Conservation Management Plan

for the

Fowler B6 Steam Road Locomotive and Clyde Traction Wagon.

Narromine, NSW

Volume 1, Heritage Assessment and Conservation

Prepared for the Narromine Shire Council

by

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13 March 2008

Refer to Volume 2

for the

Scope of Work

for the Conservation of the

Fowler B6 Steam Road Locomotive and ClydeTraction Wagon.

Narromine, NSW

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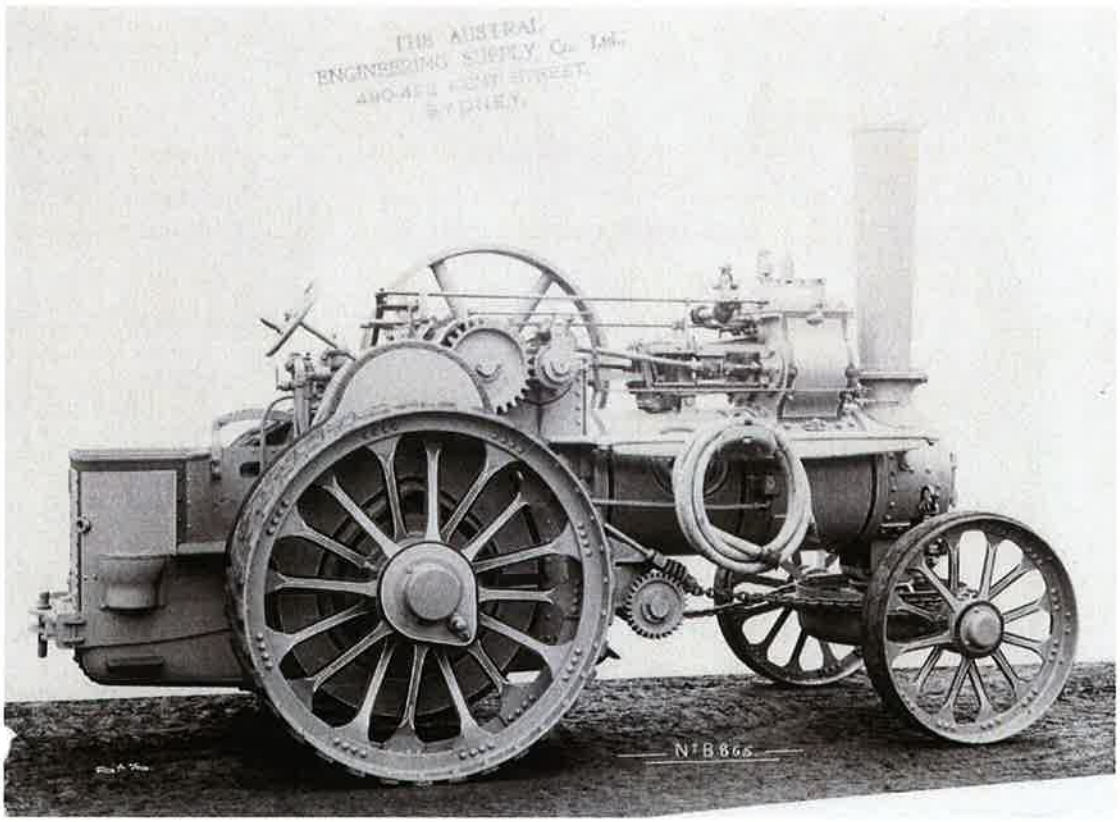

Typical Fowler B6 Road Locomotive (image from Fowler works).

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Scope of Work for Conservation of the Fowler B6 Engine

1. Executive Summary

Timbrebongie (now Narromine) Shire Council's B6 Fowler Road Locomotive is quite a rare artefact from the period 1925 to the present, and the parts of the Clyde Traction Wagon are also rare; dating from c1907. The Fowler engine was specifically ordered from Fowlers in the UK in 1925 and delivered in that same year via Austral Engineering, Sydney. It was used in association with six of the Clyde Traction Wagons by Council for land clearing, road construction, and heavy haulage. In 1934 it was sold to Mr. Hamblin from Tottenham who used it as a farm power source. By the 1950s it was dormant and Mr. Hamblin donated it back to the shire in 1974 on condition it was not sold.. It languished in the Shire depot until 1984 when it was placed under cover and on display at Cr. Stickland's Kulai Caravan Park. In 1997 it was towed to the airport hanger where it remains to this day.

A detailed investigation of the fabric of the engine, and the wagon parts, indicate that these items possess a very high degree of integrity and provenance to the shire. The Fowler B6 road locomotive is almost complete, and it is accompanied with a number of parts that were replaced as part of its on-going maintenance when in-service. Not only is the engine almost complete, an initial inspection by a qualified boiler inspector has indicated that the boiler is potentially able to be repaired to a point where it could be certified for operation. It is also true that this engine is very rare. Of nearly 1000 steam portable or road engines existing in Australia at this time only this one and one other made by Fowler meet almost identical specifications (Burke & Norris, p15-17).

Assessing the fabric against the NSW Heritage Office criteria for cultural significance indicates that the engine meets all criteria, except "...demonstrating the principal characteristics of a class of places or environments." In fact, the authors believe that the engine possesses a very high grading of significance on most of the criterion. It is strongly recommended that the Council list the Engine on their local LEP and make a submission to the Heritage Council for listing on the State Heritage Register. The remains of the Traction Wagon are determined to have a low-moderate grading of heritage significance, however, they should at least be properly preserved.

The CMP provides guidelines for some of the legal aspects relating to work being done on the engine and the use of the Engine operationally. It also provides a policy for the conservation of the original fabric and some of the original paintwork, some effective treatments for the conservation of fabric and a large number of conservation recommendations.

Four Principal Recommendations are made, together with a range of supportive recommendations relating to the practical implementation of each of the Principal Recommendations.

Principal Recommendation 1 *That the engine be restored /reconstructed to a state commensurate with the first few years of working life. That is, restored to working order, with some parts reconstructed to operating condition, with particular care taken to the retention of as much original fabric as possible and some original paint and lining out. That is, to present the Engine, not in 'showroom' condition, but as it would have been early in its working life.*

In the event that the investigation of the boiler condition proves the need for very extensive repairs or replacement of the boiler then it will be a matter for Council to decide whether the work should be done.

It is strongly recommended that Council consider the use of volunteer labour on such a project to minimise costs. However, suitable people must be monitored and provide evidence of their own training and skills in the various trades required for conservation of the engine. This project is extremely important and it must be managed effectively, and carried out expertly.

Principal Recommendation 2. *It is recommended that in the case that very extensive work, or replacement of the Fowler boiler is necessary, that Council move to have this work done with the aim of returning the engine to a state commensurate with its arrival at Timbrebongie Shire. That is, replacement of the boiler, restored to working order with fabric, paintwork and lining-out reconstructed to original, finished in 'showroom' condition except for the original gear cove and motion covers (Burra Charter, Article 1.8).*

It must be pointed out that this would be a costly alternative as the boiler work would need to be contracted out, as would many other restoration tasks. More detail on this is provided within the CMP and also in Volume 2 – Scope of Works.

The authors are still waiting for a quotation for a new boiler to be received.

Principal Recommendation 3 *That where Council finds that it is not able to support extensive boiler repair, or boiler replacement, then it is recommended that the engine be set up for long term preservation (moth balled) in accordance with the Burra Charter, Article 1.6* and that a program of ongoing maintenance be adopted to ensure the long term protection of this engine even though it is not in working order.

Principal Recommendation 4. *Irrespective as to which of the Principal Recommendations 1 - 3 is finally implemented, the authors strongly recommend that a purpose built storage (exhibition house) facility be built for the Engine and Wagon, preferably in the area of the Railway precinct to provide a secure location, accessible by the general public.* More detail on this is provided in the report.

With respect to the remains of the Clyde Traction Wagon, it is recommended that Council try to locate and procure a better maintained example than the artefacts it already has, and to reconstruct a wagon for use in conjunction with the Fowler Engine.

It is also recommended that negotiations be undertaken between Council and the Rotary Club (owners of the Ransomes Sims and Jeffries portable steam engine located in the Council yard) with a view to the use of this engine as collateral to assist in the restoration/reconstruction of the Fowler engine.

Appropriate consultation is essential to a complete and effective conservation process and so some requirements for this are set out in the CMP, as are guidelines for preparing interpretative information on the engine for the public. As this engine was

originally purchased through Austral Engineering in 1925, it is recommended that the company, which is still in operation, be approached for support in this most valuable project.

It is normal for an archival record to be prepared during the conservation process and it is strongly recommended that Council commission such a record as soon as practicable. The preparation of a report detailing conservation from beginning to end will ensure a valuable resource for later research by museums and conservators and maintenance processes on the Engine.

Council is encouraged to make this report public to allow for community debate on the conservation of this engine.

An estimate of cost involved in the implementation of Principal Recommendation 1 is from $50k - $80k, with a long term asset value of up to $500k or more. Other relevant cost estimates are provided on p49 of Volume 1, and in section 12 of Volume 2.

The second Volume to this CMP –Scope of Works – provides a considerable degree of technical detail relating to the conservation, operation and long term maintenance of the Engine and Traction Wagon. It also makes some comment with regard to the purchase of parts and equipment, and the possible cost (in hours, and/or $) of some processes detailed herein.

2. Introduction and Acknowledgements

Introduction

The Fowler Steam Road Locomotive originally purchased by Narromine Shire Council in 1925 has been a matter of concern for Council for many years. As early as 1984, 10 years after the engine was returned to Council ownership, there was sufficient local concern recognising that the "... steam engine that has been sitting exposed to the weather for many years at the Shire yards ..." was under threat and needed protection (Narromine News, 1984). Consequently the engine was moved under cover to the Kulai Caravan Park where it stayed until the early 1990s when it was moved to its current location at Narromine airport. There are also extant remains of a c1907 ten tonne (ton) Clyde Traction Wagon owned by Mr. Ewen Jones that have close associations with the Fowler that also need to be considered.

There is an urgent need to develop policies and procedures that will preserve for future generations the cultural significance of this unique engine and at the same time maximise the strategic potential of the engine to the development of the local tourist industry. This Conservation Management Plan (CMP) aims to present these policies and procedures for consideration and, hopefully, for adoption and implementation by the Narromine Shire Council

This project was initially proposed by Mr. Christo Aitken, Heritage Adviser to Council, in January 2007. Subsequently a small grant was obtained to enable the preparation of the CMP for the Fowler B6 Steam Road Locomotive owned by Council and the Clyde Fowler Traction Wagon stored at the Narromine Airport. It is proposed that the CMP be supported with a Scope of Works that will identify, in detail, the requirements for the effective conservation of this engine to ensure its protection for many years to come.

Where appropriate, and if criteria are met, it is also proposed that an application be made to the Heritage Council for listing of the Fowler engine on the State Heritage Register and, if justified, added to the Register of the National Estate.

Definition

A road locomotive in its usual context is a large and specialised form of the more common Traction Engine. It was built especially stronger and usually with other refinements such as the provision of a third speed, a canopy over the engine, a larger capacity firebox and boiler, sprung wheels, an additional water tank, motion covers and solid flywheels. In the 1860's, the term Road Locomotive applied to any self-propelled steam vehicle used on the common roads, but by the 1890's this had evolved into the description of a specialised engine for heavy road haulage rather than an agricultural traction engine.

Definitions of Conservation processes referred to in this volume and the Scope of Works are provided in Section 2 of Volume 2, Scope of Works, page 4.

Acknowledgements

Ms. L. Atkinson	Univ. of Reading	Reading (UK)
Mr. Andrew Bicknell	Traction engine owner	UK
Mr. Brian Burke	Traction engine owner	Sydney
Ms. Dawn Collins	Mayor	Narromine Council
Mr. Peter Freeman	Traction engine owner	UK
Mr. Bill Ives	"Steaming Under the Southern Cross" Subcommittee Chair	
Mr. Murali Kramadhari	E.R. Curtain	Revesby
Mr. Bob McLeod	Traction engine owner	Dorrigo
Ms. Norma Meadley	Narromine History Group	Narromine
Ms. Alison Mercieca	National Museum of Aust.	Canberra
Mrs. Jeanette Nash	Daughter to Neil Hamblin	Narromine
Mr. Geoff Riley	Traction engine owner	Dungog
Mr. David Rossington	Dept. Environment & Heritage, Canberra	
Mr. Andrew Uden	NSW Steam Preservation Co-op Society	Campbelltown
Mr. Chris Walsh	Ex Council employee	Narromine
Mrs. Melissa Ward	Manager, Planning	Narromine Council

Various members of the 'Traction Talk' internet chat group.

Thanks are also extended to the following staff from the Powerhouse Museum, Sydney for their helpful advice;

Mr. Andrew Grant, Ms. Debbie Rudder, and Mr. Ross Goodman.

