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Purpose of EIS

The EIS has been prepared by, for and on behalf of Wafi Mining Limited and Newcrest PNG 2 Limited (together the "WGJV Participants"), being the participants in the Wafi-Golpu Joint Venture ("WGJV") and the registered holders of exploration licences EL 440 and EL1105, for the sole purpose of an application (the "Permit Application") by them for environmental approval under the Environment Act 2000 (the "Act") for the proposed construction, operation and (ultimately) closure of an underground copper-gold mine and associated ore processing, concentrate transport and handling, power generation, water and tailings management, and related support facilities and services (the "Project") in Morobe Province, Independent State of Papua New Guinea. The EIS was prepared with input from consultants engaged by the WGJV Participants and/or their related bodies corporate ("Consultants").

The Permit Application is to be lodged with the Conservation and Environment Protection Authority ("CEPA"), Independent State of Papua New Guinea.

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Any future development of the Project is subject to further studies, completion of statutory processes, receipt of all necessary or desirable Papua New Guinea Government and WGJV Participant approvals, and market and operating conditions.

Engineering design and other studies are continuing and aspects of the proposed Project design and timetable may change.

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Newcrest Mining Limited ("**Newcrest**") is the ultimate holding company of Newcrest PNG 2 Limited and any reference below to "Newcrest" or the "Company" includes both Newcrest Mining Limited and Newcrest PNG 2 Limited.

Forward Looking Statements

The EIS includes forward looking statements. Forward looking statements can generally be identified by the use of words such as "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "outlook" and "guidance", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs. The Company continues to distinguish between outlook and guidance. Guidance statements relate to the current financial year. Outlook statements relate to years subsequent to the current financial year.

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Newcrest results are reported under International Financial Reporting Standards (IFRS) including EBIT and EBITDA. The EIS also includes non-IFRS information including Underlying profit (profit acer tax before significant items attributable to owners of the parent company), All-In Sustaining Cost (determined in accordance with the World Gold Council Guidance Note on Non-GAAP Metrics released June 2013), AISC Margin (realised gold price less AISC per ounce sold (where expressed as USD), or realised gold price less AISC per ounce sold divided by realised gold price (where expressed as a %), Interest Coverage Ratio (EBITDA/Interest payable for the relevant period), Free cash flow (cash flow from operating activities less cash flow related to investing activities), EBITDA margin (EBITDA expressed as a percentage of revenue) and EBIT margin (EBIT expressed as a percentage of revenue). These measures are used internally by Management to assess the performance of the business and make decisions on the allocation of resources and are included in the EIS to provide greater understanding of the underlying performance of Newcrest's operations. The non-IFRS information has not been subject to audit or review by Newcrest's external auditor and should be used in addition to IFRS information.

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As an Australian Company with securities listed on the Australian Securities Exchange (ASX), Newcrest is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act 2001 and the ASX. Investors should note that it is a requirement of the ASX listing rules that the reporting of Ore Reserves and Mineral Resources in Australia comply with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code) and that Newcrest's Ore Reserve and Mineral Resource estimates comply with the JORC Code.

Competent Person's Statement

The information in the EIS that relates to Golpu Ore Reserves is based on information compiled by the Competent Person, Mr Pasqualino Manca, who is a member of The Australasian Institute of Mining and Metallurgy. Mr Pasqualino Manca, is a full-time employee of Newcrest Mining Limited or its relevant subsidiaries, holds options and/or shares in Newcrest Mining Limited and is entitled to participate in Newcrest's executive equity long term incentive plan, details of which are included in Newcrest's 2017 Remuneration Report. Ore Reserve growth is one of the performance measures under recent long term incentive plans. Mr Pasqualino Manca has sufficient experience which is relevant to the styles of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code 2012. Mr Pasqualino Manca consents to the inclusion of material of the matters based on his information in the form and context in which it appears.

HARMONY GOLD MINING COMPANY LIMITED DISCLAIMER

Harmony Gold Mining Company Limited ("Harmony") is the ultimate holding company of Wafi Mining Limited and any reference below to "Harmony" or the "Company" includes both Harmony Gold Mining Company Limited and Wafi Mining Limited.

Forward Looking Statements

These materials contain forward-looking statements within the meaning of the safe harbor provided by Section 21E of the Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1933, as amended, with respect to our financial condition, results of operations, business strategies, operating efficiencies, competitive positions, growth opportunities for existing services, plans and objectives of

management, markets for stock and other matters. These include all statements other than statements of historical fact, including, without limitation, any statements preceded by, followed by, or that include the words "targets", "believes", "expects", "aims", "intends", "will", "may", "anticipates", "would", "should", "could", "estimates", "forecast", "predict", "continue" or similar expressions or the negative thereof.

These forward-looking statements, including, among others, those relating to our future business prospects, revenues and income, wherever they may occur in this EIS and the exhibits to this EIS, are essentially estimates reflecting the best judgment of our senior management and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. As a consequence, these forward-looking statements should be considered in light of various important factors, including those set forth in these materials. Important factors that could cause actual results to differ materially from estimates or projections contained in the forward-looking statements include, without limitation: overall economic and business conditions in South Africa, Papua New Guinea, Australia and elsewhere, estimates of future earnings, and the sensitivity of earnings to the gold and other metals prices, estimates of future gold and other metals production and sales, estimates of future cash costs, estimates of future cash flows to the gold and other metals prices, statements regarding future debt repayments, estimates of future capital expenditures, the success of our business strategy, development activities and other initiatives, estimates of reserves statements regarding future exploration results and the replacement of reserves, the ability to achieve anticipated efficiencies and other cost savings in connection with past and future acquisitions, fluctuations in the market price of gold, the occurrence of hazards associated with underground and surface gold mining, the occurrence of labour disruptions, power cost increases as well as power stoppages, fluctuations and usage constraints, supply chain shortages and increases in the prices of production imports, availability, terms and deployment of capital, changes in government regulation, fluctuations in exchange rates, the adequacy of the Group's insurance coverage and socio-economic or political instability in

For a more detailed discussion of such risks and other factors (such as availability of credit or other sources of financing), see the Company's latest Integrated Annual Report and Form 20-F which is on file with the Securities and Exchange Commission, as well as the Company's other Securities and Exchange Commission filings. The Company undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances a der the date of this EIS or to reflect the occurrence of unanticipated events, except as required by law.

Competent Person's Statement

The Wafi-Golpu Joint Venture is an unincorporated joint venture between a wholly-owned subsidiary of Harmony Gold Mining Company Limited and a wholly-owned subsidiary of Newcrest Mining Limited.

The information in the EIS that relates to Golpu Ore Reserves is based on information compiled by the Competent Person, Mr Pasqualino Manca, who is a member of The Australasian Institute of Mining and Metallurgy. Mr Pasqualino Manca, is a full-time employee of Newcrest Mining Limited or its relevant subsidiaries, holds options and/ or shares in Newcrest Mining Limited and is entitled to participate in Newcrest's executive equity long term incentive plan, details of which are included in Newcrest's 2017 Remuneration Report. Ore Reserve growth is one of the performance measures under recent long term incentive plans. Mr Pasqualino Manca has sufficient experience which is relevant to the styles of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code 2012. Mr Pasqualino Manca consents to the inclusion of material of the matters based on his information in the form and context in which it appears.





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ACRONYMS AND ABBREVIATIONS

The following abbreviations and acronyms are used throughout this document.

| Acronym | Definition | |
|---------|---|--|
| CEPA | Conservation and Environmental Protection Authority | |
| CHMP | Cultural Heritage Management Plan | |
| FM 1098 | Permit for Land Disturbance | |
| FM 1223 | Chance Finds Report Form | |
| NCC | PNG National Cultural Commission | |
| NMAG | PNG National Museum and Art Gallery | |
| PNG | Independent State of Papua New Guinea | |
| WGJV | Wafi Golpu Joint Venture | |

GLOSSARY

The following terms are used throughout this document.

| Term | Definition | | |
|--|--|--|--|
| Archaeological site | Any place (or group of physical sites) containing preserved evidence of human activity that has been, or may be, investigated using the discipline of archaeology. The specific nature of each site is provided in individual site descriptions, e.g., ceramic sherds, stone beater, axe-adze. | | |
| Archaeological site of low significance | Materials are found on the surface (no evident stratification) and similar material is common across the region. | | |
| Archaeological site of medium significance | Materials are found on the surface (no evident stratification) and material of this type has not been previously characterised or is rare in the region. | | |
| Archaeological site of high significance | Materials are found beneath the surface (below the topsoil); material of this type has not been previously characterised or is rare in the region; and the variety of artefacts is extensive and there is a large number of artefacts | | |
| Burial site | A location containing complete or fragmented human skeletal remains excluding isolated teeth. | | |
| Chance find | Any previously-unidentified cultural heritage encountered during exploration, construction or operations. | | |
| Chance Find Procedure | A Project-specific procedure that outlines the actions to be taken if previously unrecorded cultural heritage is encountered. | | |
| Coastal Area | The Coastal Area includes the Port Facilities Area and the Outfall Area. | | |
| Cultural heritage | Intangible and tangible heritage that includes: | | |
| | Oral tradition sites, which include spiritual and oral history sites of importance to landowners Historic sites specific to World War II or associated with the early | | |
| | period of the Independent State of Papua New Guinea's colonial history or associated with the early history of mining in PNG | | |
| | Archaeological sites, which often reveal information about past human activity in the area | | |
| Cultural heritage site | An archaeological, oral tradition or historical site, the size of which is determined either by the extent of cultural material and/or historical features, or in the case of oral tradition sites, by the communities who associate with these places. | | |
| Decline | A sloping underground tunnel excavated for mobile equipment access from surface or from level to level. | | |
| Disturbance of cultural heritage | To engage in an activity which results in any of the following: | | |



