

Package Title:	SUPPLY OF STRUCTURAL STEELWORK AND FABRICATION
Package Ref:	EOI – STEEL SUPPLY AND FABRICATION
Heritage Overview	Heritage Minerals is a Technology company that specialises in processing gold tailings at abandoned mines. It uses proprietary technology to recover metals and clean up contaminated areas economically.
Project Overview:	MOUNT MORGAN TAILINGS PROCESSING & REHABILITATION PROJECT at the Mount Morgan Mine in Queensland. The study comprises a base case of 2 MTPA plant over six years with a 13-year expansion case, the company estimates development cost of 100 million and annual production is predicted to be 60,000 ounces of gold, and additional 5,000 T of copper. The Mount Morgan Project is 100% owned by Heritage minerals Pty Ltd.
Package Description:	Supply and fabrication of structural steelwork for Mount Morgan gold project according to the attached Scope of Work in Expression of Interest for Structural Steelwork Supply and Fabrication. Scope includes: project management, reporting, attending meetings, participation in workshops.
Expression of Interest (EOI):	Heritage invites expressions of interest (EOI) from capable and experienced contractors and suppliers, who demonstrate through their response a clear capability against the key requirements. We ask that you keep your expression of interest submission short, specifically addressing the following in your response: <ul style="list-style-type: none"> a) General company information <ul style="list-style-type: none"> (i) ABN, Company name, Registered address (ii) Contact details (name, email, mobile) (iii) Alternate point of contact details (iv) Headquarter and office locations (v) Company financials (vi) Local and indigenous engagement policies (vii) Prior project information and capability statement (viii) Safety, Risk, Quality, and other accreditations b) Response based specifically to this Package of work: <ul style="list-style-type: none"> (i) Summary of reference projects where Equipment was supplied/installed (ii) Indicative lead times and delivery durations (iii) Potential sub-supplier or sub-contractor requirements for installation (iv) Other information considered essential to supporting the Suppliers submission <p>Heritage will use the EOIs to improve its understanding of market capability and interest. Suitable EOI Registrants may be invited to submit a tender for this package.</p>
EOI Closing Date:	29 February 2024
Target Award Date:	At the time of publishing this invitation to register an EOI: Q2 2024
Project Contact Officer:	All communications in connection with this invitation to register an EOI for this package including clarification regarding this package or request for technical support in connection with the EOI, must be submitted to: contracts@heritageminerals.com.au



Project URL's:	Further details of the project can be found in https://heritageminerals.com.au/project/
Disclaimer:	The information contained in this invitation to register an EOI is indicative only and subject to change at Heritage's discretion. It is intended to provide a brief outline of the relevant Supply which may be required on the Project.

Structural Steelwork Supply and Fabrication

Expression of Interest

Project Name:	Mount Morgan Gold				
Document Number:	107995-ES-P1000-23000-001				
Revision	Date	Description	Prepared	Checked	Approved
A	06-02-2024	Issued as Information	Khaerul Adam	Pia Beukes	Rob Cooper

Disclaimer

This document and its contents are for the private information and benefit only of Heritage Minerals (**HM**), for whom it was prepared and for the particular purpose which HM previously described to Ausenco Services Pty Ltd (**Ausenco Services**). The contents of this document are not to be reused in whole or in part, by or for the benefit of others without prior adaptation by, and the prior specific written permission of, Ausenco Services.

Particular financial and other projections, analysis and conclusions set out in this document, to the extent they are based on assumptions or concern future events and circumstances over which Ausenco Services has no control are by their nature uncertain and are to be treated accordingly. Ausenco Services makes no warranty regarding any of these projections, analysis and conclusions. Ausenco Services, its affiliates and subsidiaries and their respective officers, directors, employees and agents assume no responsibility for reliance on this document or on any of its contents by any party other than Heritage Minerals.

The contents of this document are Copyright, © 2024 Ausenco Services. All rights are reserved.