3. **Objectives**

The objectives of this Conservation Management Plan are;

a) to understand the Fowler B6 Road Locomotive and the Clyde Fowler Traction Wagon items through investigation of their historical and geographical context, their history, fabric, research potential, and importance to the community.

b) to prepare a statement of cultural significance for the items. The plan will analyse documentary and physical evidence to determine the nature, extent and degree of significance of the heritage item.

c) to assess the degree of Heritage Significance of these items and to make recommendations on the value of the item/s as an asset to the community.

d) to develop a conservation policy, arising out of the statement of heritage significance, to guide current and future owners of the item/s on the development potential of the items and their ongoing maintenance. Constraints and opportunities are to be examined.

e) to consider proposals for the storage and conservation of the item/s, and to determine how they can best be achieved in accordance with the conservation policy.

f) to develop a number of conservation options and to determine which of these are most appropriate for these items. Where proposals may have an adverse impact on the heritage significance of the item, the need for such work will be justified.

g) to recommend how the heritage item/s can best be managed bearing in mind those responsible and interested in its ongoing conservation. Proposals for the review of the CMP and the item's maintenance will be included.

h) to address any particular issues that the client wants addressed in, or resolved by, the plan; for example, fire safety issues, significance of finishes or a schedule of conservation works.

i) to prepare a set of Scope of Work relating to the essential maintenance of the items, and their reconstruction, restoration or preservation in accordance with the Burra Charter and the conservation policy developed for the items.

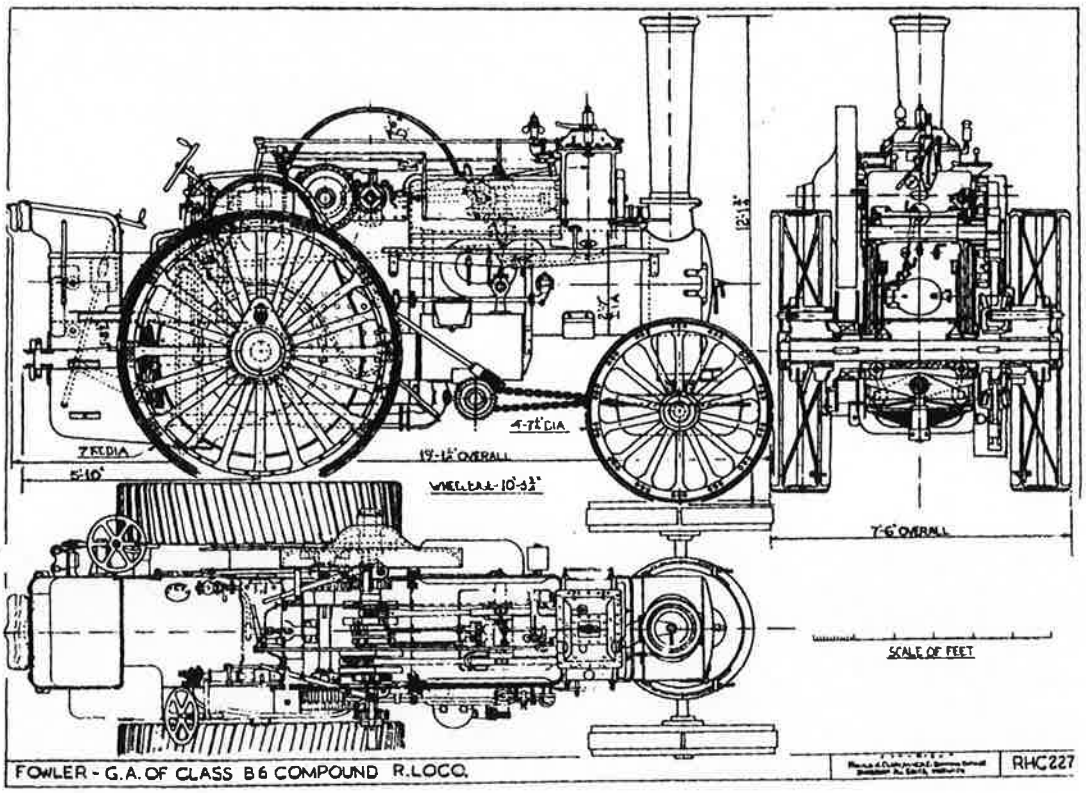
j) to develop guidelines for interpretation for the Fowler Locomotive and the Traction Wagon.

4. Previous Reports

One previous report relating to the history, and the heritage significance, of the Fowler B6 Road Locomotive was prepared by Ms. S. Butler, former heritage adviser to Narromine Shire Council.

No previous reports relating to the history, and the heritage significance, of the Clyde Traction Wagon have been prepared to date.

However, a number of submissions have been made to Narromine Council relating to the physical condition and potential for preservation, reconstruction or restoration of the engine. These were made by Ian Larcher, co-author of this CMP. These were lodged over the period April 2005 – September 2006.



Orthogonal drawing of the Fowler B6 engine

5. Historical Context

John Fowler & Co (Leeds) Ltd. 1850 – 1937

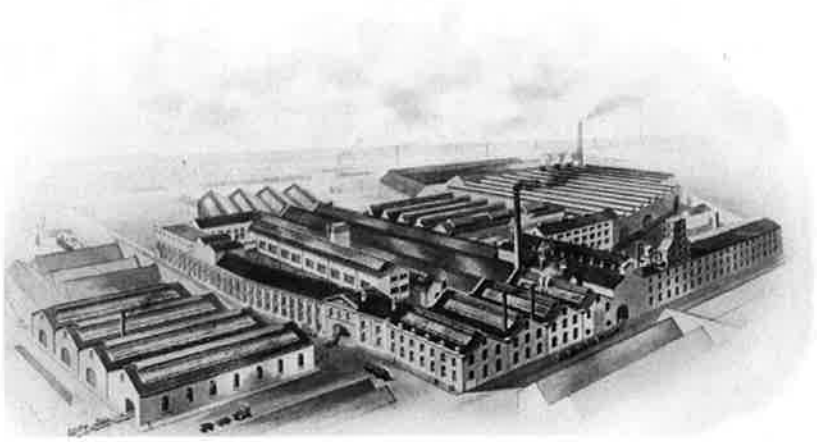
It was not until around 1860 that traction engines as we know them today, and from which the road locomotive derived, were first built in England. After some experimental work during the preceding decade by builders of portable steam engines these engines were adapted to become a self-moving engine – the traction engine. For the next 65 years, several companies including John Fowler of Leeds, J. and A. McLaren of Leeds, Charles Burrell of Thetford and Aveling and Porter of Rochester dominated the manufacture of traction engines.

John Fowler was born into a Quaker farming family in the west of England in 1826. His inclination towards the mechanical sciences led him to an apprenticeship with the firm Gilkes, Wilson, Hopkins and Co. of Middlesborough. Fowler took an early interest in the application of steam power to drainage and cultivation and designed ploughing and drainage equipment to be built for him. By 1862 he had established his own production plant at Leathley Rd, Leeds.

Over the years Fowler's Steam Plough Works diversified into most branches of steam engineering including traction engines, road rollers and road locomotives.

The English city of Leeds, in particular the suburb of Hunslet, was one of the chief locations in the UK where traction engines, steam wagons and industrial steam locomotives were manufactured. Two of the most famous builders, John Fowler and Co and J and A McLaren had large factories adjoining each other in Leeds. Traction engines were designed and built in many forms including general-purpose traction engines, steam rollers, showman's engines, steam ploughing engines, steam tractors and of course road locomotives. The road locomotive was considered the "Rolls Royce" of the various types and these engines were very carefully manufactured to the highest standards and usually embellished with much intricate paintwork, lining-out and polished metal.

JOHN FOWLER & CO. (LEEDS) LTD.



Road locomotives generally had a power of 5 to 10 nominal horsepower (nhp) and usually were two cylinder compound engines. Compound engines had decided

advantages, mainly in a considerably lower consumption of both fuel and water, which offset their additional complexities and initial cost. The first Fowler compound engine was built in 1881; this was an 8 nhp model. The term nominal horsepower is interesting, as it has no bearing whatsoever on any defined rationale for calculating power, but was merely a sales pitch to farmers and laypersons to indicate in terms they may more easily understand what work could be expected from the machine. The actual work able to be produced was far in excess of this conservative figure.

John Fowler and Co (Leeds) were eminent engineers of the late 19th and early 20th Century whose main area of expertise was in the construction of steam traction engines, steam rollers, light railway locomotives and the Fowler cable ploughing system then in worldwide use as the predominant means of mechanised ploughing.

More than anything the British war office was responsible for the development of the road locomotive. They soon saw the advantages of using a traction engine to haul heavy field guns, supplies, etc rather than relying on horse teams. Fowlers were quick to take advantage of this possibly lucrative new market, so a great deal of design work went into their construction to ensure reliability and strength with little or no workshop maintenance. Fowler engines were extensively used during the Boer War for transportation of goods and Fowlers' soon added armour plate as Boer snipers were able to cause considerable damage even with rifle fire. The world's first self-propelled armoured vehicle was born. Within 12 months, the British government had commissioned armoured trains consisting of road locomotives, hauling 6" field guns and wagons for the conveyance of troops, ammunition and a searchlight for night-time operations. Over 70 road locomotives were manufactured for this service and continuous improvements were being made based on the knowledge and experience being gained.

John Fowler in Australia

Fowler's had an enviable reputation and enjoyed an almost total domination of the manufacture of traction engines in Australia. Their nearest rivals came nowhere near the product output of this firm. As such, Fowlers' soon had a thriving business in Australia to the extent that they set up a subsidiary company, John Fowler and Co (Australia) to meet the large colonial market, as well as securing franchises with eminent Australian firms of the time such as the Clyde Engineering Co. and the Austral Engineering Co. to market engines on their behalf. In Australia, Fowlers enjoyed a virtual monopoly and company records show that Australia was one of their major export locations.

There was almost no town Australia wide, where Fowler equipment, especially road making equipment such as the humble steam-roller was not in use, or their engines were not used in agricultural pursuits at some time or another. Many hundreds of their engines were imported, until the cessation of WW1, when thousands of cheap war surplus internal combustion engine trucks and tractors were suddenly available. In addition, increasingly stiff competition from American firms such as Ford and the International Harvester Co as well as a multitude of smaller firms, which marketed the internal combustion tractor extensively, at a far cheaper price, all but decimated their business overnight.

One area that Fowlers were dominant was in the construction of large road locomotives. At the time no internal combustion engine vehicle was considered powerful or reliable enough for this work. Fowler road locomotives in Australia were regularly used to haul loads in excess of 60 tons and found favour with the various state public works departments, other state government departments and the federal government, as well as many local Shire Councils.

Some local Councils in NSW known to have used Fowler Road Locomotives were Canobolas Shire, (Orange), Coonamble Shire Council, Culcairn Shire, Inverell Municipality, Jemalong Shire (Forbes), Liverpool Plains Shire (Gunnedah), Patrick Plains Shire (Singleton), Timbrebongie Shire (Narromine), Turon Shire Council (Kelso), Tweed Shire (Murwillumbah), and Weddin Shire (Grenfell). As far as can be ascertained, only the Timbrebongie Shire Council engine has survived from this group.

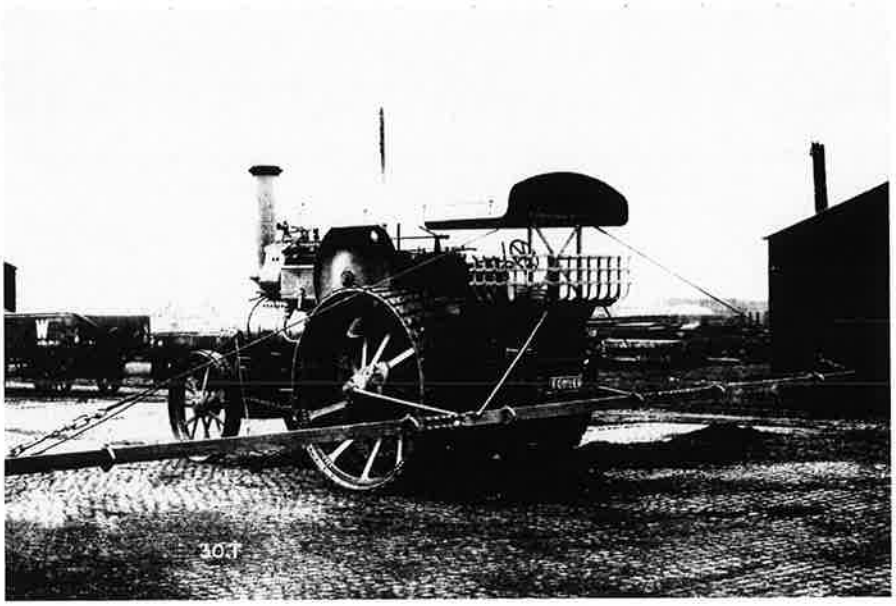
The Fowler B6 and Timbrebongie Shire

The B6 type, of which the Narromine engine is a rare surviving example, was the final development of a large range of Fowler road locomotives of which several thousand were produced. Only around 12 of the B6 type are known to survive worldwide and the Narromine engine was one of the last Road Locomotives to be produced by Fowlers before they ceased all steam production.

It is of a model known as the B6 "Big Lion" type- these and the "Super Lion" type (a derivative with bored out cylinders) were the largest and most powerful road engines made by Fowlers and were normally used exclusively for heavy haulage.

The Timbrebongie engine was unique in a worldwide context in that it was ordered especially modified from normal B6 design to the express order of Timbrebongie Shire Council. The Fowler Co. listed the order on 4 May 1925 as No. F1610. It was ordered with "special draft gear" (a 40 foot wide tow beam at the rear) and early works photographs of the engine show this in place. This was to enable the engine to tow two road making graders, and two ditch ploughs, at the one time to enable road making in one pass.