| Term | Definition |
|-------------------------------------|--|
| | Unearthing of cultural heritage material Displacing cultural heritage material Unauthorised collection of cultural heritage material Altering a hydrological regime which affects a cultural heritage site Working within, or in proximity to, a cultural heritage site without undertaking appropriate cultural ceremonies |
| Ground disturbance | Means of disturbance of the topsoil or surface layer of the ground or a waterway by machinery in the course of grading, excavating, digging, dredging or deep ripping. |
| Historic significance Historic site | Value attributed to a place, object or practice for its association with the history of society or historical themes. A World War II place or object associated with Japanese or Allied military |
| | actions which preserves at least some physical remnant of that action; a place or object that preserves physical evidence in the form of equipment, structures or excavations relating to the history of exploration and mining in PNG; or any other place or object associated with the early period of PNG's colonial history. |
| Human skeletal remains | Includes all of the bones and teeth that comprise foetal, neonate, infant, juvenile and adult individuals, irrespective of their state of presentation; i.e., they include fragmentary and isolated bones and teeth as well as complete and articulated bones and teeth, unless otherwise excepted. |
| Infrastructure Corridor | The area encompassing the Project infrastructure linking the Mine Area and the proposed Coastal Area, being corridors for pipelines, roads and laydown areas. The proposed concentrate pipeline, terrestrial tailings pipeline and fuel pipeline will connect the Mine Area to the Coastal Area. A proposed Mine Access Road and Northern Access Road will connect the Mine Area to the Highlands Highway. New single-lane bridges are proposed over the Markham, Watut and Bavaga rivers. Laydown areas will be located at key staging areas. |
| Intangible cultural heritage | Oral traditions passed down through generations that influence practices, expressions and the knowledge and skills that communities recognise as part of their cultural heritage. |
| Known human skeletal remains | Relatively recent burials known to the local communities (through oral traditions or recent burial). |
| Mine Area | The area encompassing the proposed block cave mine, underground access declines and nearby infrastructure, including a portal terrace and waste rock dump supporting each of the Watut and Nambonga declines, the Watut Process Plant, power generation facilities, laydown areas, water treatment facilities, quarries, wastewater discharge and raw water make-up pipelines, raw water dam, sediment control structures, roads and accommodation facilities for the construction and operations workforces. |
| Non-replicable cultural heritage | Cultural heritage that is related to the social, economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management, where the (i) cultural heritage is unique or relatively unique for the period it represents, or (ii) cultural heritage is unique or relatively unique in linking several periods in the same site. |
| Oral tradition site | A cultural heritage site known by a person or people through their historical and cultural stories transmitted from one generation to another without written instruction. |
| Outfall Area | The area encompassing the Outfall System, pipeline laydown area, choke station, access track and parking and turnaround area. |



| Term | Definition |
|------------------------------|--|
| Port Facilities Area | Located at, or in proximity to, the Port of Lae, with a site adjacent to Berth 6 (also known as Tanker Berth) nominated as the preferred option. The proposed facilities will include the concentrate filtration plant and materials handling, storage, ship loading facilities and filtrate discharge pipeline. |
| Project Area | The land that is the subject of Project activities and Project facilities, being: The Mine Area The Infrastructure Corridor The Coastal Area |
| Replicable cultural heritage | Tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures. |
| Tangible cultural heritage | The legacy of physical artefacts and objects significant to a specific culture. |



1. INTRODUCTION

Wafi Mining Limited and Newcrest PNG 2 Limited (the WGJV Participants) are equal participants in the Wafi-Golpu Joint Venture (the WGJV). The WGJV Participants are currently investigating the feasibility of constructing, operating and (ultimately) closing an underground copper-gold mine and associated ore processing, concentrate transport and handling, power generation, water and tailings management, and related support facilities and services (hereafter the "Wafi-Golpu Project" or "Project").

The proposed underground copper-gold mine will be located beneath Mt Golpu, approximately 300 kilometres (km) north-northwest of Port Moresby and 65km southwest of Lae (Figure 1) in the Morobe Province of the Independent State of Papua New Guinea (PNG).

Geographically, the Project will occupy a mine to port footprint that extends from the Mine Area to the Coastal Area with an Infrastructure Corridor linking them. Together, these three discrete areas make up the proposed Project Area.

The Mine Area, encompassing the proposed mine and related ancillary facilities, is located on the northern side of the Owen Stanley Ranges of PNG, in the foothills of the Watut River catchment. Much of the Mine Area is steep, mountainous and heavily forested, transitioning to the broad, flat to gently undulating, Watut River valley to the west.

The Infrastructure Corridor follows the broad flat plains of the Watut River and Markham River valleys to connect the Mine Area to the Coastal Area.

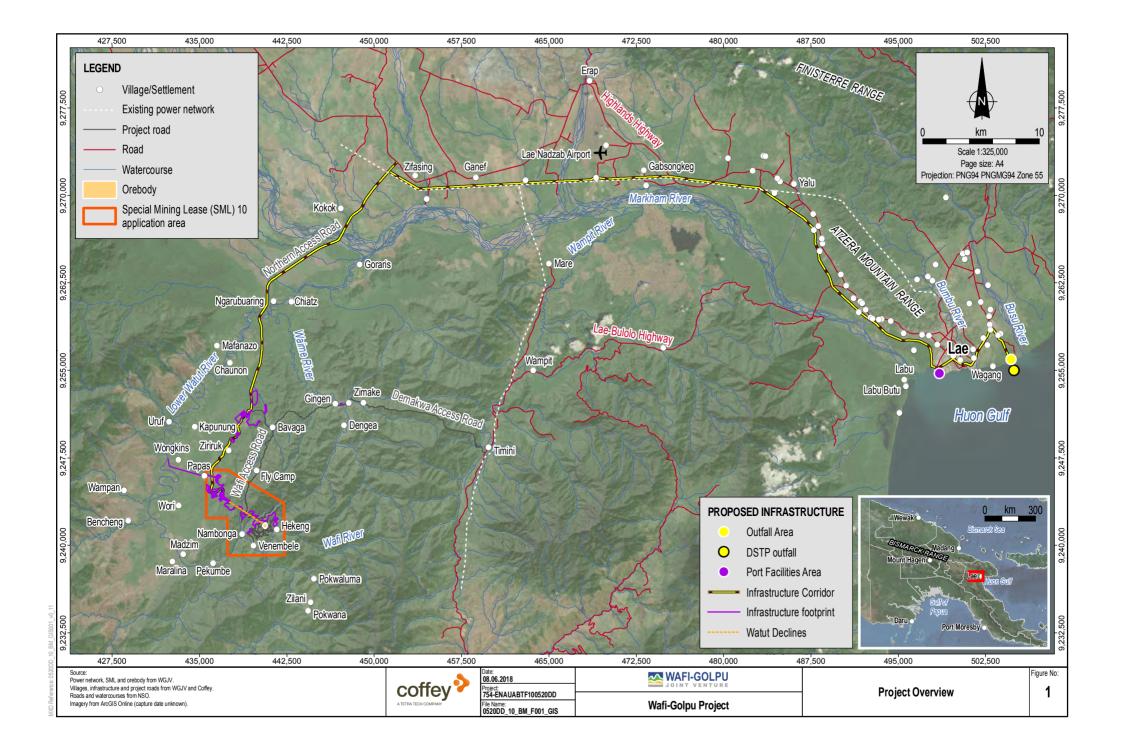
The Coastal Area encompasses both the proposed Port Facilities Area located at the Port of Lae, where copper-gold concentrate will be exported, and the Outfall Area located east of the city of Lae near the village of Wagang, for tailings management into the Markham Canyon in the Huon Gulf.

The locations of key components of the Project are shown in Figure 1.

1.1. Objectives of this Plan

The Wafi-Golpu Joint Venture (WJGV) recognises the importance of cultural heritage for current and future generations. It is essential that the Project respects host communities' cultural heritage sites in order to achieve mutually beneficial outcomes and long-term Project success. While important throughout all phases of the Project, diligence with respect to cultural heritage management is particularly critical when undertaking construction activities, during which disturbance to sites has the highest potential to occur.

This Cultural Heritage Management Plan for the Wafi-Golpu Project is a 'live' document. It is commensurate with the phase of Project planning at the time of lodgement of the Wafi-Golpu Project Environmental Impact Statement (EIS) with the Papua New Guinea (PNG) Conservation and Environment Protection Authority (CEPA).





The objectives this Cultural Heritage Management Plan are to:

- Provide all Project personnel with guidance and rules that will allow the Project to carry out its activities with due regard and respect for the cultural heritage of host communities.
- Wherever possible, design and locate activities to avoid disturbance to oral tradition, historic and archaeological cultural heritage sites.
- Manage unavoidable disturbance or destruction to the greatest extent in active collaboration with affected landowners.
- Manage WGJV responsibilities for cultural heritage sites:
 - o In compliance with the State of PNG legislation.
 - In-line with WGJV social performance responsibilities through the Social Responsibility Policy and Sustainable Business Management System (see Chapter 23 Integrated Management System).
 - With guidance from the International Finance Corporation (IFC) Performance Standard (PS 8) (IFC, 2012) and International Council of Mining and Minerals (ICMM) Sustainable Development Framework (ICMM, 2015).
- Work with local communities and the PNG National Museum and Art Gallery (NMAG) in the management of cultural heritage sites.

The Cultural Heritage Management Plan outlines the proposed management measures and procedures that staff and contractors are to follow to manage potential impacts to cultural heritage in consultation with the appropriate community representatives and the NMAG. The Cultural Heritage Management Plan addresses both recorded sites identified in cultural heritage surveys and unrecorded sites which may be uncovered in the course of conducting Project activities ('chance finds').

1.2. Statutory Framework

The following Acts and regulations address the management of cultural heritage in PNG.

National Cultural Property (Preservation) Act 1965

Cultural heritage in PNG is protected under the *National Cultural Property (Preservation) Act 1965* and the National Cultural Property (Preservation) Regulations 1965.

The National Cultural Property (Preservation) Act 1965 and associated regulations protect moveable and immoveable cultural property, including both manufactured and natural objects that are connected with past and present traditional cultural practices. The National Cultural Property (Preservation) Act 1965 specifies offences and penalties that apply to the willful destruction, damage or defacement of national cultural property, and requires anyone who discovers a:

- Cave or other place in which ancient remains, human or other, are to be found; or
- Carving, painting or other representation on rock or in a cave; or
- Deposit of ancient pottery or historical remains; or
- Place used in former times as a ceremonial or burying ground

to report the discovery to the regulatory authority.

The principal government institutions responsible for enforcing the *National Cultural Property (Preservation) Act 1965* are the National Museum and Art Gallery of Papua New Guinea (NMAG) and the National Cultural Commission (NCC), each of which is established



under its own enabling legislation. In practice, the NMAG performs a number of the statutory functions of the NCC, including:

- Maintenance of a national cultural heritage site register
- Authority to issue artefact export permits
- Statutory body to which cultural heritage sites are reported.

National Museum and Art Gallery Act 1992

The *National Museum and Art Gallery Act 1992* establishes the NMAG as the principal government institution responsible for preserving PNG's cultural heritage. The functions of the NMAG listed in section 4(1) include the following:

- Protect and conserve the cultural and natural heritage of PNG as required by the Environmental Planning Act 1978, National Cultural Property (Preservation) Act 1965 and the Conservation Areas Act 1978
- Administer the National Cultural Property (Preservation) Act 1965 and War Surplus Materials Act 1952 and any other Act that applies to the functions of the Museum
- Research and document the prehistory of PNG by archaeological surveys and excavations and manage the national archaeological collections
- Monitor archaeological research in PNG and issue archaeological permits for the short-term loan of archaeological material for study overseas
- Maintain the national register of traditional and archaeological sites, locate and record prehistoric sites and monuments, and carry out the salvage of archaeological excavations as required by the National Cultural Property (Preservation) Act 1965 and the Environmental Planning Act 1978
- Identify, document and monitor the conditions of objects of national cultural significance, recommend their proclamation as national cultural property, and keep a register of national cultural property
- Monitor the collection and export of artefacts, issuing permits and perform other duties as required by the *National Cultural Property (Preservation) Act 1965*
- Monitor researchers from other institutions carrying out research in the areas of the Museum's functions.

Note that the *Environmental Planning Act 1978* has now been repealed and replaced by the *Environment Act 2000*.