Table of Contents

1	Introduction	4
2	Scope	4
3	Regulatory perspective and Standards	4
3.1	Regulatory perspective.....	4
3.2	Design.....	4
3.3	Materials.....	5
3.4	Welding.....	5
4	Design Documentation and Quality Control	7
4.1	Construction Category.....	7
4.2	Quality Assurance.....	7
4.3	Quality Documentation	7
4.4	Certifications and compliance requirement.....	7
4.5	Identification and traceability	8
5	Materials	8
5.1	Steel.....	8
6	Fabrication	9
6.1	General	9
6.2	Straightening and Forming.....	9
6.3	Cutting	9
6.4	Holing	9
6.5	Welding.....	10
6.5.1	General	10
6.5.2	Welding supervision	10
6.5.3	Non-Destructive Examination	10
6.5.4	Lamellar tearing.....	10
6.5.5	Z-plate requirement	11
6.5.6	Minimum fillet weld size	11
6.5.7	Preheating.....	11
6.5.8	Butt welds.....	11
6.5.9	Procedure and Performance Qualifications for Welding	11
6.5.10	Weld materials	12
7	Appendix 1 – Fabricator checklist table	13
<hr/>		
	Table 1 – Construction Categories as per AS/NZS 5131	7
	Table 2 – Extend of Non Destructive Examination	10

1 Introduction

As part of the tender process this document will be superseded by the documents in the tender package.

The purpose of this document is to outline the minimum requirements of steel fabrication vendor of Mt Morgan Project.

Following review of this document, vendor is requested to provide feedback regarding their interest in being part in the tender process and whether they have the capability to fulfill the requirements herein.

Checklist per Appendix 1 shall be filled out as part of EOI response.

2 Scope

This Scope of work defines the requirements for the supply and fabrication of structural steelwork for Mount Morgan Gold project.

The structural steel will likely be manufactured outside of Australia (nominally JIS sections used), however all steel manufacturing shall comply with Australian standards.

Structural Steel Fabricator shall conform to the requirements of this scope of work and the requirements of the relevant Australian standards.

3 Regulatory perspective and Standards

The structural steelworks shall be carried out in accordance with the current issue, including amendments, of the following regulatory touch points and Australian Standards:-

3.1 Regulatory perspective

The National Construction Code (NCC)

The Workplace Health and Safety Act and associated regulation

3.2 Design

AS 1100	Technical drawing
AS 1100.101	Technical drawing - General principles
AS 1100.501	Technical drawing - Structural engineering drawing

AS 1101.3	Graphical symbols for general engineering - Welding and non-destructive examination
AS 1418	Cranes, hoists and winches
AS 1657	Fixed Platforms, Walkways, Stairways and Ladders – Design, construction and installation
AS 4100	Steel structures
AS/NZS 4600	Cold-formed steel structures

3.3 Materials

AS/NZS 1163	Structural steel hollow sections
AS/NZS 1594	Hot-rolled steel flat products
AS/NZS 3678	Structural steel - Hot-rolled plates, floor plates and slabs
AS/NZS 3679.1	Structural steel - Hot rolled bars and sections
AS/NZS 3679.2	Structural steel - Welded I sections
AS 5131	Structural Steelwork – Fabrication and Erection

3.4 Welding

AS/NZS 1554	Structural steel welding
AS 1710	Non-destructive testing – Ultrasonic testing of carbon and low alloy steel plate and universal sections – Test methods and quality classification
AS 1796	Pressure equipment - Qualification of welders, welding supervisors and welding inspectors
AS 1858.1	Electrodes and fluxes for submerged-arc welding-carbon steels and carbon-manganese steels
AS 2214	Certification of welding supervisors - Structural steel welding
AS 2812	Welding, brazing and cutting of metals - Glossary of terms
AS 4855	Welding consumables – Covered electrodes for manual metal arc welding of non-alloy and fine grain steels – Classification
AS/NZS 14341	Welding consumables – wire electrodes and weld deposits for gas shielded metal arc welding of non-alloy and fine grain steel - Classification
AS/NZS 16834	Welding consumables – wire electrodes, wires, rods and deposits for gas shielded arc welding of high strength steels - Classification
AS/NZS 21952	Welding consumables – wire electrodes, wires, rods and deposits for gas shielded arc welding of creep-resisting steels
AS/NZS ISO 17632	Welding consumables – Tubular cored electrodes for gas shielded and non-gas shielded metal arc welding of non-alloy and fine grain steels – Classification
AS/NZS ISO 17633	Welding consumables – Tubular cored electrodes for gas shielded and non-gas shielded metal arc welding of stainless and heat-resisting steels – Classification
AS/NZS ISO 17634	Welding consumables – Tubular cored electrodes for gas shielded metal arc welding of creep resisting steels – Classification

AS/NZS ISO 18276 Welding consumables – Tubular cored electrodes for gas shielded and non-gas shielded metal arc welding of high-strength steels - Classification

4 Design Documentation and Quality Control

4.1 Construction Category

In accordance with the requirements of AS/NZS 5131 the Construction Category for the project shall be the following unless noted otherwise:

Table 1 – Construction Categories as per AS/NZS 5131

Element	Importance Level	Service Category	Fabrication Category	Construction Category
All structural Steelwork UNO	IL2	SC1	FC1	CC2
Structural Steelwork Supporting vibrating equipment as noted in the design model and drawings	IL2	SC2	FC1	CC3

4.2 Quality Assurance

A quality management system complying as a minimum to AS ISO 9001 is required to be operated by the Fabricator for the Works and for a specified product or service.