It was also ordered with a geared pump drive, solid flywheel, no belly tank, a winding drum and a wood rack for firewood. It is reputedly the last Fowler Road Locomotive to be exported to Australia, and one of the last built by the firm before they ceased production.



Timbrebongie's B6 with draft gear in place in Leeds, before export to Australia

The Timbrebongie Shire Council's engine was manufactured at the Steam Plough Works of John Fowler & Co in Leeds in 1925 and assigned the builder's number 16163. Fowler records note that the engine was delivered on 1 August 1925 to the Austral Engineering Supply Co., Sydney specifically for Timbrebongie Shire Council. The engine was shipped to Sydney and subsequently transported to Narromine.

Two sister engines ordered by the Federal Government at the same time as the Narromine engine were used extensively in the construction of Canberra. Both survive, one in the National Museum and the other in a private collection- neither are available for viewing by the public or are currently in working condition.

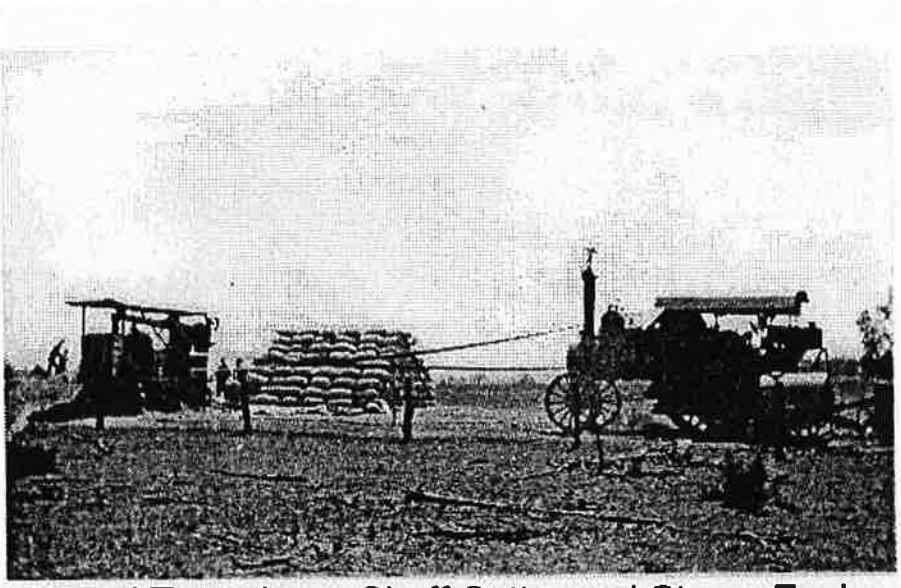
Unfortunately, little is known of the working history of Council's engine, or of its later use after disposal. However, it certainly would have been an important tool in road construction throughout the shire.

It is known that it was used to haul road graders and ploughs. However, the Timbrebongie Shire also had a fleet of six 10 tonne (ton) wagons purchased with an earlier engine and these would have been hauled by the engine and contained road gravel and general road or bridge building supplies. Located in the Anzac Park at Narromine is a Clyde Engineering road plough- this was most probably used in conjunction with this engine.

Quite possibly, the engine was used to power a portable rock crusher to crush road gravel. In addition, its powerful winch would have found use in pulling out trees, and positioning large bridge timbers.

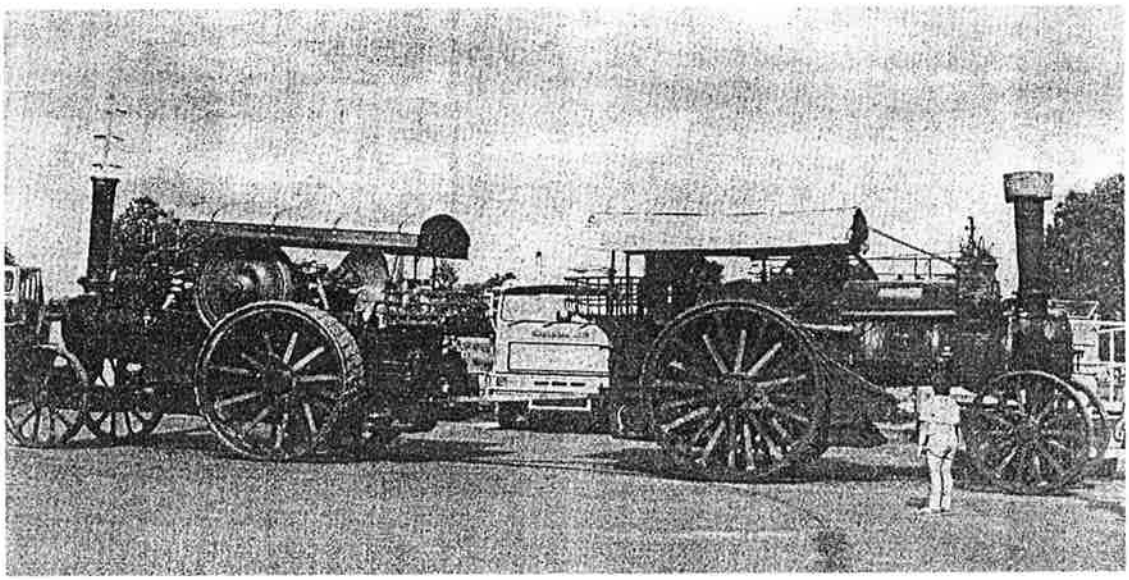
Mr Neil Hamblin 1977 (Father of Mrs Jeanette Nash)

In February 1939, Timbrebongie Shire sold the engine out of service to Mr Neil Hamblin of 'Avoca', Tottenham. Here the engine saw many years in land clearing, driving a chaff-cutter, and at one time sinking a large dam.



'Avoca' Tottenham, Chaff Cutter and Steam Engine

By 1951 it was dormant and not used again. In 1974, Mr Hamblin donated the engine back to Council and it was stored in council's works depot for a number of years, until an agreement was reached with Cr Peter Stickland to house the engine under cover at his Kulai Caravan Park museum with a similar engine that he had restored ex Wellington Shire Council. The B6 was hauled from the Council yards to the museum by Cr. Strickland's restored 1912 Fowler road locomotive in 1984.



Transporting the Engine to Kulai Caravan Park, 1984 (Source: Narromine News,12/11/84)

The locomotive remained there until June 1997. This was when the Kulai Caravan Park changed ownership and Mr Stickland left Narromine. At this time the engine was taken to the airport hanger and stored beside a Sabre jet fighter; making a strange set of bedfellows.

The engine was with other Council equipment in 2007.

A copy of the Fowler record for this engine has been annotated with the names McCutcheon, Lane and Hamilton and it was suggested in a letter to Council from the Powerhouse Museum (14 October 2004) that these were owners of the engine in the 1940s. No primary research evidence to support this suggestion has been forthcoming and in a note of discussions between Council's General Manager and Mrs. Jeanette Nash, Mrs. Nash (Neil Hamblin's daughter) indicated that "... there were no other owners of the locomotive..." other than the shire and her father up to 1974 (Nash, 19 November 2004). It is possible that those named may have been engine drivers, service people, or suppliers or that Hamilton has been incorrectly deciphered and should read Hamblin.

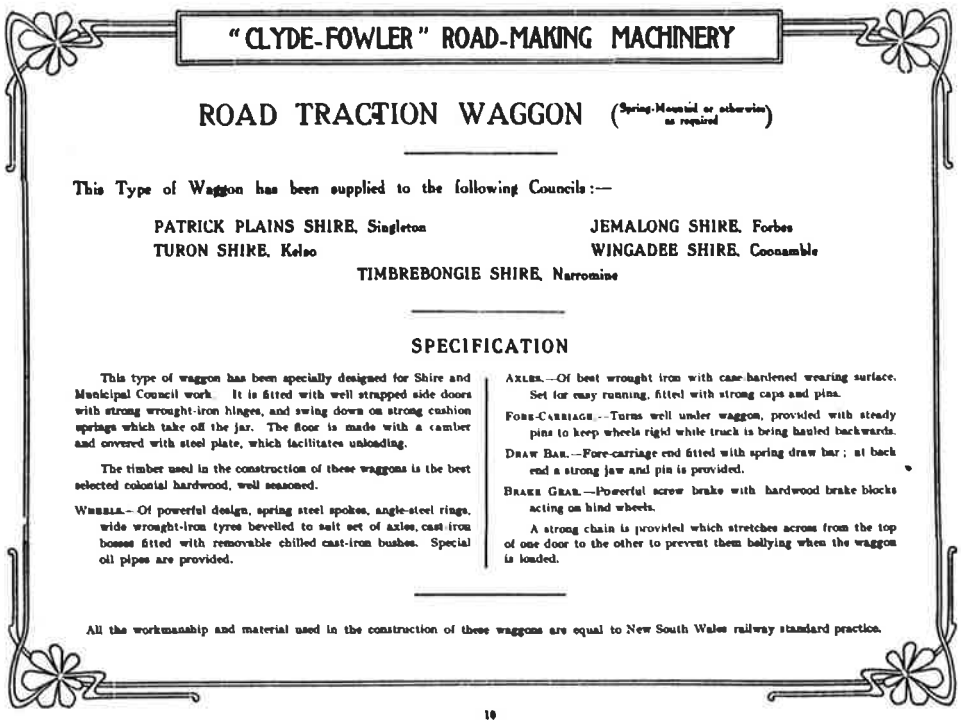
A contract drawn up in 1974 noted that "... as part of the donation ... the engine was never to be sold and that should Council wish to dispose of the machine, then it must first be offered to Parkes Shire Council" (Shire Matters, 2005). The background to this requirement is that part of the Nash family lived in Parkes and it was probably a way to keep the link with the Nash/Hamblin family.

The Narromine Clyde Fowler Traction Wagons

Very little is known about the six traction wagons purchased by Timbrebongie Shire with their 5 kW (7H.P) Compound Fowler Spring-mounted Special Road Locomotive back in 1907 (Clyde Fowler, 1911, p6,10,11)- this was the predecessor of the engine now out at the airport. It was later exported to the UK where it survives fully restored.

The Clyde Engineering Company, Sydney, who held extensive contracts with the NSW Government to manufacture steam locomotives, tramcars, railway passenger and goods rolling stock, built these wagons. Clyde Engineering was for many years closely aligned with John Fowler and Co, and supplied many engines and items of equipment in conjunction with them. Walter Noakes, the principal of the Clyde Engineering Co married into the Fowler family and was for many years the NSW agent for Fowler products, this agency passed on to the Clyde Engineering Co. on its formation. Clyde Engineering were also heavily involved in the construction and supply of road making equipment to local councils in Australia, and it is from a 1911 Clyde-Fowler Sales booklet that much information has been obtained.

These wagons were specially designed for Shire and Municipal Council work and it would appear were manufactured in three sizes viz 6, 8 and 10 tonne (ton) capacity with both sprung & unsprung bodies. The Timbrebongie wagons were sprung 10 tonne (ton) wagons and an extract of the original specification appears below:



"CLYDE-FOWLER" ROAD-MAKING MACHINERY

ROAD TRACTION WAGGON (Spring-Mounted or otherwise as required)

This Type of Waggon has been supplied to the following Councils:—

PATRICK PLAINS SHIRE, Singleton
JEMALONG SHIRE, Forbes
TURON SHIRE, Kelso
WINGADEE SHIRE, Coonamble
TIMBREBONGIE SHIRE, Narromine

SPECIFICATION

This type of waggon has been specially designed for Shire and Municipal Council work. It is fitted with well strapped side doors with strong wrought-iron hinges, and swing down on strong cushion springs which take off the jar. The floor is made with a camber and covered with steel plate, which facilitates unloading.

The timber used in the construction of these waggons is the best selected colonial hardwood, well seasoned.

Wheels.—Of powerful design, spring steel spokes, angle-steel rings, wide wrought-iron tyres bevelled to suit set of axles, cast-iron bosses fitted with removable chilled cast-iron bushes. Special oil pipes are provided.

Axles.—Of best wrought iron with case-hardened wearing surface. Set for easy running, fitted with strong caps and pins.

Fore-Carriage.—Turns well under waggon, provided with steady pins to keep wheels rigid while truck is being hauled backwards.

Draw Bar.—Fore-carriage end fitted with spring draw bar; at back end a strong jaw and pin is provided.

Brake Gear.—Powerful screw brake with hardwood brake blocks acting on hind wheels.

A strong chain is provided which stretches across from the top of one door to the other to prevent them bellying when the waggon is loaded.

All the workmanship and material used in the construction of these waggons are equal to New South Wales railway standard practice.

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Unfortunately, not much survives of the remaining wagon that is with the Fowler engine- just some of the larger iron and steel parts.

After consultation with various people, the ultimate fate of the six original wagons would appear to be that four survive in one form or another awaiting restoration or reconstruction with two still unaccounted for- it is felt that the chances of these having survived various scrap drives, while slim, are not impossible and it is strongly recommended that Council keep searching the district to attempt to find and obtain at least one of these wagons for display and conservation.

This is where council is in a fortunate position as the nature of its employees work ensures that they move over all roads and many properties in the area. Council should make it known amongst its staff that they are keen to learn the whereabouts of any

wagons, road making equipment, or engines for follow up by experienced persons who would be able to positively identify these items. As an aside this would be a good opportunity to start a local heritage listing as various machinery items are reported. The result of this in the long term is that Council could become owners of a very valuable and significant collection of early farm equipment.