As the responsible authority for 'carrying out the salvage of archaeological excavations', the NMAG requires that permits for cultural heritage mapping and archaeological surveys be obtained to conduct some cultural heritage investigations. While not required under legislation, the application for and grant of permits is nevertheless accepted as procedural practice in PNG. Other developments, such as the ExxonMobil PNG LNG Project, have complied with this practice.

National Cultural Commission Act 1994

The NCC is established under the provisions of its enabling legislation, the *National Cultural Commission Act 1994*. The National Cultural Commission is responsible for:

- Preserving, protecting, developing, promoting and (for approved aspects) marketing the traditional and contemporary cultures of PNG
- Establishing and oversighting three National Cultural Institutions (the Institute of PNG Studies, the National Film Institute and the National Performing Arts Troupe).



However, beyond these general functions, the *National Cultural Commission Act 1994* does not provide any specific role in the management of cultural heritage sites known or likely to be found in the Project Area.

Coroners Act 1953

Section 9 of the Act requires that where a body is found with suspicious or unusual circumstances, immediate notice must be given to the nearest Coroner or commissioned officer of the Police Force, who must then give notice to the Coroner.

Cemeteries Act 1955

The Cemeteries Act 1955 allows for burials on private grounds to be considered cemeteries for the purposes of the Act. Section 29 of the Act allows for the exhumation of burials under certain conditions, if authorised by the Minister, a Provincial Administrator (under delegated authority from the Minister) or a coroner (subject to any law relating to coroners).

This Act, therefore, is relevant to Project in that the potential exhumation of traditional burials as a Project-related impact management measure require a specific authority.

Compensation

Where destruction of cultural heritage sites occurs either by accident or following consultation with landowners, the PNG Valuer-General's Compensation Schedule for Trees and Plants, All Regions (Department of Lands 2008; see also PNG Chamber of Mines and Petroleum 2008) provides guidelines for appropriate compensation rates for 'ceremonial grounds', 'sacred sites' and 'grave sites'.

Environment Act 2000

The Environment Act 2000 and associated regulations require the grant of a Level 3 environment permit to undertake mining activities, including those that require a special mining lease. An environmental impact assessment process, including the preparation of an EIS, informs the decision by the PNG Government to grant both the Level 3 environment permit and the special mining lease.

The cultural heritage content required in an EIS is described in guidelines prepared by the former PNG Department of Environment and Conservation (DEC) (now CEPA) (DEC, 2004a; DEC, 2004b). This content includes details of archaeological, historical, cultural or religious features of the project area under consideration, the potential impacts of the project on these features, and proposed measures for managing impacts (DEC, 2004b).

1.3. Policy and Standards

The WGJV Social Responsibility Policy outlines key sustainability outcomes which guide cultural heritage management in the Project Area. Underlying principles applied to the management of cultural heritage include the following:

- Recognising and respecting the culture, values and traditions of the communities.
- Being open and honest in describing the effects that project activities might have on communities.
- Seeking to create lasting relationships built on mutual respect and trust.
- Encouraging partnerships to ensure community cultural heritage programs are well designed and delivered effectively.

These principles are supported by the WGJV Cultural Heritage Standard (COM07) that recognises the particular importance of cultural heritage and requires that the Project identify areas of cultural, spiritual or historic significance and develop feasible management



measures in consultation with the appropriate community representatives and the NMAG. This includes the joint identification of areas of significance and demonstrating respect for the beliefs, customs and traditions of affected communities.

The objectives of the International Finance Corporation (IFC) Performance Standard (PS) 8 (Cultural Heritage) (IFC, 2012) are to protect cultural heritage from the adverse impacts of project activities, support its preservation, and promote the equitable sharing of benefits from the use of cultural heritage, regardless of whether or not it has been legally protected or previously disturbed. Performance Standard 8 provides specific guidance on a number of aspects relevant to the management of cultural heritage, including:

- Protection of cultural heritage in Project design and execution
- Chance finds procedures
- Consultation
- Community access
- Removal of replicable and non-replicable cultural heritage

The Wafi-Golpu Project Cultural Heritage Management Plan is informed by IFC PS 8 and the International Council of Mining and Minerals (ICMM) Sustainable Development Framework (ICMM, 2015).

2. ROLES AND RESPONSIBILITIES

The WGJV Permitting and Compliance Manager is responsible for the implementation, regular performance review, and any updates to this Cultural Heritage Management Plan and its associated procedures with respect to the protection and management of cultural heritage sites and archaeological material.

The WGJV Community Affairs and Lands Manager is responsible for monitoring the implementation of cultural heritage procedures and communication and liaison with communities and with the NMAG with respect to cultural heritage management.

Further responsibilities for: the implementation of specific management measures; monitoring; communication; and liaison are listed in the plan and are set out in Section 3.

3. STANDARD AND SITE-SPECIFIC MANAGEMENT MEASURES

As noted above, this Cultural Heritage Management Plan is a 'live' document. The Plan contains:

- Standard management measures to be implemented by WGJV employees and contractors when undertaking Project activities. For example, when planning and designing infrastructure or conducting vegetation clearing, ground levelling, bulk earthworks and major excavations.
- Site-specific management measures, which are to be implemented by WGJV employees and/or contractors for individual sites that have the potential to be impacted by the construction and operation of Project infrastructure, and/or by Project-related resettlement.

Standard management measures are already in place which provide for cultural heritage impacts to be considered and responded to when planning and undertaking activities in areas that have not previously been disturbed by the WGJV. This This includes making WGJV employees and contractors aware of their cultural heritage responsibilities when operating on WGJV work sites. Standard management measures are set out in the



following sections of this plan. The designated WGJV employees and/or contractor personnel responsible for the implementation of these management measures are set out in Table 1 to Table 4.

Site-specific management measures for individual sites with the potential to be impacted by Project activities have been proposed in Appendix D. Management measures have been proposed based on the site type and the type of impact each site has the potential to experience. Proposed measures will be finalised by WGJV in consultation with affected Project Area landowners and the NMAG. Should additional cultural heritage sites be located through further surveys or chance finds uncovered during construction or operations, site registers will be updated with the details of the new sites and the management measures for these sites will be determined in consultation with affected landowners and the NMAG.

Both standard and site-specific management measures will inform the conditions under which land disturbance activities can take place. These conditions will be documented in the WGJV FM1098 Permit for Land Disturbance relevant to those activities (Appendix B). The purpose of the FM1098 Permit for Land Disturbance is to identify and communicate environmental, social and cultural heritage requirements to avoid, minimise and/or manage the impacts of the physical disturbance of land by the Project.

3.1. Training and Induction

Table 1: Training and induction measures

| Measure | Timing | Responsibility |
|---|--|--|
| Training | | |
| All personnel and contractors will undergo cultural awareness training during their induction which will include cultural heritage procedures. Inductions All personnel and contractors will be informed as part of their induction that any interference with cultural heritage sites or removal of artefacts is strictly prohibited unless authorised under legislation and in writing by the relevant landowners. Breaches of the law in this regard will result in summary dismissal by the WGJV and potential prosecution by the State of PNG. Induction support material is attached at Appendix A. | Prior to commencing work on the Project, and with annual induction updates | WGJV Permitting and Compliance Manager WGJV Site Construction Support Manager |



| Measure | Timing | Responsibility |
|--|--|-------------------------------------|
| Toolbox Meetings Through daily toolbox meetings prior to the commencement of work at specific Project work sites, all personnel and contractors involved in that work will be informed of recorded cultural heritage sites and the management procedures to be followed for protection of these sites, including: | Prior to commencing work at specific Project work sites. | WGJV Area Manager- Surface Works |
| Locations of recorded cultural heritage sites in the vicinity of work sites, and requirement to avoid all sites not authorised in writing for disturbance Types of cultural heritage sites, including skeletal remains, that may exist within disturbance areas that, if uncovered, will trigger the implementation of the Cultural Heritage Chance Finds Procedure (Appendix C) Protocols for responding to chance finds of cultural heritage sites, including skeletal material which may include human remains (Appendix C) | | |

3.2. Planning Works

Table 2: Planning measures

| Measure | Timing | Responsibility | |
|--|--|--|--|
| Planning ground disturbing works | | | |
| Cultural heritage management requirements are included in Project planning and design. To the extent practical, Project components will be situated to avoid recorded oral tradition, historic and archaeological sites. | During planning and detailed design phases | WGJV Area Manager- Surface Works | |
| Adequate time should be allowed in the construction schedule in the event that salvage activities and/or relocation of burials (including any associated regulatory permitting and community liaison) are required. This includes early application for a FM1098 Permit for Land Disturbance (Appendix B) to confirm planning activities are agreed internally and appropriate sign-off is obtained. | | | |
| Suitably qualified archaeologist and/or anthropologist to advise as required on the management of recorded oral tradition, historic and archaeological cultural heritage sites. Confirm completion of the FM1098 Permit for Land Disturbance process. | Prior to work commencing at specific Project work sites | WGJV Permitting and Compliance Manager | |



| Measure | Timing | Responsibility |
|---|--|---|
| Recorded heritage sites that are not authorised in writing for disturbance and are in the vicinity of work areas will be marked with temporary fencing or flagging to exclude entry into the area. These management measures will be set out in the FM 1098 Permit for Land Disturbance. | Prior to vegetation clearance and ground disturbance | WGJV Area Manager- Surface Works as directed by WGJV Environment and Community Affairs and Lands personnel |
| Limit vehicle movements to established tracks (establishment of new tracks is subject to FM 1098 Permit for Land Disturbance process). Vehicle movement into fenced or flagged areas is prohibited. | Ongoing | All staff and contractors |
| If physical disturbance of an archaeological or cultural heritage site is unavoidable, approval from the WGJV General Manager External Affairs and Sustainability as part of the FM 1098 Permit for Land Disturbance is required. Approval for physical disturbance will ascertain the requirement for community participation and/or the conduct of appropriate ceremonies associated with this disturbance. | As required and prior to vegetation clearing and ground disturbance. | WGJV Area Manager- Surface Works |
| WGJV must also secure relevant regulatory approvals from the PNG National Museum and Art Gallery (NMAG) prior to the movement and storage of any artefacts in accordance with local community cultural protocols. | | |
| Once approved, the movement of any artefacts must be carried out either by (or supervised by) a suitably qualified specialist in accordance with legislation, national guidelines provided by the NMAG and local community cultural protocols. | As required and prior to vegetation clearing and ground disturbance. | WGJV Permitting and Compliance Manager |

