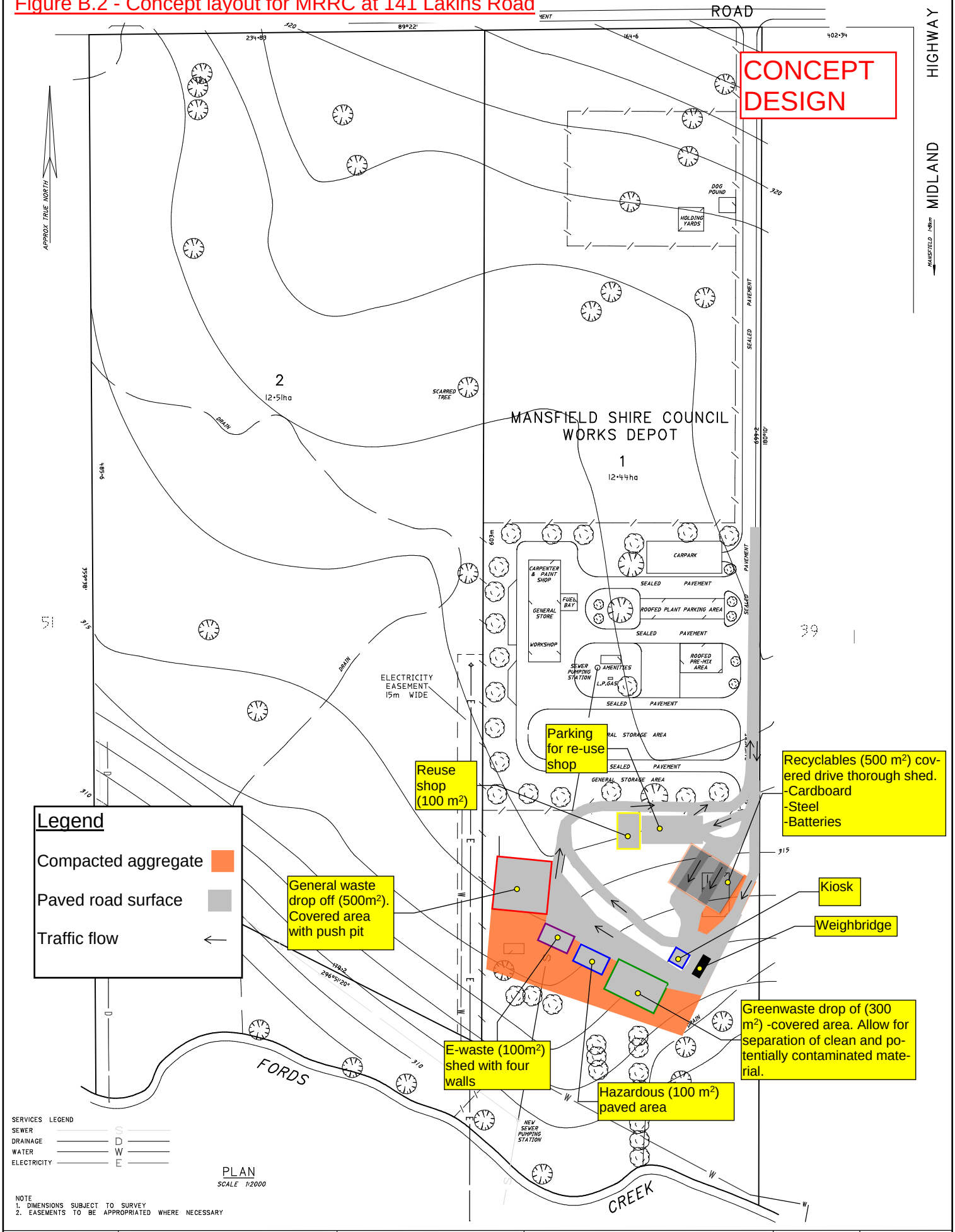
PROJECT
PLAN OF EXISTING CONDTIONS
MANSFIELD RESOURCE
RECOVERY CENTRE
MONKEY GULLY ROAD
MANSFIELD