Several Clyde traction wagons have been identified in various museums in NSW, all unrestored and mostly "wrecks" For example, the remains of a yet unidentified traction wagon is in the Gilgandra Museum that was quite possibly built by Clyde, there are at least three in enthusiast's collections in the Sydney area. A former Parkes resident has advised that he has one on his property at Dungog and knows the whereabouts of at least one other.

It is recommended that council consider seeking the assistance of traction engine enthusiasts who may be able to advise the locations of other traction wagons, and that council consider attempting to purchase a similar wagon or wagons that may be located in other shire areas rather than attempt a reconstruction of the remains of the Timbrebongie Wagon, which would be expensive.

It is noted that the Traction Wagon parts were, at some time, purchased by Angus Jones (a prior Narromine Shire Councillor) at a clearing sale and later donated to Council for possible use with the Fowler engine.

6. Investigate Significance

Note: An artefact database record for each of the items referred to below is included in Appendix C.

Heritage items are valued, not simply because they are old, but because they reflect the essentials of our culture (how we lived, what we did, and how we survived). They may be valued because they are associated with people, or groups of people who have made a significant contribution to our society and culture. They may have aesthetic or spiritual qualities or be a rare survivor of their class.(Heritage Office, 2004).

The previous section of this CMP detailed the historical context of this engine and other items with respect to their ownership and application to working in the Timbrebongie (Narromine) district. That history indicates a clear case for a high provenance of the engine, and the remains of the Clyde Fowler Wagons, to the district.

Fowler Class B6 Compound Rigid Road Locomotive No 16163
The specific detail of the original order placed with Fowler in 1925 for engine no. 16163 gives significant evidence to its occupational load – land clearing, heavy haulage and road construction.

However, an investigation into the existing fabric of the engine gives added clues that can be used to ascertain its actual workload.

In general, this engine still possesses most of its original fabric some 83 years after it was made. Some small components have been deliberately removed from the engine, apparently without authority. These items include the pressure gauge, the gear driven boiler feed pump, the whistle, and the lubricators. Although it is not beyond possibility that some items could have been badly worn or cracked by frost.

Some other components have been deliberately changed due to excessive wear to the point of potential breakdown. These items have been removed as a part of ongoing maintenance.

Components in this category include the final drive gear and pinions which have been replaced due to excessive wear. - possibly twice - over the service life of the engine. The degree of wear on these components gives a clear indication that a large amount of work done by this engine was over dirt roads, or virgin land. The sand, grit and mud helped to seriously abrade the gear teeth.

Worn out gears that have been replaced.

The engine was specifically ordered with a special drawbar 12.2 m wide (40') for use towing road graders. The concept was to develop a road surface in one pass – the engine pulling two road graders, and two manually operated ditch-ploughs at one time. Examination of the rear wheel hub lobes on which this drawbar was mounted shows almost no wear. Had the drawbar been used extensively then these lobes would show significant wear. The conclusion is that the drawbar experiment relating to the preparation of roads and gutters in one pass was unsuccessful due to poor control of the implements and was abandoned very early in the engine's life.

Evidence of Neglect

Whilst there is strong evidence to the fact that the engine was well maintained and reasonably looked after during its years of service, there is also a sad story of neglect evident in the engine's fabric, paintwork and lining-out.

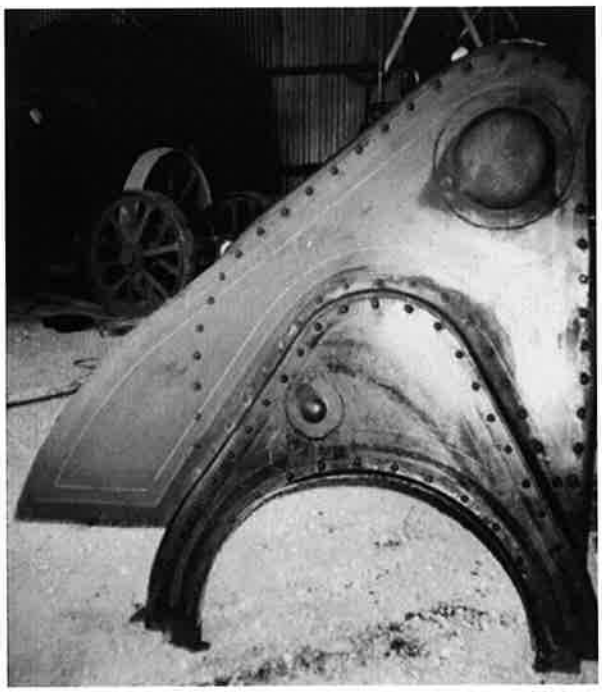
The historical record indicates that the engine was not used between the early 1950s and the present. We can assume that Council and Mr. Hamblin stored the engine undercover for protection when it was working, but we know that it was stored at Council's works depot between 1974 and 1984. Here, it was probably out in the open and at the mercy of the weather. Also, it is also possible that the engine was not fully protected whilst it resided at Cr. Stickland's museum from 1984 to 1997.

The consequence of a period of between 10 and 23 years virtually exposed to the weather has left its mark. Large areas of the original fabric have had the paintwork severely weathered and surface corrosion has left many items pitted and rusty. This deterioration seems to be worse on the left side. Some items, such as the 'spud pan'have rusted out and will need to be replaced.

There is also evidence of some accidental damage caused to the spark arrestor during transit operations.

Paint and Lining-out.
Traction engines and road locomotives were essentially workhorses for rural and Shire industry. They were therefore not generally presented as ornate and highly aesthetically pleasing pieces of equipment. However, even the most basic engines were painted and had some distinctive lining-out on them. Engines designed to be particularly attractive, as well as being workhorses, were those known as 'showmans' engines. These engines were typically used as power sources for circuses and carnivals. The bright colours, shining brass work and exquisite lining-out were designed to attract clients into the carnival.

The Fowler B6 at Narromine has some of its original paint work and lining-out still visible under the layers of dirt and grime.



Similar Gear covers showing original paint and lining-out.

This includes some of the original maroon base colour and some of the black/yellow/red lining-out around the tender, on the wheels, and on the motion and gear covers to the side of the cylinders. There is also some tarnished brass work on the motion covers. The perch bracket, smoke-box, chimney and spark arrestor were painted matt black.

The state and nature of the paintwork, brass work and lining-out is commensurate with the typical workload of an engine of this type, and the neglect that this engine has seen over intervening years.

Clyde Fowler Traction Wagon
To the north-east side of hanger no.1 at the airport lie the extant remains of a 10 tonne (ton) Clyde Fowler Traction Wagon. As noted in the historical context above, Council purchased six of these wagons in c1907and these are the remains of one of them.

Remains of the Clyde Traction Wagon at Narromine

The extant fabric includes the front and rear wheels fabricated from wrought iron, and the forged iron axles. There are four spring sets, two for the front and two for the rear. There is a long iron strap which probably went under the wagon from front to rear, thus transmitting towing loads from one end to the other. There is part of the turning ring. A few pieces of timber remain on the axles. No paint or lining-out is visible.

The remaining fabric for this Wagon does not add to an understanding of the relationship to the Fowler Engine, but it is reasonable to assume that this wagon with the five others was used to transport road building materials and equipment from site to site.

Existing Storage Facility

The Fowler B6 Locomotive is currently stored in hangar No. 1 at the Narromine airport. The hangar is dated at 1937 and is owned by the Shire Council. The building is timber/steel framed and clad in galvanised steel. It has three large doors on horizontal rollers on the northern side for access. The roof is portion of a circular arc – typical of aircraft hangars in the arched roof style. The floor is ½ concrete – ½ dirt, and the building has a few windows.

There are two rooms sub-divided in the space, one for storage and the other a washroom.

The building is quite substantial, but may be prone to flood-water entering under the doors during heavy weather.

The engine is stored in the eastern half of the hangar, and it shares the space with other Council implements (slashers, trailers, etc)

The building is normally locked and access is limited to people approved by Council staff. Arrangements need to be made to gain access to the building. There is no provision for access of the general public to the engine.

The building is well away from areas that would normally be populated with the general public, particularly, it is well away from the aviation museum which does attract the public.

It is considered by the authors to not be the ideal storage facility for the historic engine, although it is agreed that the engine is protected and secure in this building.

Ransoms, Sims & Jeffries Portable Engine

Located in the Council compound on Backwater Rd. are the extant remains of a small Portable Steam Engine. The engine was manufactured by Ransoms Sims & Jeffries (engine no. 18239). These engines differ from agricultural traction engines and road locomotives in that whilst they are on wheels they must be moved from place to place by horses, or towed by a traction engine, or other means. This engine is quite typical of steam engines used on farms throughout the nation as a portable power supply. These engines were gradually replaced by early paraffin/oil (diesel) engines from the turn of the 20th century.

Ransoms, Sims & Jeffries Portable Engine

It does not possess any technologically significant innovation, and many components are missing (such as the firebars, the bronze bearings, gauges, etc). Also, the fabric is in quite poor state, showing considerable rust and graffiti.

The provenance and historical record for this engine has not been assessed, but it is concluded that, for the purpose of this report the cultural significance of the engine is low on the Heritage Office grading system.

Reference to this engine is made here to indicate that if the cultural significance of this engine is low, then there may be the potential to use this asset, although owned by Rotary, as a means of collateral to support conservation work on the Fowler. This issue is taken up later in this report.

7. Assessment of Significance

Themes
National and State planning authorities have devised sets of historic themes as a convenient means of analysing the significance of heritage items. The degree to which an item can be proven to have contributed to these themes is one measure of that item's significance.

Australian Historic Themes Framework
The National Historic Framework is listed at Appendix 1, and with reference to that framework the Fowler Road Locomotive and the Clyde Fowler Traction Wagon can be assessed as having contributed to the following themes;

3.3.5	Laying boundaries – developing roads, lanes and fences
3.8.5	Moving goods and people on land
3.8.7	Building and maintaining roads
3.9	Farming for commercial profit
3.11.3	Irrigating land
3.11.4	Clearing vegetation
4.1	Planning urban settlements
4.2	Supplying urban services (roads, etc).

NSW Heritage Themes
Similarly the NSW Heritage Council has prepared a list of NSW State themes against which items can be assessed. The State themes are listed in Appendix 2. With reference to this list the Fowler B6 Road Locomotive and the Clyde Fowler Traction Wagon are assessed in terms of ways they have contributed to the State themes, as follows;.

Agriculture
Technology
Transport
Towns, suburbs and villages.

NSW Heritage Significance Criteria
The NSW heritage significance criteria encompass the four values expressed in the Australia ICOMOS Burra Charter, which are commonly accepted as generic values by Australian Heritage Agencies (NSW Heritage Office, 2001, 8). They are based on the criteria used by the Australian Heritage Commission and are in line with the standard criteria adopted by other state heritage agencies. For an item to be classified as having heritage significance it must possess one or more of;

historical significance
aesthetic significance
scientific significance
social significance.

In terms of the criteria the Fowler B6 Road Locomotive and the Clyde Fowler Traction Wagon should be considered as having historical significance due to their historical background. The Fowler Road Locomotive also possesses scientific significance as a fine example of a technological solution to the construction of roads and bridges and it also possesses a degree of social significance relating to the impact this technology had on the development of the local community. Without engines of this type the essential infrastructure of roads, the transport of construction materials and land clearing would have been much more difficult thus delaying the overall development of the district.

NSW Heritage Assessment Criteria

To ensure that items are judged consistently the NSW Heritage Council has published a set of assessment criteria for use by consultants and agencies. As with the significance criteria the assessment criteria are applied in such way that an item is considered to have significance if it can be shown to meet one, or more of these criteria.

These criteria are applied below;

Criterion (a) *An item is important in the course, or pattern, of New South Wales' cultural or natural history (or the cultural or natural history of the local area).*

This engine is of historical significance due to the fact that it was manufactured in the UK in 1925 to the specific order of Timbrebongie Shire Council. The Fowler B6 engines were not the bulk of traction/agricultural engines produced at the time and therefore fewer were imported into Australia. A survey carried out by the authors in an effort to determine the number of remaining engines in Australia has come up with a total of 4. However, there are small differences between the four.

Also, this engine has been little modified since it was built.

Criterion (b) *An item has strong or special association with the life or works of a person, or group of persons of importance in New South Wales' cultural or natural history (or the cultural or natural history of the local area).*

This engine has been associated with the Narromine Community from 1925 until it ceased work with the Council in 1939. Even then it was located on a farm within the district until it ceased useful work around 1951. In 1974 it was returned to Council ownership and it has been stored by Council since that time. It has therefore had an association with the district for over 80 years.

Criterion (c) *An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in New South Wales (or the local area).*

This engine has an aesthetic quality of its own when compared with other equipment of the period, but it is an industrial artefact and one built for functional rather than aesthetic appeal. It would not be generally considered to be an artistic item by the general community. However, many steam enthusiasts would consider that these engines had a beauty all of their own, not unlike the appeal of steam railway locomotives of the period.

From an engineering viewpoint especially this engine is significant as it is a good example of what would have been considered cutting edge technology when it was built. John Fowler & Co had an enviable reputation as constructor's of Traction Engines and Steam Equipment, and although there were at least several major manufacturers of Traction Engines this company had the lion's share of the Australian market. This engine was ordered with an unusually wide drag beam (12.2 m) to assist in road

construction. It also had a number of other unique features for an engine of this period including ramsbottom pistons, 610 mm (24") wide rear wheels for soft ground, a Pickering governor, and special sand caps. It is unusual in that it does not have brake gear, or a front (belly) water tank.