3.3. Vegetation Clearing

Table 3: Vegetation clearance management measures

| Measure | Timing | Responsibility | | |
|---|--------------------------|--|--|--|
| Prior to Clearing Vegetation | | | | |
| All works that disturb land or vegetation will not commence until authorised through an approved FM 1098 Permit for Land Disturbance application prior to the start of works. | Prior to work commencing | Earthworks contractor construction manager (under supervision by WGJV Construction Superintendent) | | |
| Clearing Vegetation | | | | |
| Conduct all works in accordance with the approved FM 1098 Permit for Land Disturbance. | Ongoing | Earthworks contractor construction manager (under supervision by | | |



| Measure | Timing | Responsibility |
|--|---------|--|
| | | WGJV Construction Superintendent) |
| Minimise the lateral extent and duration of exposed surfaces during construction activities through staged works wherever possible. | Ongoing | Earthworks contractor construction manager (under supervision by WGJV Earthworks Supervisor) |
| Machinery operators working in proximity to recorded cultural heritage sites to have a GPS unit in their vehicle loaded with the location of the recorded heritage and any buffer areas in which Project activities are prohibited. | Ongoing | Earthworks contractor construction manager (under supervision by WGJV Earthworks Supervisor) |
| Routine inspection of cultural heritage sites in and around the vicinity of the work areas to monitor compliance with requirements for non-disturbance of sites that are not authorised for disturbance. The regularity (e.g., daily, every second day, weekly) of inspections will be determined on a case by case basis and specified in the FM1098 Permit to Disturb. Considerations will include the proximity of the cultural heritage site to the work site and its accessibility to WGJV employees, contractors and others. | Ongoing | WGJV Environmental Monitoring Superintendent / WGJV Community Affairs and Lands Manager |

3.4. Ground Levelling, Bulk Earthworks and Major Excavations

Table 4: Ground levelling, bulk earthworks and major excavations management measures

| Measure | Timing | Responsibility | |
|---|--------------------------|---|--|
| Prior to Disturbing Ground | | | |
| All works that disturb land or vegetation will not commence until authorised through an approved FM 1098 Permit for Land Disturbance prior to the start of works. | Prior to work commencing | WGJV Area Manager Surface Works | |
| Machinery operators working in proximity to recorded cultural heritage sites to have a GPS unit in their vehicle loaded with the location of the recorded heritage and any buffer areas in which Project activities are prohibited. | Ongoing | Earthworks contractor construction manager (under supervision by WGJV Earthworks Supervisor) | |
| Previously Unrecorded Cultural Heritage Si | tes | | |
| In the event of the discovery of suspected human remains, cease work immediately. Follow procedures set out in the Chance Finds Procedure (Appendix C Chance Finds Flowchart). | As required | All persons Earthworks contractor construction manager (under supervision by WGJV Earthworks Supervisor) | |



| Measure | Timing | Responsibility |
|--|-------------|---|
| In the event of the discovery of <u>a potential</u> <u>cultural heritage site</u> , cease activity immediately. Follow procedures set out in the Chance Finds Procedure (Appendix C Chance Finds Flowchart). | As required | All persons Earthworks contractor construction manager (under supervision by WGJV Earthworks Supervisor) |
| Routine inspection of cultural heritage sites within and in the vicinity of the work areas to monitor compliance with requirements for non-disturbance of sites that are not authorised for disturbance. The regularity (e.g., daily, every second day, weekly) of inspections will be determined on a case by case basis and specified in the FM1098 Permit to Disturb. Considerations will include the proximity of the cultural heritage site to the work site and its accessibility to WGJV employees, contractors and others. | As required | WGJV Environmental Monitoring Superintendent / WGJV Community Affairs and Lands Manager |

4. PERFORMANCE MANAGEMENT

4.1. Monitoring

As set out in Section 2, the WGJV Permitting and Compliance Manager is responsible for:

- Confirming the Cultural Heritage Management Plan, including the site-specific management measures agreed with local communities and the NMAG, is implemented. This is to address sites affected by Project infrastructure and by resettlement activities.
- Undertaking performance audits to evaluate the effectiveness of management measures.

The WGJV Community Affairs and Lands Manager is responsible for:

- Routinely inspecting recorded cultural heritage sites in the Project Area to confirm they are being managed as agreed.
- Ongoing liaison with local communities regarding cultural heritage issues, including addressing any complaints or grievances received through the Grievance Management Procedure (Appendix A of Stakeholder Engagement Plan (532-8700-CY-PLA-0001)) that relate to disturbance of oral tradition, historic and archaeological cultural heritage sites.

In the event of unauthorised disturbance of recorded oral tradition, historic or archaeological cultural heritage sites, the WGJV Earthworks Supervisor and the WGJV Community Affairs and Lands Manager must be notified. This notification ideally will occur within two hours of the disturbance occurring. The incident must also be recorded in IBIS (the Project's Integrated Business Information System). A preliminary investigation report will then be lodged with the WGJV Area Manager Surface Works and the WGJV Community Affairs Manager within 24 hours and elevated through management in accordance with the WGJV's Incident Management, Reporting and Notification procedure (532-7000-SA-PRO-0006).



Monitoring activities will be at their most intensive at any time new ground disturbance occurs, irrespective of whether this is during the construction or operations phase of the Project.

4.2. Reporting

The WGJV site monthly report will include a summary of:

- Incidence of disturbance to recorded cultural heritage sites
- All cultural heritage sites identified through chance finds
- Management measures undertaken as a result of chance finds
- Any site visits, field surveys or fieldwork undertaken in relation to cultural heritage
- Number and results of verification inspections prescribed in Table 3 Vegetation clearance management measures and Table 4 Ground levelling, bulk earthworks and major excavations management measures
- Performance indicators as applicable in the reporting period

The WGJV will report to the Director of NMAG and the Managing Director of the Conservation and Environmental Protection Authority (CEPA) in accordance with relevant permit conditions and as per legislative requirements. Reporting to landowner communities will be as per the requirements of agreements with those communities and will be guided by IFC PS8.

5. REFERENCES

Australia ICOMOS, 2013. The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013. Australia ICOMOS Incorporated.

DEC, 2004a. Guideline for Preparation of Environmental Inception Report, Department of Environment and Conservation, Waigani.

DEC, 2004b. Guideline for Conduct of Environmental Impact Assessment & Preparation of Environmental Impact Statement, Department of Environment and Conservation, Waigani.

Green, M. and Muke, J., 2018. 'Wafi-Golpu Project Cultural Heritage Baseline and Impact Assessment'. Report prepared for Wafi-Golpu Joint Venture, April 2018. Melbourne, Australia.

ICMM, 2015. Sustainable Development Framework, International Council on Mining and Metals, London, United Kingdom, viewed 28 July 2015, https://www.icmm.com/ourwork/sustainable-development-framework/10-principles.

IFC, 2012, IFC Performance Standards on Environmental and Social Sustainability, IFC, Washington DC, viewed 20 August 2015, http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbffd1a5d13d27/PS_English_2 012_Full-Document.pdf?MOD=AJPERES.



Appendix A Cultural Awareness Training and Induction

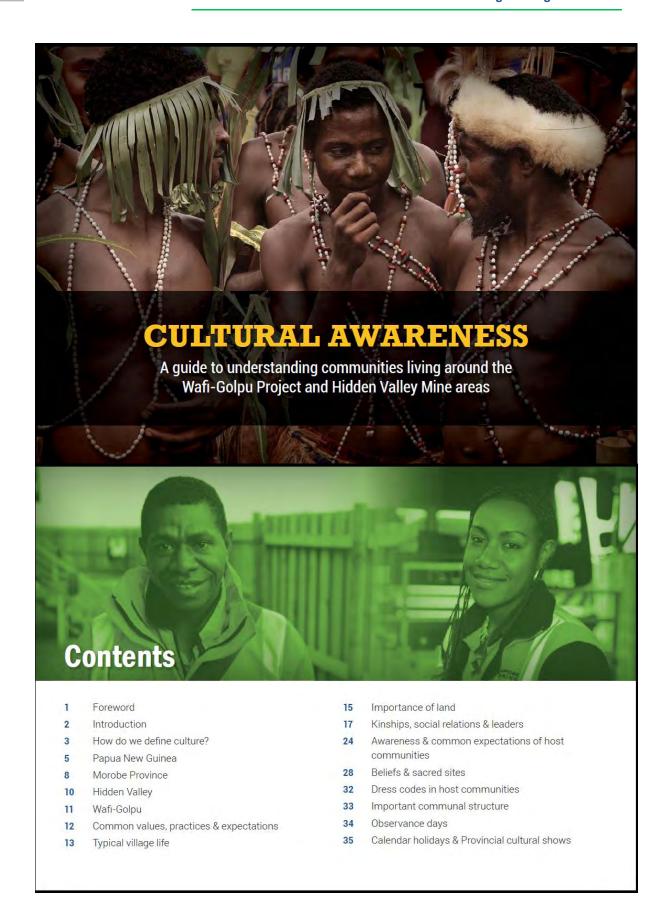
Cultural Awareness Booklet (532-8700-CY-REF-0001)
Cultural Heritage Management 'E-Flash' (532-8700-CY-REF-0002)





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E-Flash 532-8700-CY-REF-0002



CULTURAL HERITAGE MANAGEMENT

Key Objectives of this E-Flash?

To inform all WGJV employees and contractors on:

- Cultural heritage and your legal obligations
- Types of cultural heritage in the project area
- Measures to avoid impacts on cultural heritage
- Action you must take if you find possible cultural heritage when working on site

The above objectives seek to ensure that no cultural heritage sites or property are accidentally destroyed, damaged or defaced by the WGJV or its contractors while developing the project.

How can you help?

By communicating this E-Flash during your toolbox meetings, posting this E-Flash on your notice boards for everyone to read, and by following the steps described below.

CULTURAL HERITAGE AND YOUR LEGAL OBLIGATIONS

The WGJV respects the culture and heritage of local communities. The WGJV must also comply with the laws of Papua New Guinea that protect communities' cultural heritage. This cultural heritage includes:

Oral tradition sites

These sites relate to the local people's history, traditional stories and beliefs

Site types include:

Burials
Cemeteries
Sacred Sites
Former villages
Former camps
Rock shelters

Archaeological sites

These sites can reveal important information about human life in PNG

Site types include:

Ancient pottery
Stone axes
Stone axe-heads
Grinders
Grindstones
Other stone tools

World War II sites

These sites relate to Japanese and Allied Forces campaigns in PNG during WWII

Site types include:

Old plane wrecks

In Papua New Guinea, it is ILLEGAL to:

- Destroy, damage or deface cultural heritage
- Remove cultural heritage from PNG without consent

The law also requires that WGJV report certain types of cultural heritage to the PNG National Museum and Art Gallery. This includes:

- Caves and other places where ancient human or other remains found
- Carvings and paintings on rocks or in caves
- Deposits of ancient pottery or historical remains
- Places that have been used in the past as ceremonial or burying grounds

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MEASURES TO AVOID IMPACTS TO CULTURAL HERITAGE

Before any activity can start, the area must be inspected for cultural heritage.

If cultural heritage is found, WGJV staff and contractors must comply with WGJV management measures to protect the sites. This may include erecting fences around sites, avoiding sites, or arranging for the local landowners to conduct ceremonies to make areas safe in accordance with their traditional beliefs.

WGJV management staff will provide direction on what sites exist and how they need to be protected.

WGJV staff and contractors should always ask before starting work if there are any cultural heritage sites that need to be protected.

WHAT YOU MUST DO IF YOU SEE POSSIBLE CULTURAL HERITAGE WHILE WORKING

Cultural heritage can still be found even if an area has been inspected first. This is because thick grass and forest can make cultural heritage hard to see. Some items, like ancient pottery, stone tools and bones may be buried and won't be seen until clearing vegetation or earthworks begin.