4.3 Quality Documentation

Provide quality documentation as required by Clause 4.5.1 of AS/NZS 5131.

Provide a Quality Plan as required by Clause 4.5.2 of AS/NZS 5131.

4.4 Certifications and compliance requirement

The following certifications are required for the Fabricator:

- Certified under the ASI 'National Structural Steelwork Compliance Scheme' (NSSCS) by Steel Compliance Australia (SCA) for Construction Category 2 and 3 (CC2 and CC3).
- Valid CC2 and CC3 certification for the current period.

The following test certificates are required for all structural section shapes used in this project:

- Endorsed ILAC or APLAC accredited laboratory test certificates from the mill certifying the structural steel section shape intended to be used or being supplied complies with all requirements of the relevant Standard, either AS/NZS 1163, AS/NZS 1594, AS/NZS 3678, AS/NZS 3679.1, AS/NZS 3679.2 or AS 3597. Fully compliant test certificates should be provided which meet the requirements of Clause 2.2.2 of AS 4100.

Or

- Have sufficient tests done by an independent ILAC or APLAC accredited laboratory under Clause 2.2.2 of AS 4100 and obtain certification from the accredited laboratory to enable the steel to be fitted into a grade in the relevant Standard in terms of all parameters in the Standards. The independent accredited laboratory should also assess the chemical composition so as to enable the steel to be allocated a weld group number in terms of AS/NZS 1554 (weldability) and Section 10 of AS 4100 (brittle fracture).

For compliance, the Fabricator shall have a Compliance Management plan (CompMP). The CompMP shall include the requirements of the Quality Plan in AS/NZS 5131 and the documentation of procurement, fabrication and erection of structural steelwork which includes the following:

- Process and documentation checklists for purchasing steel
- Process for identification and traceability of steel and steelwork from purchasing through to completion of the project
- Process and documentation checklists for erection of structural steelwork
- Assigned responsibilities for compliance management, including names and CV's of relevant personnel

The CompMP shall be provided by the Fabricator prior to first procurement of materials for the project.

4.5 Identification and traceability

The Fabricator shall implement systems to ensure identification and traceability complying with AS/NZS 5131 for the appropriate Construction Category, including by all subcontractors.

5 Materials

5.1 Steel

Structural steel for use in this project shall be approved equivalent with the relevant Australian steel complying to Australian Standards as listed in Clause 3.3 above and as follows:

- Hot rolled steel sections shall be approved equivalent to Australian hot rolled sections complying to AS 3679.1 Grade 300.
- Welded steel sections shall be approved equivalent to Australian welded steel sections complying to AS 3679.2 Grade 300.
- Circular hollow section (CHS 140 mm in diameter and smaller shall be approved equivalent to Australian CHS complying to AS 1163 Grade H250 or C250.
- CHS larger than 140 mm and all RHS shall be to approved equivalent to Australian CHS complying to AS 1163 Grade C350.
- Plate shall be to AS 3678 Grade 250 or approved equivalent.

Second-hand material shall not be used unless specifically shown on the design drawings or approved in writing by the Superintendent.

Material for structural members shall be supplied in full stock lengths such that splices shall only be used where shown on the drawings. Approval to splice shall be obtained before commencing fabrication.

Welding electrodes shall conform to AS/NZS 1554, AS 1858 and AS/NZS 2717. The nominal tensile strength of the weld shall be greater than or equal to the tensile strength of the steel parts being joined.

6 Fabrication

6.1 General

Fabrication shall be carried out by qualified and experienced tradesmen to produce finished steelwork components that accurately reflect the design intent as represented on the design drawings. Fabrication shall comply with AS 5131.

Steelwork shall be fabricated complete with all necessary temporary brackets, straps, gussets, cleats, fixings and the like, necessary for erection of assembly.