Criterion (d) *An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.*

This engine and the 10 tonne (ton) Traction Wagons towed by it were used for heavy haulage (road base materials, etc), road construction, farm work and general transport. It was instrumental in opening up the lanes and roads of the district and therefore contributed to the development of the district pastorally, and agriculturally, also the growth and development of the local towns by expanding and consolidation the road system in the district.

Criterion (e) *An item has potential to yield information that will contribute to an understanding of New South Wales' cultural or natural history (or the cultural or natural history of the local area.*

This engine has the potential to help the community understand part of the industrial and cultural history of the Narromine region as it contributed significantly to the development of the towns and farms in the district and therefore the culture that is country towns.

Criterion (f) *An item possesses uncommon, rare or endangered aspects of New South Wales' cultural or natural history (or the cultural or natural history of the local area).*

Enqines of the B6 type are extremely rare in Australia, and are even rarer in the UK where they were built, though interestingly enough the two engines ordered in the same batch as the Narromine engine survive in preservation. One is in private ownership in Australia, and the other is located at the National Museum of Australia, Canberra.

Members of the Steam Road Locomotive fraternity in NSW tend to agree that this engine is one of its type in the world due to the specific features that were part of its original order from Fowler's in the UK.

Burke & Norris have produced a comprehensive list of steam traction engines, ploughing engines, road locomotives, portables, etc remaining in Australia. They list 128 remaining engines of all types made by Fowler (pp15-17) and of these only 5 are listed as 10 NHP Traction Engine/Road Locomotives. Of these 5, only No. 12754 and the Narromine engine No. 16163 are two speed engines. Burke and Norris list nearly 1000 engines remaining in Australia with just 4 others equivalent to the Narromine engine.

Criterion (g) *An item is important in demonstrating the principal characteristics of a class of New South Wales' cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments)*

The engine does not appear to meet this criterion.

Representativeness

This engine is a fine example of steam road locomotives that were used throughout the nation to transport heavy loads. They essentially took over from the bullock team/wagon and were finally displaced by the modern diesel truck. This type of engine was also used for road construction on both major highways and minor roads thus helping to open up the country to farm life, towns and agricultural enterprise. This particular engine was also used for a period of time on farm activities such as chaff cutting, etc, but not ploughing as it is too heavy and not suited to this type of work.

Integrity

This engine has a very high degree of integrity. Some of it exhibits its original finishes and it is almost complete, although not working. It shows clear evidence of its use during its working life. However, there is also reasonable evidence of a period of neglect leading to deterioration in some items and surface treatments (painting, etc).

NSW Heritage Gradings of Significance
To provide a uniform basis on which criterion can be evaluated the NSW Heritage Council provides a set of gradings that can be applied to each of the assessment criteria. These gradings enable clear judgements to be made on the degree of significance an item will have in respect of each of the heritage significance criteria.

The Gradings of Significance are as follows;

5	Exceptional	A rare or outstanding element,
4	High	A high degree of original fabric,
3	Moderate	Possesses altered or modified elements,
2	Little (low)	Alterations detract from significance,
1	Intrusive	Damaging to the item's significance.

Assessed Significance
In general the NSW Heritage Office guidelines set out the steps to be followed in determining the heritage value of an item (record, document, analyse) and give criteria for assessment of the item. Broadly speaking these indicate that:

- Significance can be at various scales, from local to international
- Items may have historical, scientific, aesthetic and/or social heritage value
- Items can be graded in terms of heritage significance from intrusive (1) to exceptional (5).

The Grading determined from this scheme is that the Fowler B6 Road Locomotive has a very high grading of historical and social significance at least at State level if not nationally. It also possesses a high degree of provenance and integrity.

The extant remains of the Traction Wagon are considered to have a low-moderate grading of significance at the local level.

Summary Statement of Significance
The Fowler B6 engine is a rare (1 of 4 remaining in Australia) and excellent example of one of the largest types of steam driven road locomotive ever made.

It was specifically ordered from the manufacturers by Timbrebongie (now Narromine) Shire in 1925 and, except for a period when owned by a local farmer, it is still in the Shire's possession. It was used to clear land and construct roads throughout the district in the period 1925 to the 1950s.

It has historical association significance as it is an engine that was used by and for the local community, and its output was such as to assist in the development of the area physically and economically.

It is significant because of the fact that it has been little modified from its original form, and it is almost a complete unit. It possesses a very high level of physical

integrity and provenance. It represents the pinnacle in large steam road locomotive development before their replacement with internal combustion engines

8. Heritage Listing

Current Listings
The Fowler B6 Road Locomotive is not listed on the Narromine Local Environment Plan.

It is not listed in the State Heritage Register.

It is not listed on the Register of the National Estate.

It is not registered on the National Trust Register.

Local Environment Plan
In consideration of the case developed in Section 7 it is strongly recommended that Council agree to list the engine on Council's LEP. Such a move would strengthen the legal status of these items as (a) Council property, (b) a valuable cultural asset, and (c) items that require a budget for ongoing 'operational' support.

State Heritage Register
It is strongly recommended that Council make a submission to the Heritage Council for listing of the items on the SHR. The advantages to Council of having these items listed on the SHR would include

(a) official recognition of the high degree of cultural significance to the people of NSW
(b) some degree of legal protection under the State Heritage Act
(c) access to heritage funding for conservation of the items.

A completed draft copy of the Nomination form is enclosed with this report. Heritech Consulting is prepared to make this submission to the Heritage Council on behalf of Council should Council instruct.

Register of National Estate
In the event that Council makes a successful nomination for the engine for listing on the SHR it is recommended that an approach be made to the Commonwealth Heritage Department nominating the items for inclusion in the Register of the National Estate.

9. Management of Significance

External Constraints
There appear to be no external constraints on the Fowler B6, or the Traction Wagon parts that would restrict their preservation, restoration or reconstruction.

The items are each in the possession of Council, and on Council property. Although the actual ownership of the Traction Wagon parts may have to be clarified.

Requirements for Retention of Significance
The absolute minimum requirements for the retention of significance would be for the Fowler Engine to be left undercover and treated with suitable processes to ensure long term preservation.

The parts of the Traction Wagon would be collected from outside hanger no. 1 at the airport and moved into the hanger with the Fowler engine. These parts would be treated with suitable processes to ensure long term preservation.

However, the end result would be that the engine would remain a liability to Council and its heritage value lost to the broader community.

The principal recommendations in this Conservation Management Plan for these two artefacts is for the Fowler B6 to be made operational, with minimal reconstruction and for Council to locate, purchase and reconstruct a Clyde Traction Wagon from outside the shire (or to reconstruct using the existing parts). Details of the recommendations and how they are to be carried out is given in section 11 of this report - Conservation Recommendations.

Feasible Operations
It is argued later in this report that the most feasible operations relate to getting the engine working, by carrying out repairs to the boiler, gaining a boiler certificate, and replacing missing parts with some acquired from external sources.

This strategy is seen as leading to the most desirable state for conserving the cultural significance of this Engine. It will also provide Council with an asset that could be used to increase the tourism potential of the town.

Likewise with the Traction Wagon parts. These should be conserved, and if at all possible either reconstructed, or another, less deteriorated wagon should be located and restored as a working adjunct to the engine.

Storage
It is recognised that the existing storage of the engine and wagon is really not satisfactory for the ongoing preservation of the cultural significance of the Engine and Wagon. The current location is seen as far from an ideal location for storage or any form of effective maintenance. Also, the current location for storage makes it almost

impossible for members of the community to have access and to be able to appreciate the engine for its size, and capacity to have done work within the district. Consideration needs to be given by Council to the provision of a dedicated storage facility, preferably in a position such as the railway station precinct. Such a facility would ensure security, an effective storage environment, and access to the public. More detail on this aspect of the Engine is given in Section 11 – Conservation Policy and Recommendations.

10.Legal Requirements

Legal Frameworks
All work done on the Engine and Wagon is to be carried out in accordance with relevant clauses within the;

- ICOMOS (1999) *The Australia ICOMOS Charter for Places of Cultural Significance.* Australia ICOMOS:
- ICOMOS (2002) *International Cultural Tourism Charter.* Australia ICOMOS:
- Local Council planning instruments – including local and regional environment plans, development control plans, etc.
- NSW Government (1979). *Environmental Planning and Assessment Act*, State Environmental Planning Policies, etc.
- NSW Government (1977) *Heritage Act* – including State Heritage Register, Interim Heritage Orders, S136 Orders, relics provisions, minimum standards of maintenance and repair and S170 Register requirements.
- NSW Government (2001) *Occupational Health and Safety Act.*
- TICCIH (2003) *Charter for the Identification and Protection of the Industrial Heritage.*

Safety Framework
There will be a need for Council to set up a safety framework that will cover the reconstruction, operation, storage and maintenance of the Engine and Wagon. The principal requirements will include;

a) Risk Management guidelines which;
- cover risk management processes suitable for the safe operation of the engine and are subject to regular audit.
- demonstrate that all reasonably foreseeable safety risks are identified and managed effectively.

b) Human Factors
- include an understanding that human error is probable and that systems will be designed to complement human error.

Regular audits of safety policy and procedures would need to be undertaken to ensure compliance and to enable policy changes to be made to meet current work requirements.

Occupational Health and Safety
General Safety - All preparation, works, and finishing processes carried out on the Fowler B6 and the Traction Wagon are to be executed by complying with the terms of the current Occupational Health and Safety Act (NSW) and its relevant Regulations. All people employed to carry out works are required to hold a current WorkCover (NSW) General Induction training certificate, or other relevant certificate. Volunteer labour engaged to carry out work on the items must be instructed on safe work

practices by Council or its nominee.

Heavy lifting - operations related to work on the engine where heavy items are to be lifted and manoeuvred are to be carried out using approved heavy lifting equipment, of the correct capacity, and in accordance with the relevant Act/s and Regulations.

Scaffolding - Safety approved scaffolding may need to be erected on the site to an approximate height of 5 m to enable access for work to be carried out over the engine. Alternately a suitable 'cherry picker' platform could be used.

Personal Protective Equipment - All people working on the site are to provide, and wear, the appropriate personal protective safety equipment including heavy boots and eye protection.

Paints - Some of the paints in which the engine is currently finished may be of high lead content. Pre-1970s metal primers may have been based on red or white lead, and finishing coats may have lead based pigments in them. Appropriate safety measures need to be taken, and proper PPE worn by persons likely to be subject to dust, whilst working on the project. Information on lead removal is available from the Australian Paint Manufacturers Federation or the Environment Protection Authority.

Asbestos - It is not uncommon for steam powered machinery of the period to have the boiler and external piping insulated with a rope or sheet material containing asbestos. Careful inspection of the Fowler B6 by the authors has determined that boiler cladding/insulation on this engine was of timber, and external pipe-work was either left uncovered, or lagged in hemp. Piston and valve gland packing will need to be checked before removal for the presence of asbestos.

Welding - All welding (gas, electric arc or MIG) carried out on the engine is to be performed by suitably qualified persons. In the case of welding the boiler this work is to be performed by a person currently certificated to weld pressure vessels.

Boiler Testing and Inspection - any work done on the boiler relating to testing or inspection for certification is to be carried out by a person currently certificated and authorised to inspect pressure vessels. Any hydrostatic or steam test carried out on the boiler is to be witnessed by at least one other person.

Insurance

To protect the interests of staff and volunteers, and the viewing public, sufficient insurances will be essential. Council would need to provide for public risk cover, personal accident voluntary workers cover and workers compensation policies as a minimum

11.Conservation Policy and Recommendations

Note: Definitions for the conservation processes of restoration, reconstruction, preservation and adaptation are provided in Volume 2 of this report.

Policy on Original Fabric
The general principal to apply regarding the replacement of original fabric on the Fowler Road Locomotive and the Traction Wagon parts is that, wherever possible, the original fabric is to be used in whole or part, changing as much as necessary but as little as possible. (Burra Charter, 1999, Article 3.1).

Where damage to a part of the original fabric is evident then the decision to replace that part should be made with a view to replacing the least amount of original fabric as possible. Assuming a piece of boiler cladding is badly corroded in one corner. The options may be to replace the corner, or to replace the whole piece. Where circumstances permit, the replacement of the corner would be the preferred option. However, should there be corrosion in two opposite corners, and some across the sheet it could be preferable to replace the whole piece.

Policy on New fabric
Where new fabric is used to replace original fabric, it should be as close to the original material as possible. The roof timbers are badly weathered, split and rotted and assuming they were made of tongue and grooved Baltic pine. They should be replaced with the same species, or a species similar to the original. The tongue and grooving in an engine of this period would have been machine done, and so it would not be necessary to have new boards hand done. There are times when the original material and the original processes might be required in a restoration project. In a mid nineteenth century house the skirting boards would have been hand made with a specific moulding plane. Replacement material may be available, but machine moulding may not be an option, therefore hand made mouldings may be the only solution(Burra Charter, 1999, Article 4.2).

New fabric is to be identified by stamping the month and date that the new fabric was applied to the artefact, into its surface i.e. 2008, thus distinguishing original fabric from new fabric.. This can be achieved on timber as well as metal components by using large size stamps (say 12mm).

Policy on Removed Fabric
Original fabric that has been removed from the Engine, or Wagon is to be photographed, catalogued, preserved and safely stored so that reference can be made to this fabric in future years. (Burra, 1999, Article 33). This includes the replacement gears, and other replacement parts that are in hangar no. 1 at this time.