You must watch out for cultural heritage if you are clearing vegetation or digging.

If you see anything that you think might be cultural heritage, such as old pottery, stone artefacts or bones, you must temporarily stop clearing or digging and tell your site supervisor.

Your supervisor will then arrange for the site to be checked in accordance with WGJV's Chance Find Procedure. The WGJV Chance Find Form (FM1223) also has to be completed.

It is better to be careful, than to damage sites of importance to local people and to break the law.



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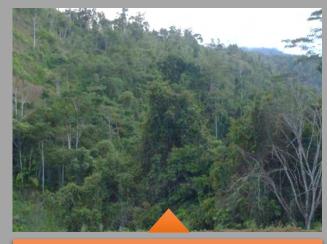
graves

TYPES OF CULTURAL HERITAGE IN THE PROJECT AREA



STONE ARTEFACTS

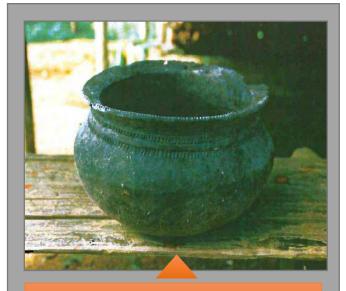
Stone artefacts may include stone axes, axeheads, chisels, grinders, pestles and other small tools



PLES TAMBU PLACES

Local people regard some places as *ples tambu* and home to *masalai* spirits.

Ceremonies should be conducted before work starts in these areas



POTTERY

The Babuaf people are one of only a few pottery producing clans in the Morobe Province and ancient pottery (whole pots and pieces of pots) may be found





BURIALS AND CEMETERIES

Burials and cemeteries may be marked by large or grouped stones, crosses, borders or tanget plants



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Appendix B FM 1098 Permit for Land Disturbance





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| _ | 4 F F I | | |

1.0 THE APPLICANT

| Name. | | i osition. | | | | |
|--------------------|---------------------------------------|-------------------------------|---------------------------------------|--|--|--|
| Company: | | Department: | | | | |
| Phone No.: | | Email: | | | | |
| 2.0 DESC | 2.0 DESCRIPTION OF THE PROPOSED WORKS | | | | | |
| General location | (e.g. Northern Access Road o | n the southeast bank of the V | Vatut River) | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Full description o | of proposed works (e.g. a ne | w 90m access track to a new | 100m² drill pad with two drill holes) | | | |
| | · proposou nome (eight and | | , | | | |
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| | | | | | | |
| | | | | | | |
| 3.0 STAR | T AND END DATES | | | | | |
| Planned start da | ite | | | | | |
| Estimated comp | letion date | | | | | |



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Yes

No

4.0 **WORK LOCATION MAP**

A detailed map(s) of proposed activities must accompany this application and should satisfy, as a minimum, the requirements outlined in the table below.

Work Location Map Content Requirements

| Proposed work | | |
|--|---|----|
| Proposed works detailed on figure | | |
| Works boundary clearly defined (no works are permitted outside this boundary) | | |
| Are the works within Project tenements? | | |
| Total disturbance area for all works | | ha |
| Additional requirements | | |
| Existing infrastructure plotted | | |
| Existing environmental, social and cultural heritage survey features plotted | | |
| Reference points shown (e.g. off-take point for a new track) | | |
| Tenement boundaries shown | | |
| Scale bar shown | | |
| Environment Permit compliance sites shown (e.g. discharge, abstraction and monitoring points) | | |
| 5.0 DESCRIBE THE PROPOSED WORK METHODS | | |
| e.g. Survey points and site boundaries established, initial vegetation clearance by hand tools, mechanice clearance with a backhoe, mechanised earthworks using dozer and backhoe, Other activity (e.g. drilling) dozer. | • | |



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| 6.0 | WHAT CONTROL MEASURES DOES THE APPLICANT PROFIMPLEMENT TO AVOID AND/OR MINIMISE IMPACTS? | POSE TO | |
| | | | |
| | | | |
| | | | |
| 7.0 | DESCRIBE WHAT WILL BE DONE WITH THE CLEARED VEG | ETATION | |
| 7.0 | EXCAVATED MATERIAL AND TOPSOIL | ETATION, | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | Yes | No |
| | Confirm no side-casting | | |



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B. ENVIRONMENT

| 8.0 | ARE THERE ANY REQUIREMENTS SPECIFIED IN ENVIRONMENT PERMITS THAT MUST BE ACTIONED OR ADHERED TO IN UNDERTAKING THESE WORKS? |
|------|---|
| | |
| | |
| 9.0 | WHICH ENVIRONMENTAL VALUES MAY BE AFFECTED? |
| | |
| 10.0 | WHAT ARE THE LIKELY IMPACTS ON THE ENVIRONMENT? |
| | |
| | |
| | |
| 11.0 | WHAT ADDITIONAL CONTROL MEASURES MUST BE TAKEN TO AVOID AND/OR MINIMISE ENVIRONMENTAL IMPACTS? (REFER TO COMMITMENTS IN ENVIRONMENT PERMIT AND EIS APPLICATIONS WHERE RELEVANT) |
| | |
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| 12.0 | 0 DESCRIBE POTENTIAL REHABILITATION OPTIONS FOR THE AREA | | | | |
|-----------------|--|--------------------------------------|-----------|------|--|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| <u>Environr</u> | <u>ment Manager</u> | | | | |
| | | | | | |
| Name | | Position | Signature | Date | |
| Recomm | end | Approval | | | |
| | | Approved with conditions shown above | | | |
| | | Refused (provide reasons) | | | |
| | | | | | |



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C. COMMUNITY AFFAIRS

| 13.0 | LIST THE COMMUNITIES MOST LIKELY TO BE AFFECTED BY THE PROPOSED WORK |
|---------|--|
| | |
| | |
| 14.0 | OUTLINE RELEVANT CONSULTATION UNDERTAKEN WITH LANDOWNERS |
| Provide | meeting minutes or written records where applicable |
| | |
| 15.0 | WHAT ADDITIONAL CONTROL MEASURES MUST BE TAKEN TO AVOID AND/OR MINIMISE COMMUNITY IMPACTS? |
| | |
| 16.0 | HAS THE COMMUNITY GIVEN APPROVAL OR ACCEPTED THE WORK WILL PROCEED? |
| | Yes No |
| | |



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17.0 CONFIRM THAT COMPENSATION HAS BEEN ADDRESSED

| Attach relevan | ant agreement or meeting minutes. If compensation is not required e | xplain below. | | | | | |
|----------------|---|---|--|--|--|--|--|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | 18.0 WHAT IS THE CLASSIFICATION OF LAND CLEARING FOR THE PURPOSES OF DETERMINING LAND-BASED COMPENSATION? | | | | | | |
| | Disturbance, Nuisance or Inconvenience | | | | | | |
| | For example: | | | | | | |
| | interference with the bush and wildlife interference with people's access to the bush, and severance of land f | rom other land of the | | | | | |
| | owner; or occasional and minor nuisances caused by road-traffic, noise and dus | t, as well as other minor | | | | | |
| | inconveniences. | | | | | | |
| | Cleared Land For example | | | | | | |
| | physically clearing ground-cover without causing any serious damage the land; or | to the natural surface of | | | | | |
| | clearing of commonly occurring grass, creepers or vines, small plants which are self-seeded and not cultivated by man. | and general undergrowth | | | | | |
| | Damaged Land | | | | | | |
| | For example: • where the natural surface is damaged through substantial top soil imp. | act such as earthworks for | | | | | |
| | roads and site preparation for physical infrastructure; or | | | | | | |
| | the inundation or covering of the natural land surface as a result of sto (rocks and ground) and tailings material (silt and sand). | ne inundation or covering of the natural land surface as a result of storing overburden material rocks and ground) and tailings material (silt and sand). | | | | | |
| | Lost Land | ınd | | | | | |
| | For example: where the natural surface has not only been damaged, but has also been "physically removed", | | | | | | |
| | such that rehabilitation and re-vegetation work on the land is no longe. mine pits where soil and rock material have been taken away forever (| | | | | | |
| | also be classified as 'lost land' if they cannot be levelled-out and adeq | | | | | | |
| Community | y Affairs Manager | | | | | | |
| - | | | | | | | |
| | | | | | | | |
| Name | Position Signature | Date | | | | | |
| | . conton | 54.0 | | | | | |
| Recommend | nd Approval | | | | | | |
| | Approval with conditions shown above | | | | | | |
| | Refused (provide reasons) | | | | | | |



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| | | | |
| D. | CULTURAL HERITAGE | ' | |
| 19.0 | LIST THE COMMUNITIES AND LANDOWNERS (IF DETERMINED) WHOSE CULTURAL HERITAGE IS LIKELY TO BE AFFECTED BY THE PROPOSED DISTURBANCE | | |
| | | | |
| 20.0 | HAS A CULTURAL HERITAGE SURVEY BEEN COMPLETED FOR THE PROPOSED DISTURBANCE AREA? | | |
| | Yes No | | |
| | If Yes , are the cultural heritage sites included in the Works Location Map (with site buffer zones if appropriate?) | | |
| | Yes No | | |
| | If No, will an archaeologist be present during the works? | | |
| | Yes No | | |
| | If No, (an archaeologist will not be present), WORK CANNOT START UNTIL A CULTURAL HERITAGE SURVEY HAS BEEN COMPLETED FOR THE PROPOSED DISTURBANCE AREA. | | |
| 21.0 | LIST THE CONSULTATIONS THAT HAVE BEEN HELD WITH COMMUNITIES/ LANDOWNERS ADVISING THEM OF THE PROPOSED WORK AND ANY CULTURAL HERITAGE ISSUES RAISED | | |
| | Provide minutes of the consultation noting the outcomes. | | |
| | | | |
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| 22.0 | IDENTIFY KNOWN CULTURAL HERITAGE SITES THAT MAY BE AFFECTED BY THE PROPOSED WORK | | | | | |
|---------|--|------------------------------------|--|---------------|--|--|
| | | | | | | |
| 23.0 | FOR THE ABOVE SITES, CONFIRM THE SITE-SPECIFIC MITIGATION MEASURES OR ACTIONS REQUIRED | | | | | |
| Site ID | | | Required Mitigati | ion Measures | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 24.0 | | SPECIFIC MANAGE EVANT COMMUNITI | EMENT MEASURES HAVI ES/LANDOWNERS | E BEEN AGREED | | |
| | | Yes | No | | | |
| 25.0 | | | E FIND PROCEDURE (53 EXPLAINED TO THE APP | | | |
| | | Yes | No | | | |
| Social | and Cultural Heri | tage Manager | | | | |
| | | <u> </u> | | | | |
| | | . Danition | 0: | | | |
| Nar | ne | Position | Signature | Date | | |
| Recon | nmend | Approval | | | | |
| | | Approved with cond | | | | |
| | | Refused (provide reaso | ons) | | | |



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START OF WORKS E.