6.2 Straightening and Forming

Any straightening of material or bending to produce curvilinear forms shown on the drawings shall be achieved by methods that will not diminish the material properties of the steel, and in accordance with approved procedures. Heating shall not induce steel temperatures in excess of 600°C.

6.3 Cutting

Steelwork shall be cut by sawing, shearing, machine, plasma or hand flame cutting methods except that:

- Ends of sections or edges of plates required to transmit full contact bearing (e.g. column end to base plate) shall be cold sawn or milled.
- Plates thicker than 16 mm where edges are to be welded or galvanized shall not be sheared.
- Any cutting operations shall produce clean, true lines and surface, complying with the requirements of AS 1554.1 for surfaces to be welded and AS 5131 for surfaces not to be welded.
- Mitres shall be dressed smooth and neatly fitted. Re-entrant corners shall be notch-free and with a radius of at least 10 mm.

6.4 Holing

A round hole for a bolt shall either be machine cut, or drilled full size, or sub-punched 3 mm undersize and reamed to size, or punched full size. A slotted hole shall be either machine cut, or punched in one operation, or formed by drilling two adjacent holes and completed by machine cutting. Hand cutting of a bolt hole shall not be permitted except as a site

rectification measure for holes in column base plates. A punched hole shall only be permitted in material whose yield stress (f_y) does not exceed 360 MPa and whose thickness does not exceed $(5600/f_y)$ mm.

6.5 Welding

6.5.1 General

Welding shall be carried out strictly in accordance with the requirements of AS 1554 unless specifically stated otherwise on the drawings. All welding shall be carried out conforming to either GP (General Purpose) or SP (Structural Purpose) categories as defined in AS 1554.1 or FP (Fatigue Purpose) as defined in AS 1554.5. The categories shall be specified in the project drawings.

The removal of slag and weld splatter shall be part of the welding process.

6.5.2 Welding supervision

Welding for category GP, SP, and FP shall be carried out under the supervision of a welding supervisor complying with AS 1554.1 (or AS 1554.5), Clause 4.11.1. The welding supervisor shall hold appropriate certificates in accordance with AS 1796 and/or AS 2214.

6.5.3 Non-Destructive Examination

All welding shall be subject to inspection including 100% close visual inspection and a minimum of 10% non-destructive testing by radiography or ultra-sonic methods. The Fabricator shall notify the Superintendent when welding is ready for inspection (prior to painting) and shall provide all necessary access. The Superintendent may direct where such tests are to be performed. Should inspections reveal unacceptable weld defects then the Fabricator shall be responsible for all necessary remedial work including retesting.

Table 2 – Extent of Non Destructive Examination

Weld Category	Type	Extent of NDE (%)		
		Visual scanning	Visual Examination inc. Magnetic Particle	Radiography or Ultrasonic
GP	All	100	10	0
SP	Butt	100	50	10
	Other than butt weld	100	20	10
	Lifting Lugs and other cleats as specified with no alternate load path	100	100	100

Notes: Non-destructive examination procedures and acceptance criteria shall be in accordance with AS/NZS 5131.

6.5.4 Lamellar tearing

Joint details which are susceptible to lamellar tearing (LT) are indicated on the project drawings as “LT susceptible”. The identified plate in joints that have been assessed as ‘LT susceptible’ shall be ultrasonically tested to AS 1710 Class 1.

6.5.5 Z-plate requirement

Joints that are designated 'LT susceptible' (see clause 6.5.4) and further require plate to a nominated Z-value are indicated on the project drawings with a designated Z-value. The plate identified in these joints shall be ordered to the designated Z-value and shall be ultrasonically tested to AS 1710 Class 1.

6.5.6 Minimum fillet weld size

The minimum weld size between adjoining components, touching components, edges and faying surfaces shall be a continuous fillet weld, Category SP, with a leg length specified in the project drawings.

6.5.7 Preheating

Preheating and inter-run temperature control shall be performed in accordance with AS 1554.1, Clause 5.3.

6.5.8 Butt welds

Run-on and run-off strips shall be used for butt welds and shall be removed on completion of the weld and the attachment weld ground square and/or flush.

Backing strips will only be permitted if it is possible to back gouge the root runs or if full penetration cannot be achieved from one side. Permanent backing strips are not permitted unless otherwise shown on the drawings.

Preparation of edges for butt welding shall be carried out by grinding, machining, planning, machine flame cutting or plasma cutting. Manual flame cutting shall only be carried out with approval. However, surfaces to be incorporated into welds shall then be ground.