Replacement of parts required for the mechanical efficacy of an item should be of the original, or similar material. Often the function and material of a part used in mechanical devices dictates the manufacturing method. In most cases these processes

are available and should therefore be used. A cast iron gear with a missing tooth might have the tooth repaired by keying in a new tooth, or a new gear may have to be cast at a foundry to replace the original.

Policy on Original Paint and Lining –out

As noted in Section 6, this Engine exhibits evidence of its legitimate use over a period of some 25 years. But, unfortunately it also exhibits clear evidence of the deterioration of original surface finishes caused by a period of between 10 and 20 years of neglect. This neglect has resulted in original paintwork being affected by sun, wind and rain to the point where in many places no surface finish remains (smokebox door, etc), or portions of a component may have some surface finish visible (tender, wheels), and places where some reasonable example of original surface finish remains (motion covers).

These facts have resulted in a complication with respect to developing an appropriate conservation policy for the engine. It is clear that to retain all the engine's existing surface finishes in terms of full 'restoration' is not practicable as there are many areas where no such coatings remain (even the original fabric shows damage from this neglect).

Mr. Andrew Grant, Senior Curator of Transport and Technology at the Powerhouse Museum was able to suggest two potential methods for retaining the existing paintwork (where there is some) on the Engine underneath a new top coat of paint. Both rely on water soluble glues and barriers between the existing paint and the new paint/lining-out. The barrier for one system is mylar film, the other is Japanese tissue. Whilst these systems seem quite practical and feasible, the authors have decided to discount both on the grounds that (a) they are designed mostly for small items - pieces of art in the latter case, (b) the 'film' in each case is not heat resistant and therefore not viable for a steam road locomotive that is in working order - hot, steamy and greasy and (c) neither system would survive treatment where abrasion, scratching, etc might occur - as in a working engine.

This leaves the best option to be a compromise between retention of some surface coating (preservation), and reconstruction (the provision of new paint and lining – out).

The position taken by the authors is that to maximise the asset potential for the Council and the Community it will not be enough to leave the engine 'as is' or preserved, but it will be essential to retain some degree of original surface finish, on an engine that is to be restored/reconstructed. To this end, the retention of certain parts, cleaned and polished with their original finish will be recommended.

It may be a more cost effective and practical process to contract the construction of a timber model of this engine that could be painted and lined-out just as this engine would have been the day it left the UK works. Such a model would then be exhibited in the same place as the Engine and Wagon for public perusal and comparison.

Conservation Recommendations
The following recommendations are to be read in conjunction with the *Scope of Work* presented in Volume 2 of this CMP. The *Scope of Work* are designed to indicate the condition of various parts of the artefacts, processes for the conservation of parts, and to outline the potential work and cost involved in achieving recommended states of conservation in accordance with the Burra Charter. It also provides a potential operation manual for the engine.

The predominant principal here is to preserve for future generations the cultural significance of this Engine, and the Wagon, and at the same time to maximise the strategic potential of the items to the benefit of the Narromine district.

Fowler B6 Road Locomotive
Principal Recommendation 1 *That the engine be restored /reconstructed to a state commensurate with its first few years of working life. That is, restored to working order, with some parts reconstructed to ensure it is operational, with particular care taken to the retention of as much original fabric as possible and some original paint and lining out. That is, to present the Engine, not in 'showroom' condition, but as it would have been early in its working life.*

This recommendation is made on the condition that the existing boiler can be repaired sufficiently to gain a boiler certificate.

It should be noted that a recommendation to restore the engine to a condition typical of its last days of working life was seriously contemplated by the authors. However, the very fact that this engine has had a long period of neglect whereby it was exposed to the elements for many years made this recommendation problematic. The period of neglect has removed original finishes, signs of wear and tear and other evidence of its history of use. The engine today is therefore not as it would have been at the end of its working life. This therefore makes full restoration impractical, and the restoration of some parts together with reconstruction of others (including finishes) much more viable. It is also argued that this approach will produce an artefact that is more acceptable to the community as a show piece.

This recommendation is in line with Burra Charter Articles 1.8 and 3.1.

It should be achieved by;

(i) Urgently repairing, before the engine is moved at all, the right rear main bearing (photographic image, 000-0079).
(ii) Removing the boiler tubes, and an assessment of the boiler by a boiler inspector (photo image, interior).
(iii) Carrying out essential maintenance to allow protected storage of the engine and a capacity for it to be safely moved from place to place.
(iv) Replacement of missing functional parts with original parts, original brand parts, or with replica parts, to return the engine as close to its original specification as possible.
(v) Repair of the boiler to a standard required to gain certification, if necessary to as low a working pressure of 700 kPa (100 psi).

(vi) Restoration of the steam and water connections to original specification.

(vii) Preservation of the original external fabric, and reconstruction of fabric where essential, such as on the canopy. Burra Charter Article 1.8..

(viii) Preservation of the existing original motion (image DSC-1491)and gear covers (image, Fowler lining 1)and flywheel paint work and lining-out, by cleaning with a degreasing agent, drying, and applying a non-abrasive protective finish such as a hard wax.

(ix) Preparation of any bare iron/steel that is unpainted, or where paint is not present by wire-brushing loose and flaking rust, degreasing and coating with a suitable corrosion resistant primer and paint of original colour

(x) Preservation of the existing bright (unpainted) moving parts of iron/steel by thorough cleaning, polishing, and coating with heavy duty grease.

(xi) Preservation of the existing brass/bronze by cleaning with degreasing agents, drying, and waxing with a hard wax compound.

(xii) Reconstructing the original form of lining-out in colours as close to the original as possible.

(xiii) Wrapping the front and rear wheels with thick conveyor belting to soften the impact of the engine on the roads.

(xiv) That a program of ongoing maintenance be adopted to ensure the long term protection of this engine in working order.

More detail relating to this priority is provided in Volume 2 of this report.

The outcome from this approach to the conservation of the engine would result in an operating machine looking like the Fowler Engine owned by Mr. McLucas shown below;

In the event that the investigation of the boiler condition for the Fowler proves the need for very extensive repairs or the replacement of the boiler then it will be a matter for Council to decide whether the work should be done.

Principal Recommendation 2. *It is recommended that in the case that very extensive work, or replacement of the Fowler boiler is necessary, that Council move to have this work done with the aim of returning the engine to a state commensurate with its arrival at Timbrebongie Shire. That is, replacement of the boiler, restored to working order with fabric, paintwork and lining-out reconstructed to original (Burra Charter, Article 1.8).*

It is a fact that if the engine's boiler has to be replaced then the engine would need to be almost fully dismantled. Consequently it would be at this stage that a full restoration of the engine should be undertaken, with only essential reconstruction carried out.

This would be achieved by;

(i) Recording the specific detail of the original lining out, paintwork and fittings.
(ii) Replacement of missing functional parts with original parts, original brand parts, or with replica parts, to return the engine as close to its original specification as possible.
(iii) Stripping the engine completely to remove the original boiler.
(iv) Reconstruction of the boiler. In terms of the boiler and its original construction method, there have been significant changes over the years. Access to hot riveting is very limited due to the loss of skills. Therefore it is recommended that any new boiler should be of welded steel construction to ensure a long service life. With respect to Heritage Locomotive 3801 welding rather than riveting was adopted as a realistic compromise. The riveted inner firebox was life expired so a new welded inner firebox was designed to replace the existing.
(v) Restoration of parts that have no damaged fabric, and the reconstruction or replacement of parts that show worn or damaged fabric.
(vi) Re-assembly of the engine, adjustment and testing (mechanical, hydrostatic tests, steam tests).
(vii) Preparation for painting, coating with corrosion resistant primer, and recommended final coat.
(viii) Renewed lining out to the same specifications noted in (i) above.
(ix) Wrapping the front and rear wheels with thick conveyor belting to soften the impact of the engine on the roads.

More detail relating to this priority is provided in Volume 2 of this report.

The outcome from this approach to the conservation of the engine would result in a machine looking like the restored Fowler Ploughing Engine (item B2265) at the Powerhouse Museum (Castle Hill) shown below;

Fully restored 1889 Fowler Ploughing Engine, Powerhouse Museum

For other examples, refer also to images Dreadnought 2, Powerhouse Roller 1 and 2 from the photographic record in Volume 1, Appendix D.

That a program of ongoing maintenance be adopted to ensure the long term protection of this engine in working order.

Principal Recommendation 3 *That where Council finds that it is not able to support extensive boiler repair, or boiler replacement, then it is recommended that the engine be set up for long term preservation (moth balled) in accordance with the Burra Charter, Article 1.6.*

That a program of ongoing maintenance be adopted to ensure the long term protection of this engine even though it is not in working order.

More detail relating to this priority is provided in Volume 2 of this report.

The outcome from this approach to the conservation of the engine would result in a machine looking somewhat better than the preserved McLaren Traction Engine (item B1498) at the Powerhouse Museum (Castle Hill) shown below. This is because the Narromine engine would be cleaned, degreased, the brass and steelwork polished, and the paint and metal preserved with suitable protective coatings. It would be only a static display.

Preserved 1904 McLaren Traction Engine. Powerhouse Museum

The authors note that this is the least desirable outcome for this asset and it should be adopted **only where there is no other possible alternative**.

Clyde Traction Wagon
That Council move to determine the actual ownership of the component parts of the Traction Wagon located outside the Hanger at the airport.

That Council arrange for the various parts of the wagon lying outside the hanger to be placed under cover with the Fowler engine for their further preservation.

That Council do all in its power to locate one of the original six wagons in reasonable condition and purchase this reconstruction and exhibition with the Fowler engine.

That, if one of the original Timbrebongie Wagons is not able to be located or purchased, then Council locate and purchase a similar Clyde Traction Wagon.

That Council commission the reconstruction (Burra Charter Article 1.8) of a wagon using the existing remnants and using local resources of TAFE, or similar as an alternate strategy.

Ransomes Sims & Jeffries Portable Engine
The assessment of the cultural heritage of this portable engine to the Narromine district has not been a part of this study. However, it is recognised that the engine is in very poor condition, with several parts missing or badly corroded, and it is likely that its provenance is not well documented.

It is recommended that negotiations be undertaken between Council and the Rotary Club (owners of the Ransomes Sims and Jeffries portable steam engine located in the Council yard) with a view to the use of this engine as collateral to assist in the restoration/reconstruction of the Fowler engine.

However, in the interim it is recommended that it be moved from the Council compound and stored with the Fowler engine in the airport hanger.

It is strongly recommended that if this engine is put up for sale that only reasonable offers be considered. The assistance of Steam Preservation Society members should be gained to determine a suitable offer price.

Alternately, it could be preserved and left on display in Dundas Park, Narromine.

Housing

Principal Recommendation 4. *Irrespective of whether Principal Recommendation 1, 2 or 3 is finally implemented, the authors strongly recommend that a purpose built exhibition facility (storage) be built for the Engine and Wagon, preferably in the area of the Railway precinct to provide a secure location, accessible to the general public.*

That the Fowler Engine, and the remnants of the Traction Wagon, be brought together and housed in a suitable building. This building to be secure, structurally sound, specifically dedicated to the conservation of these items, weatherproof, and if at all practicable, accessible to the general public at suitable times.

Location

Consideration has been given to potential locations for a permanent new storage facility for the engine and a 10 ton Clyde Fowler Traction Wagon (if located or reconstructed) in conjunction with Mr. Christo Aitken, Heritage Adviser to Council. It is recommended that one of the following three potential locations be used to house the Engine and Wagon.;

A location in the Railway precinct in the centre of town. This is considered to be the priority one location.

On land near the Museum (historic courthouse) in Burraway St.. This is considered to be the priority two location.

A location at the Showground. This is considered to be the priority three location.

The association of the Engine and Wagon with the Airport Museum is not considered to be appropriate. Whilst the engine and aircraft are common elements of transport, there are considerable differences. These differences are seen as sufficiently great to make a close association of the two improper.

Access

Community access to movable heritage is important because it helps people to understand and maintain cultural traditions and practices. It also encourages the conservation of significant movable items. (Heritage Office, 2000, p4).

Narromine Shire Council has important pieces of industrial heritage that needs to be seen as an asset, rather than a liability. To have these items locked away in a hanger at the airport would contribute to their long terms preservation, but it would not enable the asset value of the items to be maximised.

Around the state there are quite a few places where historic machinery is operated and displayed to the general public and these displays draw large numbers of local and tourist people who are fascinated by them. Examples of this include Wellington Council's antique fair, Maitland Steamfest, Campbelltown Steam Museum, and the many railway preservation societies, such as Thirlmere, the Zig Zag and the Lachlan Valley Railway. These displays/fairs contribute significantly to the local economy, and supplement local tourist enterprise.

The Narromine B6 Fowler should be seen as having some, if not a lot, of the potential of the groups mentioned above. *Particularly if the engine is in working order, as per principal recommendation 1 on page 39.*

It is recommended that, at the very least, this engine should be made movable (as distinct from being in working order) by carrying out the essential maintenance detailed later in this report, and housed in a building where public access is easily achieved. It seems to us that association with the Aerodrome Museum is rather incongruous. The engine etc would be better housed in a purpose building within the environs of the CBD. However, should another option not be available, then part of the Airport Museum space could be suitable.