REF 5230
SHEET 2 OF 2 SHEETS
DATE 16/5/2012
LEVEL DATUM A.H.D.
YDE PM28 LOYOLA
REVISION

AUTHORISED BY
R.J. MACEY
DATE 16/5/2012

ORIGINAL SHEET SIZE A1

Figure B.2 - Concept layout for MRRC at 141 Lakins Road



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PRINCIPAL
MANSFIELD SHIRE COUNCIL
HIGHETT STREET
MANSFIELD 3722

PROJECT
PROPOSED SUBDIVISION
SHIRE DEPOT
LAKINS ROAD MANSFIELD
CROWN ALLOTMENT 40
PARISH OF MANSFIELD

SCHEME E
2 LOTS

REF 3971\PROP1
SHEET 1 OF 1 SHEETS
DATE 10/2/2003
LEVEL DATUM A.H.D.
REVISION

AUTHORISED BY
R.J. MACEY
DATE 10/2/2003

MANSDEPO\DEPOT.LCD
ORIGINAL SHEET SIZE A3

Appendix C: High level cost estimates

RRC Lakins Rd

	Unit	Qty	Unit Rate		Total	Estimate source
Recyclables Dropoff						
Concrete Slab	m2	500	160	$	80,000	T+T
Covered Shed	m2	500	440	$	220,000	T+T
Resale Shop						
Concrete slab (shed floor)	m2	100	160	$	16,000	T+T
Shed (4 walls)	m2	100	1200	$	120,000	T+T
Gate house						
Construct New	No.	1	20000	$	20,000	T+T
Greenwaste						
Concrete slab (heavy duty)		300	160	$	48,000	T+T
Cover		300	440	$	132,000	T+T
E-waste Relocate e-waste shed from Monkey Gully						
Transport		1	10000	$	10,000	Council
Concrete slab (shed floor)	m2	100	160	$	16,000	T+T
Shed Walls	m2	100	600	$	60,000	T+T
Hazardous						
Hazardous Sheds	No.	1	50000	$	50,000	T+T
Concrete slab (heavy duty)	m2	100	160	$	16,000	T+T
Waste shed - Construct new waste acceptance and sorting area						
Concrete slab (heavy duty)	m2	500	160	$	80,000	T+T
Covered shed	m2	500	440	$	220,000	T+T
Roadworks - New Road						
Road	m2	2800	100	$	280,000	T+T
Site other						
Earthworks	m3	2000	30	$	60,000	Council
Hardstand - Compact aggregate	m2	1909	25	$	47,725	T+T
Strip topsoil	m2	10600	3	$	31,800	T+T
Drainage	Lm	200	40	$	8,000	T+T
Septic System	No.	0	10000	$	-	Council
Potable Water Filtration	No.	0	2500	$	-	Council
Stormwater Evaporation Pond	No.	1	25000	$	25,000	Council
Electrical Upgrades	No.	1	20000	$	20,000	Council
Lighting	No.	1	15000	$	15,000	Council
Gates, Fencing, Signage	No.	1	15000	$	15,000	Council
IT Connectivity & POS	No.	1	10000	$	10,000	Council
Weighbridge	No.	1	120000	$	120,000	T+T
Remediate Monkey Gully	No.	1	50000	$	50,000	Council
Subtotal				$	1,770,525	
Preliminaries						
Design & Approvals			15%	$	265,578.75	T+T
Mobilisation	No	1	50000	$	50,000	Council
Overhead			10%	$	177,052.50	Council
Subtotal				$	492,631	
Contingency			30%	$	678,947	
Grand Total				$	2,900,000	+GST

	Low (-20 %)	High (+30%)
Range reported	$2,400,000.0	$3,800,000

RRC Monkey Gully Rd

	Unit	Qty	Unit Rate	Total	Estimate source
Recyclables Dropoff					
Concrete Slab	m2	500	160	$ 80,000	T+T
Covered Shed	m2	500	440	$ 220,000	T+T
Resale Shop					
Concrete slab (shed floor)	m2	100	160	$ 16,000	T+T
Shed (4 walls)	m2	100	1200	$ 120,000	T+T
Gate house					
Relocate existing	No.	1	2500	$ 2,500	T+T
Greenwaste					
Utilize existing waste drop area					T+T
E-waste Relocate e-waste shed					
Concrete slab (shed floor)	m2	100	160	$ 16,000	T+T
Relocation costs	m2	100	600	$ 60,000	T+T
Hazardous					
Hazardous Sheds	No.	1	50000	$ 50,000	T+T
Concrete slab (heavy duty)	m2	100	160	$ 16,000	T+T
Waste shed - Construct new waste acceptance and sorting area					
Concrete slab (heavy duty)	m2	500	160	$ 80,000	T+T
Covered shed	m2	500	440	$ 220,000	T+T
Roadworks - Widen and add road					
Road Widening & New	m2	2426	100	$ 242,600	Council with T+T review
Widening of culverts	Lm	8	250	$ 2,000	Council
Compacted aggregate operational road	m2	600	25	$ 15,000	T+T
Site other					
Earthworks	m3	5000	30	$ 150,000	Council
Strip topsoil	m2	4000	3	$ 12,000	T+T
Drainage	Lm	500	40	$ 20,000	T+T
Septic System	No.	1	10000	$ 10,000	Council
Potable Water Filtration	No.	1	2500	$ 2,500	Council
Stormwater Evaporation Pond	No.	1	25000	$ 25,000	Council
Electrical Upgrades (UPS, battery, generator)	No.	1	40000	$ 40,000	Council
Lighting	No.	1	15000	$ 15,000	Council
Gates, Fencing, Signage	No.	1	20000	$ 20,000	Council
IT Connectivity & POS	No.	1	10000	$ 10,000	Council
Weighbridge	No.	1	120000	$ 120,000	T+T
Subtotal				$ 1,564,600	
Preliminaries					
Design & Approvals			15%	$ 234,690	T+T
Mobilisation	No	1	50000	$ 50,000	Council
Overhead			10%	$ 156,460	Council
Subtotal				$ 441,150	
Contingency			30%	$ 601,725	
Grand Total				$ 2,610,000	

	Low (-20 %)	High (+30%)
Range reported	$2,100,000.0	$3,400,000

Roadworks Qtys				
	L	W	Area	Source
Widen	538	2	1076	Council
New	225	6	1350	T+T
Total		m2	2426	