| 26.0 | DECLARATION | BY APPLICANT | | | |
|---------------------------------------|---|--|--|-------------------------------|-----------------|
| I (<i>name</i> and cor the avo | e) rectly and fully under idance and mitigation | have constand the site-specific issues listed above in Parts B | ompleted Part A of this d therein and have fully s, C and D of this docu | documen y impleme ment. | t fully nted |
| Signatu | ire | Date | | | |
| 27.0 | START READIN | ESS VERIFICATION | | | |
| | Parts A, B, C, D, E | completed, approved and sign | ed above Yes | No 🗌 | |
| | Job added to FM1 | 098 status board | Yes | No | |
| | Approved JSEA o | r SWI / SWP sighted | Yes | No | |
| | | | | | |
| Nan | ne | Project Operations Manager | Signature | | Date |
| | | | | | |



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F. JOB COMPLETION REVIEW

This should be completed after a site inspection to confirm completion of the works.

| ENVIR | <u>ONMENT</u> | | | | | | |
|--|--|---------|----|--|--|--|--|
| 1. | Were all environmental requirements of this permit met? | Yes | No | | | | |
| 2. | Method of revegetation recommended (tick appropriate methods): | | | | | | |
| | Hydro-seed grass seeds | | | | | | |
| | Terrace or contour planting using manual hand broadcast of grass | s seeds | | | | | |
| | Transplant tree or other native plant species | | | | | | |
| | Plant Phragmites cuttings | | | | | | |
| | Plant grass and other plant cuttings. | | | | | | |
| | Nursery plant (both indigenous & exotic) | | | | | | |
| | Other (specify): | | | | | | |
| | Inspection:Signature Area Disturbed (ha): | | | | | | |
| СОММ | UNITY AFFAIRS | | | | | | |
| 1. | Were all CA requirements of this permit addressed? Yes | ; | No | | | | |
| 2. | Were all compensation issues (if any) addressed? Yes | ; | No | | | | |
| Community Affairs Department Representative: | | | | | | | |
| Date of | Inspection:Signature | | | | | | |



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| CULTU | JRAL HERITAGE | | | | | | |
|------------------|----------------------|------------------------|------------------------|------------|-----------|-------------|-------|
| 1. | Were all cultural he | eritage requirements | of this permit address | ed? | Yes | No | |
| 2. | Were all compens | ation/mitigation issue | s (if any) addressed? | | Yes | No | |
| Social | and Cultural Herita | age representative: | | | | | |
| Date o | f Inspection: | | _Signature | | | | |
| <u>APPLI</u> | CANT RESPONSE | | | | | | |
| Where the rea | | Review notes a 'No' | in any response abov | e, the APF | PLICANT m | ust explain | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Appli | cant Signature | | | Date | | | |
| JOB (| COMPLETION: AII | FM1098 REQUIREN | MENTS LISTED IN TH | IE ABOVE | DOCUME | NT COMPLETE | D AND |
| <u>ALL I</u> | <u></u> | | | | | | |
| Name | 3 | Project C | Operations Manager | Signa | ature | | Date |
| | | | | | | | |



Appendix C Cultural Heritage Chance Finds Procedure (532-8700-CY-PRO-0001)





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CULTURAL HERITAGE CHANCE FINDS PROCEDURE (532-8700-CY-PRO-0001)

C.1 Background

Cultural heritage can still be found even if an area has previously been surveyed or inspected. Construction activities such as vegetation clearance and earthworks still have the potential to disturb previously unknown and unrecorded cultural heritage sites. This may include sites containing ancient pottery, stone artefacts and burials.

This Chance Finds Procedure defines the process to be followed in the event of a chance find. It addresses:

- Management of sites and protection of archaeological material in compliance with PNG legislation and community practices
- Minimising disruption to the construction schedule.

The procedure has been developed in consultation with the PNG National Museum and Art Gallery (NMAG) and applies to all project contractors and sub-contractors at all Project work sites. It is to be read in conjunction with the Wafi-Golpu Cultural Heritage Management Plan (532-8700-CY-PLA-0006).

Table C1 shows the definitions used in this document.

Table C1: Definitions

| Term | Definition |
|--|---|
| Archaeological site | A place (or group of physical sites) that contain physical evidence of past cultural activity, such as ancient pottery, stone axes, grindstones, other stone tools and skeletal remains |
| Archaeological site of low significance | Materials are found on the surface (no evident stratification) and similar material is common across the region |
| Archaeological site of medium significance | Materials are found on the surface (no evident stratification) and material of this type has not been previously characterised or is rare in the region |
| Archaeological site of high significance | Materials are found beneath the surface (below the topsoil); material of this type has not been previously characterised or is rare in the region; and the variety of artefacts is extensive and there is a large number of artefacts |
| Burial site | A location containing complete or fragmented human skeletal remains excluding isolated teeth |
| Chance find | Any previously-unidentified cultural heritage encountered during exploration, construction or operations |
| Chance Find Procedure | A Project-specific procedure that outlines the actions to be taken if previously unknown cultural heritage is encountered |
| Cultural heritage | Tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological, paleontological, historical, cultural, artistic and/or religious value; unique natural features or tangible objects that embody cultural values; and intangible forms of culture such as cultural knowledge, innovations, and practices embodying traditional lifestyles |
| Cultural heritage site | An archaeological, oral tradition or historical site, the size of which is determined either by the extent of cultural material and/or historical features, or in the case of oral tradition sites, by the communities who associate with these places |
| Disturbance of cultural heritage | To engage in an activity which results in any of the following: Unearthing of cultural heritage material Displacing cultural heritage material Altering a hydrological regime which affects a cultural heritage site |



| Term | Definition | |
|---|--|--|
| | Working within or in proximity to a cultural heritage site without undertaking appropriate cultural ceremonies | |
| Ground disturbance | Means disturbance of: The topsoil or surface layer of the ground A waterway by machinery in the course of grading, excavating, digging, dredging or deep ripping. | |
| Historic site | A World War II place or object associated with Japanese or Allied military actions which preserves at least some physical remnant of that action or any other place or object associated with the early period of PNG's colonial history | |
| Human skeletal remains | Includes all of the bones and teeth that comprise foetal, neonate, infant, juvenile and adult individuals, irrespective of their state of presentation; i.e., they include fragmentary and isolated bones and teeth as well as complete and articulated bones and teeth, unless otherwise excepted | |
| Intangible cultural heritage Oral traditions passed down through generations that influence practice expressions and the knowledge and skills that communities recognise a part of their cultural heritage | | |
| Known human skeletal remains | Relatively recent burials known to the local communities (through oral traditions or recent burial) | |
| Oral tradition site | A cultural heritage site known by a person or people through their historical and cultural stories transmitted from one generation to another without written instruction | |
| Site card report | A short (1-3 page) report which provides details of the nature of the cultural heritage site found, a description of the site and its conditions, and any associated photographs of drawings | |
| Tangible cultural heritage | The legacy of physical artefacts and objects significant to a specific culture | |

C.2 Ground Disturbance Process Steps

Ground-disturbing works must be carried out:

- By employees and contractors that have completed the WGJV site induction, including cultural heritage awareness (until induction is complete no employee or contractor will be allowed to carry out any ground disturbance work)
- In compliance with the approved Wafi-Golpu Project FM1098 procedure
- In accordance with the WGJV chance finds steps set out below, should any worker suspect that they have uncovered any cultural heritage, such as pottery, stone tools or bones.

C.2.1 Chance Finds (Excluding Skeletal Remains)

- 1. If a worker suspects he or she has found any form of cultural heritage, they must report it to their supervisor immediately.
- 2. The supervisor must cease all project activity within a 10m radius of the area immediately.
- 3. The supervisor must clearly identify the area and secure the area to protect it from further disturbance:
 - Inform other personnel working nearby to avoid the area
 - Establish an exclusion zone of 10m radius around the discovery using temporary fencing and/or flagging



- Do not remove any material from the area
- 4. Once the area is secured, the supervisor must complete a Chance Find Report Form FM1223 Part A to provide a written record of the circumstance of the find and submit it to a representative of the WGJV Permitting and Compliance team. The FM1223 should include:
 - Details of the find (name of the person who discovered the site, date, time, GPS/map coordinates, type (if known), photographs of the discovery)
 - Why the person who found the site was in the area
 - How the person recognised the site
 - If any damage was incurred prior to or during the find (and details of the extent of any damage that occurred)
 - Measures taken to protect the site, if required.
- 5. The WGJV Community Affairs and Lands Manager and a representative of the WGJV Environment Department should inspect the 'find' and confirm it is sufficiently protected and that details of the site are recorded accurately. The environmental representative should collect further evidence such as photographs, GIS coordinates and detailed 'mudmaps' of the site, if these can be obtained without disturbing the site, to provide relevant information to the archaeological specialist if that specialist is not on site. No entry is permitted back into the area until appropriate advice has been sought from the archaeological specialist and all required actions have been completed. No material is to be removed from the site.
- 6. Guidance must be provided by a qualified archaeologist or anthropologist regarding the site's significance and further advice on management of the site in accordance with the *National Cultural Property (Preservation) Act 1965* and Chance Finds Flowchart attached as Figure 1.
 - For sites of Low and Medium significance, work may resume following the implementation of management measures recommended by the specialist (including consultation with community members as required) and certification by the WGJV works supervisor that the measures are in place.
 - For sites of High significance, WGJV will, based on the advice of the specialist, provide site information to, and consult with, the NMAG to determine appropriate management action. Work may only resume when management actions have been completed and formal advice of same being certified by the archaeological specialist and provided to the NMAG.
- 7. If the site is confirmed to hold cultural heritage significance, record all details in the Project's Cultural Heritage Database and supply a site card report to the NMAG.

C.2.2 Chance Find of Skeletal Remains

- 1. If a worker suspects he or she has found skeletal remains that are potentially human, they must report it to their supervisor immediately.
- 2. The supervisor must cease all project activity in the vicinity of the area immediately and report the find to WGJV Site Operations Manager.
- 3. The supervisor must clearly identify and secure the area to protect it from further disturbance:
 - Inform other personnel working nearby to avoid the area



- Establish an exclusion zone of 10m radius around the discovery using temporary fencing and/or flagging
- Do not remove any material from the area.
- 4. The WGJV Site Operations Manager will make appropriate enquiries to further confirm whether the find is human. This may involve obtaining the views of a medical professional if on site, a medical professional from the ANGAU Hospital or other such institution, or via the supply of photographs to the ANGAU Hospital.
 - a. If the remains are not of human origin, work may resume.
 - b. If the remains are determined to be of human origin (or this still cannot be determined), a Chance Find Report Form (FM1223) Part A will be completed to provide a written and photographic record of the circumstance of the find to relevant professional standards, including:
 - i. Details of the find (name of the person who discovered the site, date, time, GPS/map coordinates, type (if known), photographs of the discovery)
 - ii. Why the person who discovered the site was in the area.
 - iii. How the person recognised the site.
 - iv. If any damage was incurred prior to or during the find (and details of the extent of any damage that occurred).
 - v. Measures taken to secure the site.