12.Implementation Strategy

Consultation
The conservation process, once decided upon by Council, is to be managed by Council staff. It is to be carried out by Council staff with technical expertise, or by nominated volunteers under the guidance of Council staff, or work is to be contracted to appropriate Companies.

The process is to be monitored by a competent and qualified heritage professional. Ideally this should be an industrial archaeologist, a heritage consultant with expertise in industrial heritage, or a heritage adviser with expertise in industrial heritage. Some knowledge of steam based machinery would also be helpful.

Council should be charged with the responsibility to engage the heritage professional at stages in the process where specialist advice is required. Typically this could be at the start of new phases in the conservation process, or on advice from those involved with carrying out the required work.

Volunteers
Whilst cost is not the province of the authors, it must be stated that work completed under set contract is likely to be expensive. The authors recognise this and suggest to Council that serious consideration be given to the use of volunteer labour to carry out much of the conservation work.

There are numerous members of historic preservation co-operatives who have the skill and time to work on projects such as the Narromine Fowler. An approach to the Lachlan Valley Railway group (Cowra), the Rail Transport Museum (Thirlemere), or the Steam Preservation Co-operative (Menangle) or other such groups would almost certainly lead to a list of potential volunteer workers.

Council would, of course, need to put in place some guidelines, safety requirements, and insurance cover for volunteers engaged on this type of task, however, it is likely that these are already a part of Council's management practices.

It is therefore strongly recommended that a suitable volunteer be engaged as a type of honorary caretaker for the conservation work. That such a person has had extensive experience in working on and running steam operated Traction Engines/Road/Rail Locomotives.

That such a person is charged with the responsibility of reporting progress to Council on a regular basis.

External Support
It is recommended that Council make a formal approach to Austral Engineering in Liverpool, NSW with a view to gaining their professional and financial support for the conservation of the Fowler engine.

This engine, and probably the Traction Wagons, is known to have been handled by Austral, as an Australian agent, for Fowler. It therefore forms part of the historical record of Austral Engineering.

The Company might well acknowledge this fact and may be prepared to provide technical support, it may be able to provide (or at least locate) replacement parts, and it may be prepared to assist financially with aspects of the conservation process.

Interpretation

The interpretation of significant heritage items for the benefit of the local community and the general public is an important component in the conservation of heritage items.

People are generally keen to know about heritage items, and they need to be informed about the item, its use, its background and particularly the people involved with the item.

When this is done effectively, people are more likely to accept the costs associated with maintaining a heritage item, and they gain a better understanding of their own community and its past.

To this end many Council's throughout the state have developed interpretative plans for the heritage items in their care. These are another attractive feature of the town-scape which whets people's interest.

It is recommended that Council commission a person competent in heritage interpretation to develop a set of interpretative signs that will explain the significance of the Engine, and the Wagon (if reconstructed) to the community over its 30 or so years of active use for the community. One sign should be attached to the engine, and others attached to the building in which the items are housed.

It is recommended that a small brochure be produced that could be distributed via the Information Centre, motels and clubs for the information of tourists and locals. This would give a background to the engine, an insight into its operation , some notes on its conservation, and details of its location.

Archival Record

It is recommended that Council commission an archival record to be prepared detailing the conservation process. All work on the engine, and Wagon (where relevant) should be recorded on black and white film, as well as colour film (not on digital images) in accordance with the Heritage Office Guidelines "How to prepare archival records of heritage items" (Heritage Office, Parramatta, 1998).

The archival record is to be lodged with the local studies section of the local library, with a copy held where the engine is housed.

Such a record will enable future researchers to determine exactly the works done on the items, and it will be an informative historical document.

Report – Public Access

It is recommended that this report, once deliberated on by Council, is placed in the public arena so that it may be accessed by interested members of the community. That is, one copy should be placed in the Local Studies section of the Narromine Shire Library.

13.Asset Management Guidelines

Asset Value
In several places in this report reference has been made to the value of the Fowler engine as an asset to the community (p12, 32, 33, 38 and 45). Mostly the reference focuses on the cultural value of the engine, but it must be recognised that this engine possesses quite a considerable monetary value as well.

It must be noted that Wellington Shire Council paid some $70k to purchase their engine some years ago.

It is also important to note that *fully restored* engines of much *less rarity* than the Fowler owned by Narromine go for auction overseas for anything between $250 - $500k.

Clearly there is a range of value based on the make and type of engine, its rarity, and its condition just as there is within the second hand car market.

Whilst Narromine is unlikely to try and realise the monetary value of the engine through sale, we need to recognise that spending some $80 - $100k on the 'restoration' of this rare engine is indeed worthwhile, and would in no way overcapitalise the asset (it merely reflects the costs paid by Wellington to gain an engine).

Estimated Conservation Costs
Much thought has been given to attempting to calculate how long the restoration of the engine may take. In the end, and regrettably, it appears to be almost impossible to do so with any degree of accuracy- there are simply, too many variables with any restoration of this type. One bolt may take but a minute to undo while the next may take an hour. Likewise the potential for additional unplanned work always exists as parts are removed for examination and repair.

Likewise, the accurate assessment of the cost of missing parts, or the repair of existing parts is difficult to ascertain with any degree of certainty.

Then there is the cost of labour, it is difficult to postulate the rate that one type of trade may cost vis-à-vis others. The estimates given are based on a figure of $60 per hour. The authors consider that Council's best option to minimise labour costs is to utilise volunteers as much as possible under the leadership of a competent person who may also be a volunteer.

Some assessment of the expected times for tasks to be undertaken, and some estimates for the expected cost of restoration are provided in the Scope of Works (Volume 2), but these must be seen as guidelines only. More accurate assessments must be made as different phases of the conservation are planned and implemented.

In summary however, it is expected that the restoration/reconstruction costs for the engine in line with ***Principal Recommendation 1*** would likely be in the order of $50k

- $80k if everything is done by contractors. Please note that the time estimates are broad brush estimates and these could vary widely.

Should the restoration/reconstruction need to be in terms of ***Principal Recommendation 2*** it would be realistic to consider a figure of $50k – $80k plus the cost of the new boiler as quoted by E.R. Curtain (Appendix G) of $40k and transport costs, say $5k. All up somewhere between $95 - $125k, less if volunteer labour is used.

In terms of ***Principal Recommendation 3*** the costs should be under $10k.

These figures do not include the cost of a special purpose exhibition building in which to house the engine and Traction Wagon.

Short Term Monitoring

Short term monitoring is meant to relate to the supervision of the processes of restoration, preservation or reconstruction as outlined in the CMP recommendations and adopted by Council. It is anticipated that monitoring take place at the completion of important stages in the conservation process – such as after the right rear main bearing repair, after the boiler repair, after the canopy reconstruction, etc – and continue until the conservation process is complete.

It is anticipated that day-to-day progress will be monitored by a suitably qualified member of Council staff, or be assigned to an appropriately qualified volunteer.

Monitoring is to be carried out by a qualified Industrial Archaeologist, an Historical Archaeologist with industrial experience, or a Heritage Consultant with industrial experience.

Long Term Monitoring

It is recommended that the Conservation Strategies set out in this document be reviewed on a five yearly basis. The review is to be carried out by a qualified Industrial Archaeologist, an Industrial Archaeologist, or a Heritage Consultant with industrial experience.

The purpose of the review is to ensure that the essential and on-going maintenance is being carried out on the Fowler B6 Road Locomotive, and the parts of the Traction Wagon, to ensure that no new policy or strategies need to be developed to ensure the on-going cultural significance of the engine to the community.

14.List of Recommendations

Please note that these recommendations must be read in the context of the accompanying information in the relevant sections of the report. They are presented here as a convenient list. Principal Recommendations are given in italics.

Page 20
That Council keep searching the district to attempt to find and acquire at least one Clyde Traction Wagon for display and conservation.

Page 21
That council consider seeking the assistance of traction engine enthusiasts who may be able to advise the locations of other Clyde Traction Wagons.

That council consider attempting to purchase a similar Wagon or Wagons that may be located in other shire areas rather than attempt a reconstruction of the remains of the Timbrebongie Wagon, which would be expensive.

Page 32
That Council agree to list the engine on its LEP.

That Council make a submission to the Heritage Council for listing of the Fowler Engine on the SHR.

That, if the SHR listing is successful, an approach be made to the Commonwealth Heritage Department nominating the Engine for inclusion in the Register of the National Estate.

Page 37
That, wherever possible, the original fabric is to be used in whole or part, changing as much as necessary but as little as possible. (Burra Charter, 1999, Article 3.1).

Page 39
That the engine be restored/reconstructed to a state commensurate with its early days of working life. That is, restored to working order, with some parts reconstructed to operating condition, with particular care taken to the retention of as much original fabric as possible and some original paint and lining out.

Page 41
That in the case that very extensive work, or replacement of the Fowler boiler is necessary, that Council move to have this work done with the aim of returning the

engine to a state commensurate with its arrival at Timbrebongie Shire. That is, replacement of the boiler, restored to working order with fabric, paintwork and lining-out reconstructed to original (Burra Charter, Article 1.8).

That any new boiler should be of welded steel construction to ensure a long service life.

Page 42
That a program of ongoing maintenance be adopted to ensure the long term protection of this engine in working order.

That where Council finds that it is not able to support extensive boiler repair, or boiler replacement, then it is recommended that the engine be set up for long term preservation (moth balled) in accordance with the Burra Charter, Article 1.6

Page 43
That Council arrange for the various parts of the Traction Wagon lying outside the hanger to be placed under cover with the Fowler engine for their further preservation.

That Council do all in its power to locate one of the original six wagons in reasonable condition and purchase this for reconstruction and exhibition with the Fowler engine.

That, if one of the original Timbrebongie Wagons is not able to be located or purchased, then Council locate and purchase a similar Clyde Traction Wagon.

That Council commission the reconstruction (Burra Charter Article 1.8) of a Wagon using the existing remnants and using local resources of TAFE, or similar as an alternate strategy.

That negotiations be undertaken between Council and the Roatary Club (owners of the Ransomes Sims and Jeffries portable steam engine located in the Council yard) with a view to the use of this engine as collateral to assist in the restoration/reconstruction of the Fowler engine.

Page 44
That in the interim the Ransomes Sims and Jeffries engine be moved from the Council compound and stored with the Fowler engine.

That if the Ransomes Sims and Jeffries engine is put up for sale, those only reasonable offers be considered.

That the Ransomes, Sims and Jeffries engine could be preserved and left on display in Dundas Park, Narromine.

That the Fowler Engine, and the remnants of the Traction Wagon, be brought together and housed in a suitable new building

That one of the following three potential locations be used to house the Engine and Wagon.;

A location in the Railway precinct in the centre of town. This is considered to be the priority one location.
On land near the Museum (historic courthouse) in Burraway St.. This is considered to be the priority two location.
A location at the Showground. This is considered to be the priority three location.

Page 45
That, at the very least, this engine should be made movable (as distinct from being in working order) by carrying out the essential maintenance detailed later in this report, and housed in a building where public access is easily achieved.

Page 46
That serious consideration is given to the use of volunteer labour to carry out much of the conservation work.

That a suitable volunteer be engaged as a type of honorary caretaker for the conservation work.

That such a person has had extensive experience in working on and running steam operated Traction Engines/Road/Rail Locomotives.

That such a person is charged with the responsibility of reporting progress to Council on a regular basis.

That Council make a formal approach to Austral Engineering in Liverpool, NSW with a view to gaining their professional and financial support for the conservation of the Fowler engine.

Page 47
That Council commission a person competent in heritage interpretation to develop a set of interpretative signs that will explain the significance of the Engine, and the Wagon (if reconstructed) to the community over its 30 or so years of active use for the community.

That a small brochure be produced that could be distributed via the Information Centre, motels and clubs for the information of tourists and locals. This would give a background to the engine, an insight into its operation , and some notes on its conservation, and details of its location.

That Council commission an archival record to be prepared detailing the conservation process from start to finish.

Page 47
That the Conservation Strategies set out in this document be reviewed on a five yearly basis.

Page 48
that this report, once deliberated on by Council, is placed in the public arena so that it may be accessed by interested members of the community.

15. Abbreviations and References

Abbreviations

ADB	Australian Dictionary of Biography
CMP	Conservation Management Plan
HRA	Historical Records of Australia
LEP	Local Environment Plan
RNE	Register of the National Estate
SHR	State Heritage Register
TSC WC	Timbrebongie Shire Council – Works Committee

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28 November 1924 re engine broken down.
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21 February 1925 report on purchase of new steam engine & plant.
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Personal Comments

Mrs Norma Meadley	Discussion with J. Gibson and I. Larcher, 28 November 2007.
Mrs. Jeanette Nash (nee Hamblin)	Telephone discussion with Ian Larcher, 11 January 2008.

16.Appendices/Attachments

A Australian Historic Themes Framework
B NSW State Heritage Themes
C Artefact Database Records
Fowler B6 Road Locomotive
Clyde Fowler Traction Wagon
Clyde Single Mould Board Plough
Ransommes Sims and Jeffries portable steam engine
D Photographic Record
Historic Documents
E Extract from Fowler's order book of 1926
F Copy of List ofFowler's Drawings of Engine Parts
G Quotation – new boiler cost.

Appendix A.