Welds shown on the drawings as 'CP' are complete penetration butt welds. For 'CP' welds, the Fabricator shall determine the most appropriate complete penetration butt weld detail for each particular location and submit the details for approval.

Complete penetration butt weld symbols shown on the drawings are indicative of design preference. The Fabricator may submit alternative complete penetration butt weld details for approval.

The size of cap (reinforcement) on butt welds shall not be greater than shown in AS 1554.1, Table 6.2. Excess cap shall be ground to the required profile and shall be free of surface breaking weld defects and gas holes.

6.5.9 Procedure and Performance Qualifications for Welding

For all weld categories, the Fabricator shall develop and submit for approval, welding procedures as per AS 1554 and procedure qualification records designed to produce welds in accordance with the requirements of the weld process and intended duty prior to the commencement of work.

In addition to the above requirements, the Fabricator shall document the applicable welding procedure specifications including non-destructive examination, test material certificates, test consumable certificates and destructive testing where required.

All welders shall be certified and/or qualified in accordance with the relevant part of AS 1554. The Fabricator shall submit copies of all certificates and/or qualification records for approval prior to commencement of work.

6.5.10 Weld materials

Hydrogen controlled electrodes shall be mandatory for SP Category welding. Electrodes shall be E48XX, except that E55XX (low hydrogen) shall be used for welding Grade 450 steel, unless otherwise approved.

Electrodes to be furnished by the Fabricator for welding shall conform to AS 1553.

All consumables employed for the works shall be supplied with batch certificates.

Tack welds shall be made with the same type of electrode that is used for depositing the root pass, unless the tack is removed prior to welding.

7 Appendix 1 – Fabricator checklist table

Fabricator shall check either on “Yes” or “No” column below.

	Capability Description	Yes	No
1	Able to provide valid SCA certifications as fabricator for Construction Category 2 (CC2) and 3 (CC3) projects.		
2a	Provide endorsed ILAC or APLAC accredited laboratory test certificates from the mill certifying that the steel section being used or supplied comply with all the requirements of relevant standard, either AS/NZS 1163, AS/NZS 1594, AS/NZS 3678, AS/NZS 3679.1, AS/NZS 3679.2 or AS 3597 (or see 2b below).		
2b	Provide test results including result of chemical composition assessment for weldability and brittle fracture of the steel section being used or supplied by independent ILAC or APLAC accredited laboratory under clause 2.2.2 of AS 4100. Obtain certification from the independent ILAC or APLAC accredited laboratory to enable the steel section being used or supplied to be fitted into a grade in the relevant standard in terms of all parameters in the standards.		
3	Provide Compliance Management Plan (CompMP) prior to first procurement of steelwork material for this project. The CompMP shall include the requirements of the Quality Plan in AS/NZS 5131 and the documentation of procurement, fabrication and erection of structural steelwork which includes the following: 1) Process and documentation checklists for purchasing steel. 2) Process for identification and traceability of steel and steelwork from purchasing through completion of the project. 3) Process and documentation checklists for erection of structural steel work. 4) Assigned responsibilities for compliance management, including names and CV's of relevant personal.		
4	Able to implement systems to ensure identification and traceability complying with AS/NZS 5131 for CC2 and CC3 project including subcontractors.		
5	Welding shall be carried out strictly in accordance with the requirements of AS 1554 which includes: 1. Welding Procedure Specification (WPS). 2. Procedure qualification records (PQR).		
6	All welding shall be carried out under the supervision of a welding supervisor complying with AS 1554.1.		
7	The welding supervisor shall hold certificates in accordance with AS 1796 and AS 2214.		
8	Non-destructive examination procedure and acceptance criteria shall be in accordance with AS/NZS 5131.		

	Capability Description	Yes	No
9	Pre-heating and inter-run temperature control shall be performed in accordance with AS 1554.1, Clause 5.3.		
8	Documentation of the followings: 1) Non-destructive examination 2) Test material certificates 3) Test consumable certificates 4) Destructive testing		
9	All welders shall be certified and/or qualified in accordance with the relevant part of AS 1554.		
10	Electrodes to be furnished by the fabricator for welding shall conform to AS 1553.		
11	All welding consumable employed for the works shall be supplied with steel batch certificates.		
12	Able to identify and confirm lamellar tearing (LT) susceptible joints. For the confirmed LT susceptible joint, the fabricator shall provide the designated Z-value plate and ultrasonically test the plate in accordance with AS 1710 Class 1.		