5. If a suitably qualified specialist is on site:

- a. The specialist will provide a professional opinion on whether the death is recent or is believed to be old and/or pre-date European contact (i.e., greater than 100 years old). This professional opinion may be informed by such factors as the presence of any grave goods or the soil and sediment profile where the remains were found.
- b. The WGJV Site Operations Manager will notify the District Coroner and the Royal Papua New Guinea Constabulary (Morobe Provincial Police) of the details of the find, including any observations made by WGJV's archaeological specialist (if available) regarding the likely age of the remains.
- c. Should the death be considered not recent or of an indeterminate age by WGJV's archaeological specialist, WGJV shall also report the find to:
 - i. landowners
 - ii. the NMAG, in accordance with Section 20(a) of the National Cultural Property (Preservation) Act 1965, which requires 'a cave or other place in which ancient remains, human or other' to be immediately reported.
- d. Following this:
 - Work shall remain stopped until Coroner provides additional instructions.
- e. Should the death be deemed recent by the Coroner:
 - Work will only resume following WGJV approval upon receipt and implementation of Coroner's instructions (including obtaining any necessary authorisations for exhumation and reburial in accordance with Section 29 of the Cemeteries Act 1955).
- f. Should the death be deemed not recent by the Coroner and the Coroner wishes to take no further action:



• Refer to step 7 below.

6. If a suitably qualified specialist is not on site:

- a. The WGJV Site Operations Manager will notify the District Coroner and the Royal Papua New Guinea Constabulary (Morobe Provincial Police) of the details of the find. Following this:
 - Work shall remain stopped until Coroner provides additional instructions.
- b. Should the death be deemed recent by the Coroner:
 - Work will only resume following WGJV approval upon receipt and implementation of Coroner's instructions (including obtaining any necessary authorisations for exhumation and reburial in accordance with Section 29 of the Cemeteries Act 1955).
- c. Should the death be deemed not recent by the Coroner and the Coroner wishes to take no further action, WGJV shall report the find to:
 - landowners
 - ii. the NMAG, in accordance with Section 20(a) of the *National Cultural Property (Preservation) Act 1965*, which requires 'a cave or other place in which ancient remains, human or other' to be immediately reported.
- d. The WGJV will engage an archaeologist to record the find, develop proposed management measures in consultation with the NMAG and prepare a site card report for the NMAG.
- 7. Following evaluation by the WGJV archaeologist, and if the site cannot be avoided by Project activities, cultural heritage management measures will be carried out as follows:
 - a. In the event that the human skeletal remains must be exhumed and after reviewing relevant statutory provisions regarding exhumations, the WGJV archaeological specialist may exhume the remains and associated grave goods upon receiving WGJV approval following WGJV consultation with, and acquiring necessary approvals from, the NMAG and landowners.
 - b. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hand; all personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA.
 - c. WGJV shall transfer custody of the remains to landowners or the NMAG as appropriate depending on the nature and potential age of the remains (e.g., if the human remains are ancient and comprise an archaeological site of high significance, transferral to the NMAG may be most appropriate course of action).
- 8. Following implementation of cultural heritage management measures, WGJV shall notify its workforce or its contractor when work can resume.



Table A1: Initial Details

CULTURAL HERITAGE: CHANCE FIND REPORT FORM (FM 1223)

In the event of discovery of an unknown cultural heritage site, follow the Chance Finds Procedure detailed in the WGJV Cultural Heritage Management Plan and complete this card as required by the procedure.

Please contact the WGJV Community Affairs Department for assistance if required.

Return completed form (PART A) to your area supervisor or a member of the Environment or Community Affairs Departments.

PART A

| Date of find: | |
|--|--|
| Location of find: | |
| Person who found items and reason for being in the area: | |
| Other personnel present: | |
| Describe how site was protected | |
| (if applicable): | |
| Table A2: Descrip | ption of the find and area |
| Brief description of the find (including artefact type, if known): | (e.g. found a collection of pot fragments after the first pass of the dozer blade during preparation of a drill pad) |
| Brief description of the general | (e.g. on the northern end of the process plant terrace pad) |



| Land claimants (if known): | | | | | |
|---|--|----------|--|-----------|--|
| Approximate no. of artefacts on site: | □ 1 □ 2 to 10 | | □ >10 □ >50 | | |
| Site condition: | □ Destroyed□ Poor (0-20% intact)□ Fair (20-50% intact) | | ☐ Moderate (50-80% intact)☐ Good (80-100% intact) | | |
| Stratification: | ☐ Surface site☐ Site exposed by disturbate | ance | ☐ Stratified / buried site☐ Unknown | | |
| Ground surface visibility: | □ 0% □ 1 to 25 % □ 25 to 50% | | □ 50 to 75% □ >75% | | |
| Bedrock: | ☐ Exposed☐ Other (describe) | | □ Not expo | sed | |
| Approximate | Site area (m²): | | Site length (max) (m): | | |
| Approximate area of the site: | Site width (max) (m): | | Site height (max) (for rockshelters/caves) (m): | | |
| GPS coordinates of find (PNG94 coordinate system) | Zone: | Easting: | | Northing: | |
| Distance to nearest freshwater source: | Closest freshwater source (m): Swamp River Creek Closest temporary water (m): River Creek | | □ Lake □ Lake | ☐ Other: | |



Table A3: Electronic data capture

(File names and server address, including any IBIS reference numbers, **must** be provided)

| Data type | Included: | File name / number: |
|-----------|-----------|---------------------|
| Photos | □ Yes | |
| Drawings | □ Yes | |
| Audio | □ Yes | |



Date:

PART B

| Describe the state of the site: | Undisturbed? □ | |
|--|----------------------------|------|
| | Physical damage evident? □ | |
| Can further impacts to the site be | Yes □ | |
| avoided? | No □ | |
| Avoidance and mitigation measures discussed and agreed between WGJV and Contractor: | | |
| able B2: Approval to recommence | works | |
| WGJV approval given to recommence works: | Yes □ | No □ |
| WGJV Community Affairs | Name: | |
| Representative Signature: | Position: | |
| | Signature: | |
| Table B3: Archaeological Detail and Only to be completed by an archaeological Detail and | | |
| Date of archaeologist visit: | | |
| <u> </u> | | |
| Does the chance find correspond to | Yes □ | No □ |
| Does the chance find correspond to a PNG National Museum site? | Yes □ | No 🗆 |
| Does the chance find correspond to a PNG National Museum site? New WG site code allocated: | Yes | No □ |
| Does the chance find correspond to a PNG National Museum site? New WG site code allocated: Statement of Find Significance: To be completed by the | Yes □ | No □ |
| Does the chance find correspond to a PNG National Museum site? New WG site code allocated: Statement of Find Significance: | Yes | No □ |
| Does the chance find correspond to a PNG National Museum site? New WG site code allocated: Statement of Find Significance: To be completed by the | Yes | No □ |



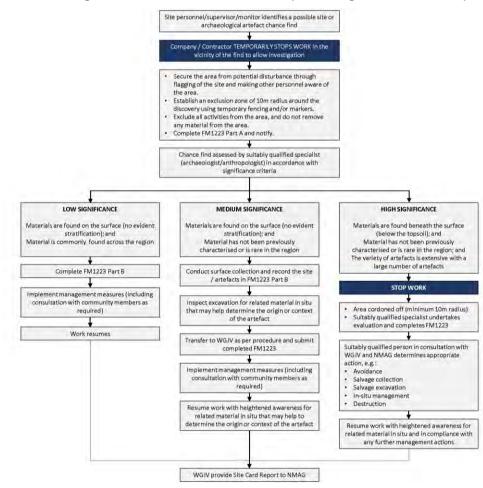


Figure 1: Chance Finds Flowchart (excluding skeletal remains)



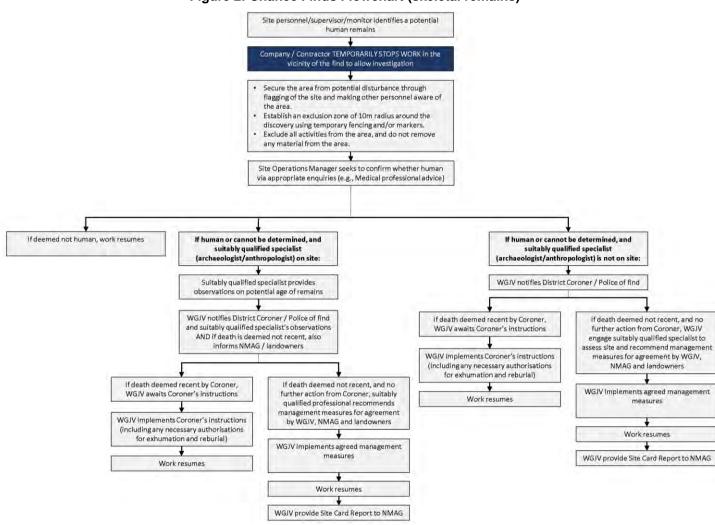


Figure 2: Chance Finds Flowchart (skeletal remains)



Appendix D Site-specific Cultural Heritage Management Measures

D.1 Introduction

The following proposed site-specific cultural heritage management measures will be finalised in consultation with the PNG National Museum and Art Gallery and landowners. Please note:

- Cultural heritage sites are presented below according to study areas in which they are located, and the Project infrastructure or activity by which they may be affected. Sites with the potential to be impacted by multiple activities are, for completeness, listed for each activity.
- The WG site numbers listed below are not sequential as not all recorded sites will be impacted by Project-related activities.
- Where recording of relevant oral traditions is proposed as a management measure, this should be (a) undertaken with the agreement of the affected community, (b) told by appropriate community representative(s) as determined by the community, and (c) recorded in languages as determined by the community. The affected community will determine the disclosure provisions.
- Where collection of artefacts is recommended and agreed with the community and the NMAG, representatives of the affected community will be engaged by the WGJV to assist.

Where salvage excavations of archaeological deposits is recommended, steps to be considered are outlined in section D.3.



D.2 Proposed Cultural Heritage Site-Specific Management Measures

Table D1: Proposed Cultural Heritage Site-Specific Management Measures

| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures | | | |
|----------|------------------------------|----------------|--|---|--|--|--|
| Mine Stu | Mine Study Area | | | | | | |
| Watut Pr | ocess Plant | | | | | | |
| WG277 | Ontang Garden Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction of the process plant terrace. | | | |
| Mt Beam | Mt Beamena Quarry | | | | | | |
| WG005 | Babul Sacred Swamp Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to the commencement of works at the Mt Beamena Quarry. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction of the Mt Beamena Quarry. | | | |
| WG008 | Wames Archaeological Site | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of an agreed proportion of surface artefacts by a qualified archaeologist prior to the construction and operation of the Mt Beamena Quarry. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in Section D.3 prior to the construction and operation of the Mt Beamena Quarry. | | | |
| WG026 | Mt Sibal Sacred Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to the commencement of works at the Mt Beamena Quarry. | | | |
| WG319 | Wames Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor or works at the Humphries borrow pit, Northern Access Road borrow pit or the Mt Beamena Quarry. | | | |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|-----------|------------------------|-----------|--|---|
| Migiki bo | orrow pit | | | |
| WG231 | Nea | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to commencement of works at the Migiki borrow pit Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors during the continued operation of the Migiki borrow pit. |
| Humphri | es borrow pit | | | |
| WG319 | Wames Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor or works at the Humphries borrow pit, Northern Access Road borrow pit or the Mt Beamena Quarry. |
| Northern | Access Road borro | w pit | | |
| WG121 | Magense | Burial | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's location by a qualified archaeologist during additional pedestrian field surveys prior to the commencement of operations at the Northern Access Road borrow pit. Appropriate legal and cultural exhumation and relocation of human remains prior to the commencement of operations at the Northern Access Road borrow pit should this be requested by the relevant landowners. Recording of oral traditions by a qualified anthropologist prior to the commencement of works at the Northern Access Road borrow pit. |
| WG319 | Wames Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor or works at the Humphries borrow pit, Northern Access Road borrow pit or the Mt Beamena Quarry. |
| Waime R | liver gravel extractio | n area | | |
| WG261 | Sangia Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to works at the Waime River gravel extraction area. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|-----------------------------|----------------|--|---|
| WG264 | Zindaga River Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to works at the Waime River gravel extraction area. Assist relevant clans or communities with culturally appropriate ceremonies prior to works at the Waime River gravel extraction area. |
| Bavaga I | River gravel extract | tion area | | |
| WG351 | Spirit Tree Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's location by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to works commencing within the Bavaga River gravel extraction area. |
| Fere Acc | ommodation Facili | ty | | |
| WG300 | WSC1-1 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of the recorded surface artefacts by a qualified archaeologist prior to construction of the Fere Accommodation Facility. In the event that additional surface artefacts are identified, an appropriate proportion of these surface artefacts, as recommended by the archaeologist in consultation with WGJV, are to be collected. |
| WG301 | WSC1-2 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of the recorded surface artefacts by a qualified archaeologist prior to construction of the Fere Accommodation Facility. In the event that additional surface artefacts are identified, an appropriate proportion of these surface artefacts, as recommended by the archaeologist in consultation with WGJV, are to be collected. |
| WG302 | WSC1-3 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's location by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to works commencing at the Fere Accommodation Facility. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|-----------|----------------|--|---|
| WG303 | WCS1-4 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of the recorded surface artefacts by a qualified archaeologist prior to construction of the Fere Accommodation Facility. In the event that additional surface artefacts are identified, an appropriate proportion of these surface artefacts, as recommended by the archaeologist in consultation with WGJV, are to be collected. |
| WG304 | WSC1-5 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of the recorded surface artefact by a qualified archaeologist prior to construction of the Fere Accommodation Facility. In the event that additional surface artefacts are identified, an appropriate proportion of these surface artefacts, as recommended by the archaeologist in consultation with WGJV, are to be collected. |
| WG305 | WSC2-1 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of the recorded surface artefact by a qualified archaeologist prior to construction of the Fere Accommodation Facility. In the event that additional surface artefacts are identified, an appropriate proportion of these surface artefacts, as recommended by the archaeologist in consultation with WGJV, are to be collected. |
| WG306 | WSC2-2 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's location by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to works commencing at the Fere Accommodation Facility. |
| WG307 | WSC2-3 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's location by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to works commencing at the Fere Accommodation Facility. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|--|----------------|---|---|
| Mine Acc | cess Road at Fere | | | |
| WG031 | Fere C Archaeological Site | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified archaeologist prior to construction of the Mine Access Road at Fere. Collection of an agreed proportion of surface artefacts prior to the construction of the Mine Access Road at Fere. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in Section D.3 prior to the construction of the Mine Access Road at Fere. |
| Waste m | anagement facility | | | |
| WG241 | Zenapu 2 | Camp | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction of the waste management facility. |
| WG276 | Anga Masalai Tree | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction of the waste management facility. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction of the waste management facility or construction within the Infrastructure Corridor. |
| Maximur | m subsidence zone | | | |
| WG040 | Gwavengo/ Ngendakghoma II Rockshelter Site | Rockshelter | Loss of ground surface and substrate through subsidence | If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in Section D.3 prior to the commencement of mining operations. Recording of oral traditions by qualified anthropologist prior to construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG043 | Mea Gova Biangova Sacred Spring Site | Story | Loss of ground surface and substrate through subsidence; groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|-----------|---|-----------------|---|--|
| WG045 | Beavemo Burial Site | Burial | Loss of ground surface and substrate through subsidence | Appropriate legal and cultural exhumation and relocation of the human remains prior to ground surface subsidence should this be requested by the relevant landowners. Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. |
| WG059 | Ngenakghoma I Rockshelter | Camp | Loss of ground surface and substrate through subsidence | Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG229 | Ngandoyeng | Story | Loss of ground surface and substrate through subsidence | Recording of oral traditions by qualified anthropologist prior to construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG238 | Mia Yo D | Story | Loss of ground surface and substrate through subsidence; groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| Sites pot | tentially impacted by | y groundwater i | mpacts | |
| WG044 | Mea Gova Tongava Sacred Spring Site | Story | Groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG060 | Mia Yo Sacred Spring Site | Story | Groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|-----------|------------------------------|----------------|--|---|
| WG234 | Mia Yo A | Story | Groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG235 | Mia Yo B | Story | Groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| WG236 | Mia Yo C | Story | Groundwater drawdown | Recording of oral traditions by a qualified anthropologist prior to the construction of the declines. Assist relevant clans or communities with culturally appropriate ceremonies prior to the construction of the declines. |
| Infrastru | cture Corridor Study | Area | | |
| Southern | Study Area | | | |
| WG001 | Babul Camp Site | Camp | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction within the Infrastructure Corridor. |
| WG002 | Babul Archaeological Site | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of an agreed proportion of surface artefacts prior to construction within the Infrastructure Corridor. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in Section D.3 prior to construction within the Infrastructure Corridor. |
| WG003 | Fere Sacred Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction within the Infrastructure Corridor. Confirmation of the site's boundary by a qualified archaeologist prior to construction of the Infrastructure Corridor. Avoidance through minor adjustments to infrastructure corridor alignment and / or erecting barriers if practicable. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|-----------------|----------------|--|--|
| WG202 | Buasus 1 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG207 | Nomonum 1 | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction within the Infrastructure Corridor. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG208 | Babul Village 1 | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Collection of an agreed proportion of surface artefacts prior to construction within the Infrastructure Corridor. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in Section D.3 prior to construction within the Infrastructure Corridor. |
| WG209 | Mugus Badzim 1 | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist prior to construction within the Infrastructure Corridor. |
| WG214 | Fere H | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG215 | Fere I | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG216 | Fere J | Archaeological | Vegetation clearing; ground disturbance (surface and subsurface) | Relocation of the single flaked stone artefact comprising this site prior to construction within the Infrastructure Corridor. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|-----------|-------------------------------|-----------------------|--|--|
| WG229 | Ngandoyeng | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG276 | Anga Masalai Tree | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction of the waste management facility or construction within the Infrastructure Corridor. |
| WG306 | Fere Clay Source Site | Subsistence/ Trade | Vegetation clearing; ground disturbance (surface and subsurface) | Identification of site boundary; erection of a suitable barrier or other measures such as cultural awareness training to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. Management of erosion and sediment during road and pipeline construction in the Infrastructure Corridor. |
| WG309 | WCSAR-1 | Former Village | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| Central S | Study Area | | | |
| WG314 | Kakarak Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG315 | Kobabarong Settlement Site | Former Village | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|--------------------------|----------------|--|--|
| WG316 | Kokok Settlement Site | Former Village | Vegetation clearing; ground disturbance (surface and subsurface) | Recording of oral traditions by a qualified anthropologist. Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG319 | Wames Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor or works at the Humphries borrow pit, Northern Access Road borrow pit or the Mt Beamena Quarry. |
| WG320 | Nufgarak Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG321 | Ngalulase Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG322 | Fobias Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG323 | Taganek Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |
| WG327 | Litia Burial Site | Burial | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable barrier or other measures such as cultural awareness training to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|----------------------------------|----------------|--|--|
| Eastern | Study Area | | | |
| WG334 | Mutufom Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG335 | Fiafan Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG336 | Umiroron Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified anthropologist or archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG337 | Orogwanginpup Settlement Site | Former Village | Vegetation clearing; ground disturbance (surface and subsurface) | Confirmation of the site's boundary by a qualified archaeologist. Erection of a suitable protective barrier or use of other measures to prevent access by Project employees and contractors prior to construction within the Infrastructure Corridor. |
| WG338 | Ngaroperem Story Site | Story | Vegetation clearing; ground disturbance (surface and subsurface) | Assist relevant clans or communities with culturally appropriate ceremonies prior to construction within the Infrastructure Corridor. |



| Site No. | Site Name | Site Type | Cause of Impact | Proposed Management Measures |
|----------|---------------------------------------|--|--|---|
| WG339 | WWII Clinic Archaeological Site | Archaeological (WWII historical) | Vegetation clearing; ground disturbance (surface and subsurface) | Prior to construction within the Infrastructure Corridor: Undertake assessment of the nature and extent of this site by a qualified historical archaeologist. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in section D3 in area of the site likely to be affected by construction within the Infrastructure Corridor. |
| WG341 | Kafag Airfield Archaeological Site | Archaeological (WWII historical) | Vegetation clearing; ground disturbance (surface and subsurface) | Prior to construction within the Infrastructure Corridor: Undertake assessment of the nature and extent of this site by a qualified historical archaeologist. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavation consistent with the method outlined in section D3 in area of the site likely to be affected by construction within the Infrastructure Corridor. |
| WG346 | Tanam Airfield Archaeological Site | Archaeological (WWII historical) | Vegetation clearing; ground disturbance (surface and subsurface) | Prior to construction within the Infrastructure Corridor: Undertake assessment of the nature and extent of this site by a qualified historical archaeologist. If deemed an appropriate response by the archaeologist in consultation with WGJV, salvage excavations consistent with the method outlined in section D3 in area of the site likely to be affected by construction within the Infrastructure Corridor. |



D.3 Salvage Works

- Salvage works that are recommended prior to the commencement of construction activities at a site must be agreed by WGJV and the affected community representative(s) (or NMAG, as appropriate).
- Representatives of the affected community should be engaged to assist the salvage program.
- Salvage excavation at a cultural heritage site must be supervised by a suitably qualified archaeologist/anthropologist and conducted in a manner consistent with good industry practice.
- Salvage excavation should commence with a 1m2 (i.e., a 1m x 1m) salvage pit. The depth of the salvage pit is to be determined and agreed onsite by the archaeologist and WGJV in consultation with the affected community representative(s).
- Where an archaeological deposit uncovered or partially uncovered in the 1m² salvage
 pit is determined to be of high significance, i.e., due to content, condition and
 representativeness, the salvage may be extended as agreed with WGJV and the
 affected community representatives.
- It may be necessary to determine the site extent. In this case, a site boundary establishment program shall be proposed by the archaeologist/anthropologist and be undertaken subject to the agreement of WGJV and then with the affected community representative(s).
- Following the determination of site extent, if harm avoidance is achievable, no further salvage excavation is required.
- Guidance on custodianship of recovered materials will be determined by the NMAG in consultation with affected communities.

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