AUSTRALIAN HISTORIC THEMES FRAMEWORK

1. Tracing the evolution of the Australian environment

1.1 Tracing climatic and topographical change
1.2 Tracing the emergence of Australian plants and animals
1.3 Assessing scientifically diverse environments
1.4 Appreciating the natural wonders of Australia

2. Peopling Australia

2.1 Living as Australia's earliest inhabitants
2.2 Adapting to diverse environments
2.3 Coming to Australia as a punishment
2.4 Migrating
- 2.4.1 Migrating to save or preserve a way of life
- 2.4.2 Migrating to seek opportunity
- 2.4.3 Migrating to escape oppression
- 2.4.4 Migrating-through organised colonisation
- 2.4.5 Changing the face of rural and urban Australia through migration

2.5 Promoting settlement
2.6 Fighting for land
- 2.6.1 Resisting the advent of Europeans and their animals
- 2.6.2 Displacing Indigenous people

3. Developing local, regional and national economies

3.1 Exploring the coastline
3.2 Constructing capital city economies
3.3 Surveying the continent
- 3.3.1 Looking for inland seas and waterways
- 3.3.2 Looking for overland stock routes
- 3.3.3 Prospecting for precious metals
- 3.3.4 Looking for land with agricultural potential
- 3.3.5 Laying out boundaries

3.4 Utilising natural resources
- 3.4.1 Hunting
- 3.4.2 Fishing and whaling
- 3.4.3 Mining
- 3.4.4 Making forests into a saleable resource
- 3.4.5 Tapping natural energy sources

3.5 Developing primary production
- 3.5.1 Grazing stock
- 3.5.2 Breeding animals
- 3.5.3 Developing agricultural industries

3.6 Recruiting labour

3.7 Establishing communications
- 3.7.1 Establishing postal services
- 3.7.2 Developing electric means of communication

3.8 Moving goods and people
- 3.8.1 Shipping to and from Australian ports
- 3.8.2 Safeguarding Australian products for long journeys
- 3.8.3 Developing harbour facilities
- 3.8.4 Making economic use of inland waterways
- 3.8.5 Moving goods and people on land
- 3.8.6 Building and maintaining railways
- 3.8.7 Building and maintaining roads
- 3.8.8 Getting fuel to engines
- 3.8.9 Moving goods and people by air

3.9 Farming for commercial profit

3.10 Integrating people into the cash economy
- 3.10.1 Assisting Indigenous people into the cash economy
- 3.10.2 Encouraging women into employment
- 3.10.3 Encouraging fringe and alternative businesses

3.11 Altering the environment
- 3.11.1 Regulating waterways
- 3.11.2 Reclaiming land
- 3.11.3 Irrigating land
- 3.11.4 Clearing vegetation
- 3.11.5 Establishing water supplies

3.12 Feeding people
- 3.12.1 Using indigenous foodstuffs
- 3.12.2 Developing sources of fresh local produce
- 3.12.3 Importing foodstuffs
- 3.12.4 Preserving food and beverages
- 3.12.5 Retailing foods and beverages

3.13 Developing an Australian manufacturing capacity

3.14 Developing an Australian engineering and construction industry
- 3.14.1 Building to suit Australian conditions
- 3.14.2 Using Australian materials in construction

3.15 Developing economic links outside Australia

3.16 Struggling with remoteness, hardship and failure
- 3.16.1 Dealing with hazards and disasters

3.17 Inventing devices

3.18 Financing Australia
- 3.18.1 Raising capital
- 3.18.2 Banking and lending
- 3.18.3 Insuring against risk
- 3.18.4 Cooperating to raise capital (*co-ops, building societies, etc.*)

3.19 Marketing and retailing

3.20 Informing Australians
- 3.20.1 Making, printing and distributing newspapers
- 3.20.2 Broadcasting

3.21 Entertaining for profit

3.22 Lodging people

3.23 Catering for tourists

3.24 Selling companionship and sexual services

3.25 Adorning Australians
- 3.25.1 Dressing up Australians

3.26 Providing health services
- 3.26.1 Providing medical and dental services
- 3.26.2 Providing hospital services
- 3.26.3 Developing alternative approaches to good health
- 3.26.4 Providing care for people with disabilities

4. Building settlements, towns and cities

4.1. Planning urban-settlements
- 4.1.1 Selecting township sites
- 4.1.2 Making suburbs
- 4.1.3 Learning to live with property booms and busts
- 4.1.4 Creating capital cities
- 4.1.5 Developing city centres

4.2 Supplying urban services (power, transport, fire prevention, roads, water, light and sewerage)
4.3 Developing institutions
4.4 Living with slums, outcasts and homelessness
4.5 Making settlements to serve rural Australia
4.6 Remembering significant phases in the development of settlements, towns and cities

5. Working

5.1 Working in harsh conditions
- 5.1.1Coping with unemployment
- 5.1.2Coping with dangerous jobs and workplaces

5.2 Organising workers and work places
5.3 Caring for workers' dependent children
5.4 Working in offices
5.5 Trying to make crime pay
5.6 Working in the home
5.7 Surviving as Indigenous people in a white-dominated economy
5.8 Working on the land

6. Educating

6.1 Forming associations, libraries and institutes for self-education
6.2 Establishing schools
6.3 Training people for the workplace
6.4 Building a system of higher education
6.5 Educating people in remote places
6.6 Educating Indigenous people in two cultures

7. Governing

7.1. Governing Australia as a province of the British Empire
7.2. Developing institutions of self-government and democracy
- 7.2.1 Protesting
- 7.2.2 Struggling for inclusion in the political process
- 7.2.3 Working to promote civil liberties

7.2.4 Forming political associations
7.3 Making City-States
7.4 Federating Australia
7.5 Governing Australia's colonial possessions
7.6 Administering Australia
7.6.1 Developing local government authorities
7.6.2 Controlling entry of persons and disease
7.6.3 Policing Australia
7.6.4 Dispensing justice
7.6.5 Incarcerating people
7.6.6 Providing services and welfare
7.6.7 Enforcing discriminatory legislation
7.6.8 Administering Indigenous Affairs
7.6.9 Conserving Australian resources
7.6.10 Conserving fragile environments
7.6.11 Conserving economically valuable resources
7.6.12 Conserving Australia's heritage
7.7 Defending Australia
7.7.1 Providing for the common defence
7.7.2 Preparing to face invasion
7.7.3 Going to war
7.8 Establishing regional and local identity

8. Developing Australia's cultural life

8.1 Organising recreation
8.1.1 Playing and watching organised sports
8.1.2 Betting
8.1.3 Developing public parks and gardens
8.1.4 Enjoying the natural environment
8.2 Going to the beach
8.3 Going on holiday
8.4 Eating and drinking
8.5 Forming associations
8.5.1 Preserving traditions and group memories
8.5.2 Helping other people
8.5.3 Associating for mutual aid
8.5.4 Pursuing common leisure interests
8.6 Worshipping
8.6.1 Worshipping together
8.6.2 Maintaining religious traditions and ceremonies
8.6.3 Founding Australian religious institutions
8.6.4 Making places for worship
8.6.5 Evangelising
8.6.6 Running city missions
8.6.7 Running missions to Australia's indigenous people
8.7 Honouring achievement
8.8 Remembering the fallen
8.9 Commemorating significant events
8.9.1 Remembering disasters

8.9.2 Remembering public spectacles

8.10 Pursuing excellence in the arts and sciences

8.10.1 Making music

8.10.2 Creating visual arts

8.10.3 Creating literature

8.10.4 Designing and building fine buildings

8.10.5 Advancing knowledge in science and technology

8.11 Making Australian folklore

8.11.1 Celebrating folk heroes

8.11.2 Myth making and story-telling

8.12 Living in and around Australian homes

8.13 Living in cities and suburbs

8.14 Living in the country and rural settlements

8.15 Being homeless

9. Marking the phases of life

9.1 Bringing babies into the world

9.1.1 Providing maternity clinics and hospitals

9.1.2 Promoting mothers' and babies' health

9.2 Growing up

9.2.1 Being children

9.2.2 Joining youth organisations

9.2.3 Being teenagers

9.2.4 Courting

9.3 Forming families and partnerships

9.3.1 Establishing partnerships

9.3.2 Bringing up children

9.4 Being an adult

9.5 Living outside a family/partnership

9.6 Growing old

9.6.1 Retiring

9.6.2 Looking after the infirm and the aged

9.7 Dying

9.7.1 Dealing with human remains

9.7.2 Mourning the dead

9.7.3 Remembering the dead

Appendix B.

NSW State Heritage Themes

Aboriginal cultures
Convict
Ethnic influences
Migration
Agriculture
Commerce
Communication
Environment – cultural landscape
Events
Exploration
Fishing
Forestry
Health
Industry
Mining
Pastoralism
Science
Technology
Transport
Towns, suburbs and villages
Land Tenure
Utilities
Accommodation
Labour
Education
Defence
Government and administration
Law and order
Welfare
Domestic life
Creative endeavour
Leisure
Religion
Social institutions
Sport
Birth and death
Persons

Artefact Database Form

Name of study: Fowler B6 Road Locomotive and Traction Wagon **Database no.**

Author of study: Heritech Consulting **Reference no.**

Item Name: **Fowler B6 Road Locomotive**

Other name/s: Fowler traction engine

Street number & name: Narromine Airport

Suburb/town: Narromine **Postcode:** 2821 **State:** NSW

Local government area: Narromine Shire Council

Area, complex or group name: Transport – Road – Other (road construction)

Heritage type: **Archaeological** **Built** **Landscape** **Moveable** X

Latitude: S32° 13.453' **Longitude:** E148° 13.793' **Elevation:** 240 m

Current owner: Narromine Shire Council

Current use: In storage **Former use:** Road haulage/construction

Item type: **Industrial** X **Domestic** **Commercial** **Mining** **Other**

Description (incl. manufacturer): Built by John Fowler & Co. Leeds. A twin cylinder compound rigid steam road locomotive. Rear wheels 2.13 m dia x 609 mm. Front wheels 1.4 m dia x 229 mm. Overall height 6.4 m, overall width 2.72 m. Boiler – steel 787 mm dia., with 36 tubes.

Statement of significance:

Level of Significance: **National** **State** **X** **Regional** **Local**

Criteria: **Historic** **X** **Historic Assoc'n** **X** **Aesthetic** **Social** **X** **Technical** **Rarity** **X**
Representative **X** **Integrity** **X**

Caption:

Film roll no: digital

Negative no: DSC_01485

Photographer: J. Gibson

Survey Date: 29 Nov. 2007

Notes:

Artefact Database Form

Name of study: Fowler B6 Road Locomotive and Traction Wagon **Database no.**

Author of study: Heritech Consulting **Reference no.**

Item Name: **Clyde-Fowler 10 ton Wagon**

Other name/s:

Street number & name: Narromine Airport, outside hangar no. 1

Suburb/town: Narromine **Postcode:** 2821 **State:** NSW

Local government area: Narromine Shire Council

Area, complex or group name: Transport – Road – Other (road construction)

Heritage type: **Archaeological** **Built** **Landscape** **Moveable** X

Latitude: S32° 13.453' **Longitude:** E148° 13.803' **Elevation:** 240 m

Current owner: Cousin to Mr. Ewin Jones

Current use: Stored **Former use:** Road base haulage

Item type: **Industrial** X **Domestic** **Commercial** **Mining** **Other**

Description (incl. manufacturer): Made by Clyde Engineering Co., Granville. Fabricated iron wheels, wrought iron axles and some framework. Timber axle support beams, floor beams and sides.

Statement of significance: Local significance as an item in its own right, however much more significant when associated with the Fowler Road Locomotive. This wagon was one of 6 purchased by Council c1910, and used with the Fowler engine for road construction in the 1920s to 1950s.

Level of Significance: **National** **State** **Regional** X **Local**

Criteria: **Historic** X **Historic Assoc'n** X **Aesthetic** **Social** **Technical** **Rarity** X **Representative** **Integrity**

Caption: 10 Ton Wagon

Film roll no: Digital

Negative no: 100_6266

Photographer: I. Larcher

Survey Date: 29 November 2007.

Notes:

Artefact Database Form

Name of study: Fowler B6 Road Locomotive and Traction Wagon **Database no.**

Author of study: Heritech Consulting **Reference no.**

Item Name:

Other name/s: **Portable Steam Engine**

Street number & name: Council depot

Suburb/town: Narromine **Postcode:** 2821 **State:** NSW

Local government area: Narromine Shire Council

Area, complex or group name: Transport – Road – Other (road construction)

Heritage type: **Archaeological** **Built** **Landscape** **Moveable** X

Latitude: S32° 13.403' **Longitude:** E148° 13.999' **Elevation:** 234 m

Current owner: Narromine Rotary Club

Current use: In storage **Former use:** Portable power source

Item type: **Industrial** X **Domestic** **Commercial** **Mining** **Other**

Description (incl. manufacturer): Ransomes Sims & Jeffries Ltd. Portable steam engine No. 18239. Sold to Council by Lassiter, Sydney. Twin cylinder steam engine, not in good condition, some parts missing. Often used for saw milling, chaff cutting, baling, etc.

Statement of significance: Moderate level of Local significance. Requires heritage assessment.

Level of Significance: **National** **State** **Regional** **Local** **X**

Criteria: **Historic** **X** **Historic Assoc'n** **X** **Aesthetic** **Social** **Technical** **Rarity** **Representative** **Integrity**

Caption: Ransomes Sims & Jeffries portable steam engine

Film roll no: Digital

Negative no: DSC-1503

Photographer: J. Gibson

Survey Date: 29 November 2007.

Notes: