

Annex O: Physical Cultural Resources Plan

This annex presents the PCR Plan, which has been developed to minimize or address any adverse impacts that the Project may have on PCR in the Project Area. The majority of this annex is based on the work carried out by Earth Systems Australia (ESA) (2004). The annex begins with a discussion on the prehistorical, historical, ethnological and palaeontological context of the Lao PDR and the Project area. This is followed with a presentation of all PCR that could potentially be impacted by the Project. A description of PCR includes a discussion of the types of PCR and its significance on a local, national or international level. The third section identifies the type of impacts that are likely to result from Project activities. The fourth section outlines the PCR Plan and discusses mitigation measures that will be implemented in order to either address or minimize any adverse impacts. This section also highlights the procedure for dealing with chance finds of PCR during either construction or resettlement activities. Finally the annex discusses the monitoring and capacity building requirements to ensure the mitigation measures are effectively implemented.

In the context of this annex, a Physical Cultural Resource follows the definition used by the World Bank (OP 4.11) and covers movable or immovable objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, palaeontological, historical, architectural, religious, aesthetic, or other cultural significance.

1. Applicable Laws, Regulations And Policies

The relevant GOL regulation is The Presidential Decree on the Preservation of Cultural, Historical, and Natural Heritage (1997).

In addition, the annex aims to follow the principles of the World Bank Operational Policy 4.11: Cultural Property which assists in the preservation and avoidance of the elimination of PCR.

2. Literature Review

To appreciate the physical and cultural significance of PCR a brief description of the PCR context, in terms of palaeontology, prehistory, history, and ethnicity, within Lao PDR is presented below. A more detailed account of the PCR context is presented in Earth Systems Australia (2004).

2.1 Prehistory

Very few archaeological investigations have been conducted in the Project Area, the most relevant published work is that conducted by Saurin (1951, 1952) and Colani (1932). The work of Saurin relates a stone mold used for casting bronze axe heads, and the potential for the Gnommalat area to have hosted a sophisticated culture. Colani (1932) discovered evidence of a Neolithic population in the limestone caves of Khammouane Province.

In the 1930s human remains were found in Hang cave in Hua Phan Province of Lao PDR. Radiocarbon dating revealed the bones to be 12 to 14,000 years old (Paleontology Centre, Musee de l'Homme, Paris, France).

In SE Asia, findings of human remains dating from 10,000 to 40,000 years ago indicate low population density cavedwelling communities that hunted in the tropical forests. These early huntergatherers

used stone tools. In the period up to around 14,000 years ago, most stone tools were simple flaked edge cutting and chopping tools.

Around 5,000 years ago, most forestdwelling peoples of SE Asia subsisted through nomadic hunting and gathering. Evidence indicates that crop cultivation began 5,000 years ago and communities became less dependent on the forest and started to occupy the lowland areas.

By 2,500 – 2,000 bce people kept pigs, chickens, and cattle. As wealth grew so did the sophistication of the ceramics and jewelry made of shells and stone. Lao Pako is a pottery site near Vientiane dating from between the 4th and 6th centuries ce. There is also evidence of metallurgy and clay spindle whorls which indicate textile manufacture. Also found were a variety of beads, both locally made clay ones and some made of glass, coral and semiprecious stones which were traded from India.

Increasing trade connections became conduits for passing new technologies such as metalworking. Copper smelting and alloying, quickly followed by bronze, commenced around 1,500 bce.

The dawning of the Metal Age in SE Asia propelled civilization into a new era of efficiency and production. Knowledge of this period largely comes from ancient burial sites. Elaborate burials have been found in the highlands of northern Lao where the relics of several megalithic cultures remain. In Hua Phan Province grouped standing stones mark the entrances to stone crypts containing human remains, ceramics, beads and bronze artifacts. The nearby Plain of Jars in Xieng Khuang Province was made by a younger megalithic culture, and consists of massive burial urns sculptured out of single pieces of stone.

The significance of limestone karst as a source of archaeological deposits is documented by Vermeulen & Whitten (1999). They identify limestone regions as important ancient and modern cultural heritage sites which harbor some of the earliest evidences of human culture in East Asia. The area around the Lak Sao Road and Pha Phen Quarry hosts potential settlement sites for Palaeolithic occupation including small limestone rock shelters (Schepartz et al, 2000).

2.2 History

The history of the southern and central parts of Lao PDR has been documented in a number of reports (Sparkes, 1997); Breazeale, Kennon & Smukarn, 1988); Evans, 2002) and StuartFox, 1996).

In the last 2000 years, people settled into more established civilizations engaged in international trade with India, the West and China. This influence resulted in the introduction of new religious and political structures. Among these the Hinduised kingdoms, the Champa and the Mon which were the most influential on what is now Lao PDR.

The Mon were widespread in this region from the 7th century until they were displaced by the Khmer in the 11th century. Influences from this state are believed to have reached central Laos which is evident by the frequency of sema stones and Mon sculpture.

The Khmer influence began between the sixth and eighth century and sites include Setthapura temple near Champasak.

During the Khmer influence, from the 11th century, the southwards migration of Tai minorities started to affect Laos. The settlement of Tai groups marks the end of the Hindu period. Between

the 11th-13th centuries, Tai communities established their authority, creating two politically independent principalities, Luang Phrabang and Vientiane.

The dominance of the Tai resulted in the adoption of Tai/Lao language and customs by the MonKhmer speaking population. This linguistic and cultural influence continues to the present day. To practice irrigation, the Tai people settled in the lowlands, near the rivers. However, hunting and gathering communities often continued independently in the upland forests removed from the influence of the royal court.

In the 14th century, this process of 'laoization' was manifested in the establishment of the first Lao kingdom, Lane Xang, with its capital in Luang Phrabang. Tai/Lao statecraft adopted Theravada Buddhism as the official religion of the rulers. However, the rural populations continued with their indigenous spirit cults. For the Tai/Lao groups the cult was centered on the territorial spirit (phi mueang), while the MonKhmer groups venerated spirits of nature, consonant with their traditional livelihood as gatherers and hunters.

In the early 18th century, Lane Xang was partitioned into three separate Lao kingdoms (Luang Phrabang, Vientiane and Champasak). These kingdoms were to lead a precarious existence, balancing between the two great powers in the region, Siam (Thailand) and Annam (Vietnam).

A struggle for independence against the Siamese was organised by Prince Chao Anou in the period 1805 – 1827. When fleeing the Thai army, the Prince's army took refuge on the Nakai Plateau. During this period Chao Anou's group established temples and Buddha images.

In 1828 Siam conquered and sacked the capital Vientiane. To counter Siamese claims on its territory, Luang Phrabang started paying tribute to Vietnam, while further south, the territories fell under Siamese sovereignty. However, Khamkeut and Mahaxai proved recalcitrant to these Siamese claims to sovereignty.

In the territorial rivalry between Siam and Annam, Siam adopted the strategy of relocating people. The population, both Tai/Lao and MonKhmer, of Khammouane and Savannakhet provinces were evacuated by the Siamese to the west of the Mekong in the 1830s and 1840s, returning only in 1860.

The French, after their administration was established over Vietnam and Cambodia in the 19th century, claimed that the whole of Laos should be annexed to their newly conquered territory. The Siamese counteracted by accelerating their occupation. The Siamese clashed with the French Army in different provinces. Finally, the French and British agreed to adopt the Mekong River as the border line and Laos was split into two, with the "Eastern Lao" under French rule until 1945. Lao PDR acquired the status of independent state in 1946, but had to wait until 14 December 1955 for this status to be internationally recognized.

The 35 years of the two Indochinese wars, followed by centralization, collectivization and administrative and territorial restructuring before the 1980s, provoked another period of population migration and displacements. During the 2nd Indochina war, parts of the Project area were subject to bombing by American forces attempting to curtail use of the Ho Chi Minh Trail by the northern Vietnamese. Numerous villages in the Project Area were bombed with some communities being completely abandoned.

2.3 Ethnography

A detailed discussion on the ethnicity of communities is presented in the Ethnic Minority Development Plan of the SDP (2004).

2.4 Palaeontology

The oldest rocks in the Project area are Upper Carboniferous to Permian – Lower Carboniferous marine micritic limestones, sandstones and siltstones. The limestones have formed prominent karst topography in the Gnommalat region and west of the dam site. From a palaeontological perspective these rocks are likely to host marine invertebrate fossils.

On the Nakai Plateau, unconsolidated alluvium and colluvium consisting of gravel and sand, silt and clay have filled the Nam Theun valley. These materials are unlikely to host items of palaeontological significance.

Trần Văn et al. (2002) describes the Mesozoic Nam Theun Basin and identifies that lower to middle Jurassic marine sediments on the eastern edge of the Nam Theun Basin yield the following marine bivalves: *Cuspidaria* aff. *C. annamitica* (Saurin), *Cardinia* sp., *Burmesia* sp. *Pleuromya* aff. *P. concentrica*.

To the south of the Project Area in Savannakhet Province, dinosaur fossils and footprints have been identified in Mesozoic sediments (Allain et al, 1997).

3. Previous PCR Surveys

3.1 Earlier Studies

Prior to 2004, two surveys had been conducted to identify PCR within the Project area. In 1991, SMEC surveyed locations on the Nakai Plateau (SMEC 1991). Between 1994, 1995, a second survey was conducted in which the Downstream Channel was included (TEAM, 1995). The 1990 and 1994/1995 surveys were conducted by staff from the Ministry of Information and Culture (MIC). A team of archaeologists and social scientists further updated the field identification and consulted with local communities about acceptable management measures.

3.2 Need for Additional Studies

After the surveys conducted in 1990 and 1994/1995, the design of the Project was modified. The area of land required for construction and operation has become more clearly defined. In addition, the definition of physical cultural resources, encompasses a wider array of items than that included in the previous surveys, since the definition now includes sites having not only archaeological (pre-historic), palaeontological or historical value, but also religious, sacred and unique natural value. This broad definition of physical cultural resources was not used in previous surveys and therefore an additional survey was required.

3.3 The Baseline PCR Survey

In 2004, a baseline PCR survey was conducted by Earth Systems Australia in association with representatives from the Department of Museums and Archaeology, and the Institute of Cultural Research, within MIC, Lao PDR. The specific objectives of this additional survey was to (i) prepare a detailed registry, which documents all significance PCR within or adjacent to Project Lands; (ii) identify and assess the significance of all sites of PCR; (iii) assess the likely degree of impact; and (iv) evaluate and recommend appropriate management and mitigation options. The Earth Systems Australia (2004) survey adopts the World Bank's definition of PCR.

3.3.1 Methodology

The PCR survey methodology comprised of community consultation, walkover surveys, transect surveys and satellite imagery interpretation. The PCR survey was not limited to identifying PCR

within LPA but also identified those PCR located adjacent which could be potentially indirectly impacted.

Community Consultation

Community consultation involved village level focus group discussions using semistructured questionnaire forms. Community consultation enabled the identification of known PCR sites and objects, and the identification of landforms of potential PCR significance. The outcomes of the consultation were also incorporated into the mitigation measures of the PCR Plan. Figure [x] shows the locations of villages that were included in the consultation process.

This approach recognizes that people will not only be able to identify PCR currently in use but have knowledge of archaeology and historical remains. This indigenous knowledge has developed as a consequence of their livelihood activities of (i) swidden cultivation, (ii) intensive lowland paddy and rotational agriculture; (iii) livestock management on grasslands and savannah; (iv) hunting wildlife and collection of NTFPs; and (v) fishing. The nature of these activities gives people an intimate knowledge of not only the immediate village surroundings but further a field. Any PCR sites or objects in the area are likely to be discovered in the course of these activities.

To assist in the identification of PCR, the presentation used visual aids such as photographs and samples of PCR objects.

As it was envisaged that consultation may be less effective in identifying PCR that do not form part of the present day cultural landscape, the survey methodology included walk over surveys, transects and interpretation of satellite imagery.

Interpretation of Satellite Imagery

Recent high resolution satellite imagery was inspected to allow the identification of unusual geographical or hydrological features. A geomorphological interpretation was conducted to identify areas favorable for early human occupation. Identified sites were then inspected in the field.

Interpretation of the imagery was used to refine the survey methodology, in particular for the Nakai Plateau. The channel movement of the Nam Theun has archaeological and palaeontological implications, as much of the Nakai Plateau is covered in recent sediments. Thus, traditional surveys involving transects were not considered effective. Therefore the ground survey methodology targeted landforms, identified in the interpretation of imagery, that were likely to preserve evidence of early occupation.

Transects

Selected transects were undertaken in areas identified during consultation and interpretation of satellite imagery that potentially host archaeological and palaeontological sites.

Walkover surveys

Selected walkover surveys were performed to complement the consultation and were targeted in areas where it was considered that additional information was required. All identified PCR sites and objects were documented and subjected to a comparative study and contextual analysis to measure their significance. Documentation consisted of technical activities such as inventory, measurement, photography, drawing and textual recording.

4. Baseline

The PCR are presented as the following types: (i) prehistory, (ii) history, (iii) territorial spirits, (iv) other spirits, (v) religious sites, (vi) cemeteries, (vii) other cultural sites, and (viii) palaeontology. Some of these PCR types are considered by geographical location

(i.e. Nakai Plateau, Downstream Channel area and Impact Corridor areas (including the 500 kV Transmission Lines, Xe Bang Fai and Pha Phen Quarry).

Figure O.1 shows the indicative locations of the PCR and, if appropriate, their custodians. Given the potential monetary or cultural value of some of these PCR their precise locations are not identified in this annex. In addition, valuable movable PCR identified as part of the survey have not been presented in this annex as this may lead to theft or illegal sale of the items. Although the majority of movable PCR are within private collections, those movable PCR that are not in private collections will be subjected to special mitigation measures outlined later in the annex.

4.1 Prehistorical Sites

Sites of known and potential archaeological significance are presented in Table O.2 with an example shown in Plate 1.

4.1.1 Nakai Plateau

No sites of archaeological significance were identified on the Nakai Plateau. The lack of archaeological finds can be attributed to two factors: (i) meandering of the Nam Theun which would have covered or destroyed archaeological remains; and (ii) the Plateau was inhospitable to early human occupation.

The first factor was predicted during the geomorphological satellite interpretation. Prehistoric man would likely have inhabited river corridors. However, the geomorphic assessment indicated that most landforms potentially containing archaeological evidence are likely to have been highly disturbed by subsequent changes in the Nam Theun river course. A survey of soil confirmed the depth of the Nam Theun alluvium, 5 – 10 metres, and that this deposition had occurred relatively recently owing to the uniformity of the soil stratigraphy.

Remnant old landforms (e.g. a few small hills), are perhaps the most likely areas to preserve archaeology. However, transects conducted in these areas did not identify any evidence which is supportive of this area being extensively inhabited in previous times.



Plate 1: AS2, Pha Phen

The Plateau may have provided a temporary habitat for the purpose of seasonal hunting or migration. However, the Nakai Plateau is unlikely to have provided a suitable longterm habitat for prehistoric man due to the unavailability of natural shelter sites, potable water, and raw materials for tool production.

4.1.2 Downstream Channel Area

The prefield survey identified potential sites to be numerous as the area would have been favoured for early human habitation due to the abundance of natural shelter sites in the limestone outcrops, fresh water sources, fauna and suitable materials for tool production. However, only one cave site (AS1), of potential archaeological significance, was identified and consultation with communities identified only 13 Neolithic stone tools, one bronze, one brass and one iron axe.

Although, as mentioned above, it has been speculated that the Gnommalat area had been a site of bronze fabrication, based on the Earth Systems Australia (2004) survey, had prehistoric bronze fabrication been conducted in the Gnommalat area we may have expected a greater abundance of artifacts.

The most significant object identified was a pair of bronze anklets. It is presumed that the anklets were once owned by a woman of the ruling class. No similar objects have been identified previously in Lao PDR.

4.1.3 500 kV Transmission Line

No sites of archaeological significance were identified within the 500 kV Transmission Line corridor.

It is less probable that prehistoric settlements were established in this area. The area is relatively devoid of shelter sites. Any open camps would have been shortlived given the erosion rates in a monsoonal climate.

4.1.4 Xe Bang Fai

No sites of archaeological significance were identified along the Xe Bang Fai corridor.

Although the river banks may have been a site for human settlements, these would have been shortlived given the rates of river bank erosion. Any prehistoric artifacts left behind at these sites are likely to have been highly disturbed.



Plate 2: HS1, Abandoned Temple

4.1.5 Lak Sao Road and Pha Phen Quarry

Early human occupation of the Pha Phen limestone pinnacle, located to the west of the Phou Phako massif, was shown by a stratified sequence of prehistoric living floors contained in the rock shelters and caves that formed on the south side of the pinnacle (AS2)]

No significant prehistoric artifacts were identified during the community consultation however investigations conducted in the Pha Phen and Tham Pha Phra rock shelters identified unshouldered stone tools; a ceramic spindle whorl; beads made from shell; and pottery shards.

4.2 Historical Sites

Sites of known and potential historical significance are presented in Table O.3 and typical historic sites are shown in Plates 2 to 3.

4.2.1 Nakai Plateau

Only five historic sites were identified on the Nakai Plateau (HS1 to HS5). The survey returning a null result for the following PCR types (i) ancient trading routes; (ii) battlegrounds, with the exception that the Plateau was subject to aerial bombing by US aircraft during the 2nd Indochina War; (iii) historic buildings; (iv) built infrastructure such as walls, or fortifications, of historic significance; and (v) agricultural areas or gardens of historic significance.

The relatively few historic sites can be understood in terms of the inaccessibility of the Plateau, the livelihood of the ethnic groups inhabiting the Plateau, and the impacts of the 2nd Indochina War.

Access across the Plateau has been developed only relatively recently, in the 1930 1940's, with the construction of Road 8b by the French administration.

The Plateau inhabitants have traditionally been hunters, gatherers and swidden farmers moving frequently in response to resources. Thus built infrastructure is not designed to be permanent but rather movable. Further, a tropical climate where organic materials rapidly decompose means historic sites which have been constructed from organic material are no longer visible. No natural quarry sites were identified on the Plateau where rock outcrop could have been sourced as an alternative building material.

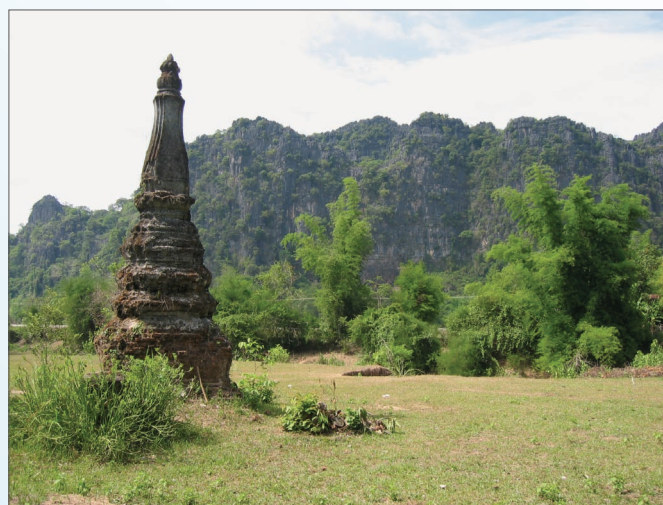


Plate 3: HS7, WatThaPha

Aerial bombing during the 2nd Indochina War resulted in the destruction of numerous villages on the Nakai Plateau and any such historical sites residing there.

4.2.2 Downstream Channel Area

In total 17 historic sites were identified in the Downstream Channel area (HS5 to 21). In light of the broader context outlined above, together with the results of the PCR survey, the primary historical influences on the Gnommalat and Mahaxai area are presented below.

In the 18th century, Mahaxai would have been a peripheral centre of power (*muang*) and have exercised substantial local influence, including on Gnommalat. Strategically located in the foothills of the Annamites, Mahaxai may have served as an important trading gateway between the two great powers of Siam and Annam. Lime production and elephant trading may have provided Mahaxai with increased trading opportunities.

Numerous abandoned lime kilns (HS25) were identified on the banks of the Xe Bang Fai. The lime was used as an ingredient for (i) chewing beetle nut, and (ii) the manufacture of plaster as evident on the stupas at Kouan Ku (HS6) and Wat Tha Pha (HS7).

Tai/Lao statecraft was also associated with the adoption of Theravada Buddhism as the official religion. The survey identified seven definitive temple sites in the area, the most significant being the abandoned sites of Kouan Ku (HS6), Kouan Ngua (HS8), Tha Pha (HS7) and Wat That (HS13).

Mahaxai area has also developed indigenous forms of Buddhist expression as evident by the design of the Buddha statues found at Kouan Ku and the numerous wooden images identified in various caves and temples. The style of design is not typical to Theravada Buddhism and may be the influence of the Ma Khong animism.

Increased prosperity would have resulted in the emergence of a noble class which is evident by the diversity and abundance of objects identified during consultation including the collection of ceramic and bronze objects, the stoneware box, and the ceramic pipe.

Increased wealth would have attracted the threat of invasion. The threat is evident at sites such as Kouan Ku (HS6) and Kouan Ngua

(HS8) where locations have been selected that provide a natural defence against invaders. In addition, many historic objects identified during consultation, had been hidden in limestone caves. Presumably the owners perished at the hand of the invaders or fled from the area never to return.

It is interesting to note that no historic sites or objects were identified from the 5th to the 18th century despite the establishment of various influential states along the Mekong corridor during this period. The 7th century witnessed the establishment of the Mon state in central Lao and its gradual replacement by the Khmer in the 11th century.

Based on the survey results it is evident that the influence of these states did not extend as far as Mahaxai but remained concentrated along the Mekong valley. It was not until the mid 17th century that the prosperity of this area flourish.

4.2.3 500 kV Transmission Line

No significant historic sites were identified inside the LPA for the Transmission Line however the survey identified three adjacent sites comprising of sema stones in situ, and two production areas for ceramic pots (HS22 to HS24).

The Mekong valley in central Laos was influenced by the Mon kingdom of Dvaravati. Sema stones were typically used by both the Mon and Khmer states to define consecrated ground, usually surrounding a temple, or as boundary markers for kingdoms.

The ceramic production areas are believed to date from the 18th century. The number and diversity of pot shards indicate that these sites produced significant quantities of ceramics over a period of time which may have been traded along the Mekong.

4.2.4 Xe Bang Fai

A number of historic sites were identified along the Xe Bang Fai. These include approximately 50 abandoned lime kilns, which are believed to date from the early 19th century, and one abandoned temple (HS25, HS26).

4.2.5 Lak Sao Road and Pha Phen Quarry

No significant historic sites were identified inside the LPA for Road 8b or Pha Phen Quarry. The survey did however identify two former army camps established during the 1st Indochina War (HS28, HS29).

The existing Road 8b was first established by the French pre1940s. The road was subsequently used by the Lao army during the first and second Indochina War.

4.3 Territorial Spirits

In summary 10 territorial spirits were identified on the Nakai Plateau; eight in the Downstream Channel area; 14 in the vicinity of the Transmission Line corridor; four along the Xe Bang Fai; and four in the vicinity of the Thakhek Road. No territorial spirit sites were identified in proximity to the Lak Sao Road or the Pha Phen quarry.

All of the ethnic groups believe in spirits that control various aspects of the cosmos and explain causality, including accidents, sicknesses, death and incomprehensible phenomena. Each type of spirit is associated with a certain location and a particular power.

The most important powers in the spirit world are the territorial spirits (*phi meuang*) that influence a large area around a village or group of villages. These spirits receive annual offerings before the start of the agricultural season in February. The origin of these spirits is often a legendary person/founder of a village or the medium who communicated with the spirit.



Plate 4: SS10, Phi Meuang offering site



Plate 5: SS33, Spirit Rock

Table O.4 presents the territorial spirits in the survey area. The table indicates the spirit name, ritual centre, and provides both a physical and cultural description of this ritual centre. Territorial spirits are significant at the local level, for those villages located within the spirit boundary. A map showing the territorial spirit boundaries on the Nakai Plateau is shown in Figure 132 of the SDP. .

4.4 Other Spirits Sites

Other spiritual sites typically include unique natural features, such as grasslands, rock outcrops, or water sources, which through the course of generations have become part of the cultural landscape for the local villages (Plate 5). This cultural landscape includes the performance of rituals such as animal sacrifice, offerings of food and alcohol, and festivals. In some cases these sites have become the subject of oral folk stories, and a reasoning for otherwise inexplicable occurrences. Villagers will seek guidance from the spirit on auspicious occasions.

In summary 13 other spirit sites were identified on the Nakai Plateau; 11 in the Downstream Channel area, 5 were identified in the vicinity of the Impact Corridors.

4.5 Religious Sites

A description of the religious sites identified during the PCR Survey is presented in Table O.5 and typical religious sites are represented in Plates 6 and 7.



Plate 6: TS2, Newly constructed temple, Ban Thalang

The growth of Tai/Lao statecraft in the Project area during the late 17th and early 18th centuries was also accompanied by the adoption of Theravada Buddhism and resulted in the construction of numerous temples. However the forms of Buddhist expression in the Project area have been influenced by local belief systems, whereby temples can resemble spirit huts, and Buddhist ceremonies incorporate elements of spiritual rituals including animal sacrifice.

It is believed that many of the temple sites were either destroyed or abandoned over the last 200 years as a consequence of successive invasion by outside forces. More recently, aerial bombing sustained during the 2nd Indochina War has also resulted in destruction or significant damage to a number of temples. Interestingly, many of these sites continue to be important features in the cultural landscape for the local villagers, and are still esteemed with some religious or spiritual value.

4.5.1 Nakai Plateau

Eight religious sites were identified on the Nakai Plateau (TS1 to 8). Buddhist ideas and various spirit beliefs and Hinduism from the Khmer traditions, has influenced many aspects of religion on the Plateau.

4.5.2 Downstream Channel Area

Ten religious sites were identified in the Downstream Channel area (TS9 to 18) and four temples along the Thakhek Road (TS39 to 42). Wat Sibounheuang is perhaps the most significant owing to its location in the district centre of Gnommalat.

A number of the historic temple sites, although now in ruins, continue to be important features in the cultural landscape, and are still esteemed with some religious or spiritual value. These sites include Kouan Ku (HS4), Kouan Ngua (HS6), Tha Pha (HS5) and Wat That (HS11).

4.5.3 Impact Corridors

Seven temples and one church were identified in the vicinity of the Transmission Line corridor (TS19 to 26); 11 temples and one church along the Xe Bang Fai (TS27 to 38); and three temples along the Lak Sao Road (TS43 to 45).



Plate 7: TS13, Wat Tha Pha



Plate 8: C11, Cemetery



Plate 9: C44, Cemetery

4.6 Cemeteries

The villages and their respective cemetery are presented in Table O.6 and examples of the type of cemeteries are shown in Plates 8 and 9.

Traditionally the ethnic minority groups inhabiting the Project area, such as the Ma Khong and Sek, buried their dead. However through the influence of Buddhism, cremation has also become common. Today the funeral ceremonies combine elements of Buddhism and spirit traditions.

Cremation is normally conducted at the cemetery. The remains of the deceased are placed in an urn which is left at the cremation site. Some sites are marked with a wooden post. The urn typically comprises a ceramic or metallic pot. The community may invest in the construction of a stupa for the containment of an urn belonging to a highly respected individual.

Burial is normally conducted in shallow graves which are backfilled with earth and logs. Some burial sites are marked with a wooden post on which the name of the deceased may be inscribed.

Cemeteries are typically located on elevated and forested land, on the outskirts of the village. Villagers are not permitted to hunt or extract forest products from this area. In fact villagers generally avoid approaching the area for fear of disturbing the ancestral spirits.

Cemeteries are significant at the local level, for those villages who use the site.

4.7 Other Cultural Sites

Village consultation identified a number of other culturally significant PCR sites in the survey area. In general these sites comprise of natural features which afford recreational amenity. Such sites are generally significant at the local level, for those villages that enjoy the amenity of the site. These sites are described below in Table O.7.

Consultation identified a number of sites on the Plateau associated with natural features such as forests, wetlands, rivers, grasslands, and rock outcrop. However a walkover survey of these sites did not identify any features of particular natural significance. Survey transects of the Nakai Reservoir identified additional features but these also were not considered to be of particular natural significance. Many parts have now been degraded by logging and it is currently not a site that attracts any significant tourism.

4.8 Palaeontology

A description of the palaeontology sites is presented in Table O.8 and an example shown in Plate 10.

4.8.1 Nakai Plateau

No palaeontological sites were identified on the Nakai Plateau.

Consultation did not identify any fossils. Survey transects identified sandstone outcrops. However investigations of these sites did not reveal any evidence of fossils. In summary there is little outcropping geology on the Nakai Plateau. As discussed in Section 2.4, the basin has been buried beneath unconsolidated alluvium and colluvium.

4.8.2 Downstream Channel Area

No significant palaeontological sites were identified in the Downstream Channel area.

The geology consists of marine micritic limestones built up millions of years ago by algae, shells, corals and other marine organisms and have formed a prominent karst topography. Marine invertebrate fossils were identified at Tham Phuang (PS1) but it is not considered that the fossil occurrence is unusual to the area or of unique scientific interest.



Plate 10: PS1, Tham Phuang, marine fossil assemblage

4.8.3 Impact Corridors

A few palaeontological sites were identified in the Impact Corridors including fossilised animal bones of Quaternary age in cave floor deposits within limestone in the Pha Phen (PS2) and a marine fossil assemblage including crinoids and shells, within Carboniferous limestone in the same area (PS3).

No other fossils were identified during the course of consultation.

5. IMPACTS

Identifying prior to construction the potential impacts that may result because of the Project is important to allow mitigation measures to already be in place to address or minimize any adverse impact. This section identifies impacts on PCR within the Project area. A more detailed discussion on impacts at each specific PCR site is presented in Earth Systems Australia (2004).

The development of the Project will impact on some of the PCR identified above. These impacts will primarily be associated with construction activities, inundation of the Nakai Plateau, and Project operations.

5.1 Construction

Impacts associated with construction activities include loss of land, alteration of air quality, noise, vibration, aesthetic degradation, change of water quality and restriction of access. A detailed description of these types of impacts and their potential sources are presented in Chapter 3. PCR may also be adversely impacted due to the influx of workers and associated immigration. Potential impacts of this immigration include damage, deterioration and unacceptable exposure to historic sites, spirit sites, temples, and cemeteries.

5.1.1. Nakai Plateau

There is the potential for loss and disturbance of PCR during construction, and for resettlement to adversely affect the amenity of cultural and spiritual sites.

In general the impacts associated with resettlement is assessed to be relatively low because the majority of households will be relocated within their existing village, administrative and cultural boundaries. Hence the majority of the villagers will maintain their existing PCR sites. In cases where villages resettle outside their current village boundaries the village will have to develop new cultural landscape from their neighbouring villages.

5.1.2 Downstream Channel

The primary impact on PCR in the Downstream Channel area is the unregulated access and subsequent disturbance to sites during construction arising from immigration. Immigration has the potential to adversely affect sites and objects of historic value and the amenity of spiritual sites.

5.1.3 Impact Corridors

The primary impact on PCR within the Impact Corridors is the potential loss of land associated with the upgrade of existing road alignments (including the access roads to the transmission line corridor). In particular there is the potential for the partial loss of land associated with spirit sites, temples, and cemeteries. Opening Pha Phen quarry will cause loss of land and a aesthetic impact arising from loss of part of the limestone karst. Other impacts will be noise and dust generated during aggregate acquisition.

5.2 Operations

5.2.1 Nakai Plateau

The primary impact on PCR located on the Nakai Plateau is loss and disturbance of sites arising from inundation. PCR sites impacted by the inundation include spirit sites and cemeteries. Increased pressure on land use in the resettlement areas abutting the reservoir, may adversely affect PCR located in these areas. Operation of the Project is also expected to attract further immigration and tourism. The improved year round access to the Nakai Plateau will enable people to settle in the area, and movement from one area to another.

5.2.2 Downstream Channel Area

The impacts associated with operation of the Power Station include restriction and loss of access to PCR by the physical presence of the Downstream Channel.

Operation of the Project is also expected to attract immigration and tourism, and approximately 150 permanent employees will be based at Residence Nam Theun.

5.2.3 Impact Corridors

For the 500kV Transmission Lines the operating phase impacts will be limited to electromagnetic radiation, visual impacts, and impacts associated with the access and maintenance of the line.

The primary issues relating to the Xe Bang Fai is the potential for increased rates of river bank erosion which could impact PCR located close to the river.

5.3 Site Specific Impacts Assessment

A summary of the PCR impact assessment is presented in Table O.2. The table identifies the PCR sites and whether they will potentially be impacted by construction, inundation and operation of the Project.

The Project is not expected to have any direct adverse impacts on movable PCR objects which belong to private (i.e. family) collections. However there is potential for theft and desecration of community owned PCR objects located at temples and/or caves. Mitigation measures for the protection of PCR located at community managed sites are identified below.

[insert impacts matrix]

6. Mitigation

Appropriate management and mitigation measures will need to be implemented for all sites potentially impacted by the Project. The following are general measures to be adopted by PCR Plan to manage PCR sites:

- An awareness program conducted in advance of the construction activities to prepare the community for the potential impacts on PCR sites and to identify further site specific mitigation measures.
- Engage a Lao PCR specialist in cultural anthropology to conduct the community awareness program, and to oversee the appeasement ceremonies where required.
- Engage a Lao PCR specialist in history to work with the Head Contractor during excavations, particularly the section of the Downstream Channel from the Regulating Dam to the Nam Gnom siphon.
- Inform the Head Contractor of the sites and potential sites of PCR.

- Minimize to the extent possible the direct impact by construction. It is envisaged that the impacts associated with the upgrade of existing road alignments and the Transmission Line can be minimised during final design, by providing sufficient buffer distance.
- Ensure that movable PCR artifacts located in publicly accessible places (i.e. temples and rock shelters) are secured from theft and vandalism prior to the construction period, in a manner that does not adversely affect their religious and spiritual amenity.
- Implement the Chance Find Procedure for all construction works.
- Ensure that all migrant workers receive an induction program upon arrival in the Project area, which amongst other things shall outline codes of conduct to assist in the protection of PCR.
- Support GOL through the financing of capacity building programs which encompass the management and protection of PCR i.e. implementation of the Chance Find Procedures.

More specifically some mitigation measures that will be implemented in the various areas include the following.

Nakai Plateau:

- Clarify whether inundation or vibration during construction will impact on the Ban Nakai Tai Temple and accordingly refine the management and mitigation strategies identified.
- Consult with communities to prepare them for potential impacts on the territorial spirit sites and the salt licks of Bor Kua, Bor Sangtew and Bor Pouak.
- Secure the movable Buddha statues located at the Ban Nakai Tai Temple and Ban Oudomsouk from theft or vandalism prior to the construction period.
- Consult with the appropriate communities, to ensure that PCR values are considered in the resettlement plans. A PCR specialist should be consulted during the preparation of the plans for each resettlement site.

Downstream area:

- Secure movable Buddha statues located at Kouan Ku, Wat Tha Pha, Tham Pha Thoung, Wat Sibounheuang, Wat Nong Ping and Wat Ban Phit, from theft or vandalism prior to the construction period.
- Salvage operation (completed) for the caves at Pha Phen by the Department of Museums and Archaeology of MIC.
- Monitor the rate of river bank erosion along the Xe Bang Fai, arising from project operations, assess the likely impacts on the identified sites of PCR significance.
- Ensure that access is maintained to significant PCR sites across the Downstream Channel.

Impact Corridors:

- Conduct risk assessment of the likelihood of impact on the abandoned kilns located on the Xe Bang Fai. Monitor kilns during operations.
- Inform the HC of the potential for sema stones to feature as 'Chance Finds' in the Transmission Line Corridor.
- Ensure that movable Buddha statues located at Wat Sen Sayalarm (Ban Mahaxai) and Tham Saolua (Ban Manilath) are secured from theft or vandalism prior to the construction period.

6.1 PCR Plan

The objective of the PCR Plan is for NTPC, in conjunction with the Resettlement Management Unit (RMU) and Lao Cultural experts from the Provincial and District levels, to minimize any adverse impacts on PCR. The PCR Plan is presented in Table O.1 and specifics are discussed below.

The overall aim of the awareness consultation is to ensure that people living in the village fully understand the impacts of construction on their PCR. In summary, the objectives are to (i) inform the communities on the expected impacts from the Project; (ii) gather and record further focused information on PCR and the traditional practices and customs of the community of the village and how construction will impact on these; (iii) discuss and agree on the best mitigation measure(s) to be implemented to address negative impacts; (iv) where appropriate, oversee the mitigation measure.

Relocation of PCR (e.g. stupa, spirit huts, Buddha images, etc.) will be completed in conjunction with provincial and district Culture and Information Offices. The consultation will determine whether it is culturally acceptable to relocate the PCR to a nominated site. The location of the nominated site will also be obtained from the consultation.

According to villagers in past consultation, it may not be necessary to relocate village cemeteries, on condition that appeasement rituals for relocation of village spirits are held.

6.2 PCR Specialists

The Project intends to support the Department of Museums and Archaeology to provide several PCR Specialists to assist in the implementation of the PCR Plan, including (i) overseeing the community consultations; (ii) providing technical assistance to ensure appropriate customs are followed during PCR relocation and appeasement ceremonies; (iii) providing assistance to the HC on PCR issues such as chance finds. The PCR Specialist will help ensure that the PCR Plan is implemented in a culturally sensitive manner and that the regulations of GOL are adhered to.

6.3 Chance Finds Procedure

The purpose of the Chance Finds Procedure is to assist in the detection, reporting of, and prevention of disturbance and damage to objects and sites of PCR, specifically those PCR unknown prior to the commencement of construction activities. The Chance Finds Procedure has been developed by Earth Systems Australia (2004) in conjunction with the Ministry of Information and Culture (MIC), and is consistent with regulatory requirements of Lao PDR. The Chance Find Procedure is presented in Figure O.1.

The HC will be responsible for ensuring that the construction workforce are vigilant in the detection and reporting of, and the prevention of disturbance and damage to, objects and sites of PCR. This includes stopping work and securing the areas adjacent to the PCR to prevent damage and notifying NTPC of the find.

To facilitate the implementation of the procedure, Lao PCR specialists shall be deployed at strategic construction areas to (i) assist the HC in his identification of PCR; (ii) to report the findings the NTPC; and (iii) where appropriate, conduct the mitigation measures to ensure the safety of the PCR item, but at the same time, prevent any unnecessary delays in construction.

All PCR items found in the construction areas shall be placed under the care and authority of NTPC. Thereafter, the ownership of any PCR discovered will be determined by the MIC.

7. Monitoring

Monitoring is an essential component of the PCR Plan. On and near construction sites, monitoring will be done by the HC, and checked by NTPC. Whenever communities are involved, the monitoring will be undertaken by the RMU

Table O.1: PCR Plan

Possible Impact	Activity/Mitigation Measure	Reason for Mitigation	Implementing Responsibility	Budget Responsibility
Construction Phase				
Partial or total loss of the PCR value of the site arising from aggregate acquisition.	Conduct a community awareness consultation	Prepare the community for the potential impacts and identify further site specific mitigation measures	RMU	NTPC
	If required, provide the community with adequate compensation for appeasement ceremonies	Ensure harmony in the community.	RMU	NTPC
	Conduct an archaeological investigation.	Document items of archaeological significance before loss and further the knowledge of prehistoric human habitation in Lao PDR.	MIC	NTPC
	Pending the results of the investigation, conduct an archaeological salvage		MIC	NTPC
Partial or total loss of the PCR value of the site arising from construction activities or inundation	To the extent possible limit direct impact by construction.	Prevent any unnecessary loss of PCR.	HC	HC
	If impact unavoidable, clarify the type and duration of impacts.	Permanently lost land can be distinguished from permanently transformed, temporarily lost and temporarily disturbed	HC	HC
	For potential inundation impacts, accurately measure elevation of the PCR.	To confirm whether the PCR is located in the inundation zone. Assist in the decision process of whether to implement further mitigation measures.	NTPC	NTPC
	Conduct a community awareness consultation	Prepare the community for the potential impacts and identify further site specific mitigation measures	RMU	NTPC
	If required, provide the community with adequate compensation for either (i) appeasement ceremonies; (ii) replacement land (or equivalent); or (iii) for the establishment of a new territorial spirit site.	Ensure harmony in the community.	RMU	NTPC
	For relocation, empower community to manage site.	Give community sense of ownership ???	RMU	NTPC
	For relocation, survey selected relocation site.	Ensure that the selected site is outside inundation zone and away from any further construction areas. Prevent further impacts on the relocated PCR.	NTPC	NTPC
	Engage a PCR Specialist in cultural anthropology.	To conduct the community awareness program, to oversee the appeasement ceremonies, and to establish PCR at new locations. Ensure the mitigation measures are conducted in a culturally sensitive manner and within the regulations of GOL	MIC	NTPC
	During construction, ensure a PCR Specialist is present on site at strategic construction areas.	Assist in the implementation of the PCR Plan and Chance Finds Procedure. Ensure the mitigation measures are conducted in a culturally sensitive manner and within the regulations of GOL	MIC	NTPC
Physical damage, deterioration and unacceptable exposure arising from immigration and unregulated access during the construction phase, and resettlement.	Ensure that all construction workers receive an induction program, which shall outline codes of conduct.	Assist in the protection of PCR and prevent unnecessary impacts.	HC	HC
	Conduct a community awareness program to support the management of PCR in the area.	Designed community management to regulate access and selfmonitor sites. Empower the community and prevent any unnecessary impact on PCR	RMU	NTPC
	Engage a PCR Specialist in cultural anthropology.	Conduct the community awareness program, to oversee the appeasement ceremonies, and to establish PCR at new locations. Ensure the mitigation measures are conducted in a culturally sensitive manner and within the regulations of GOL.	MIC	NTPC
	Monitor the extent of disturbance during the course of the construction period.	Identify any PCR being indirectly impacted by construction activities and implement appropriate mitigation measures.	NTPC	NTPC
Looting of moveable PCR.	Ensure moveable PCR are secured from theft and vandalism prior to the construction period without adversely affecting their religious and spiritual amenity.	Prevent loss of PCR.	?NTPC	NTPC

Table O.1: PCR Plan cont.

Possible impact	Activity/Mitigation Measure	Reason for Mitigation	Implementing Responsibility	Budget Responsibility
Operation Phase				
Physical deterioration of PCR site resulting from inundation and subsequent the increase in ground water level which may affect the moisture content and salinity level of soils beneath the site.	Investigate the nature and extent of impacts arising from changes in ground water level.	To refine management recommendations for the site pending the results of this investigation.	NTPC	NTPC
Disturbance and exhumation of burial sites as a result of reservoir drawdown.	Maintain existing tree and vegetation cover in and around cemetery areas.	Minimise the potential erosion of topsoil in the drawdown zone and subsequent exhumation of burial sites.	GOL	NTPC
Loss of access to PCR site resulting from the physical barrier created by the Downstream Channel.	Provide access across the Downstream Channel.	Ensure the amenity of significant PCR sites.	HC	HC
Loss of land due to increased river bank erosion on the Xe Bang Fai.	Monitor river bank erosion.	Assess whether further management measures (bank protection, relocation, etc.) are required. Preempt any adverse impact. PCR conservation.	EMO	NTPC
	Undertake a risk assessment of the likelihood of impact for those PCR of national significance, i.e. the abandoned kilns located along the Xe Bang Fai.	Assess whether further management measures (bank protection, relocation, etc.) are required. Preempt any adverse impact. PCR conservation.	EMO	NTPC
	Conduct a community awareness program.	Design community management to selfmonitor sites. Empower the community and preempt any adverse impact. PCR conservation.	RMU	NTPC
Loss of land due to increased river bank erosion on the Xe Bang Fai.	Monitor river bank erosion.	Assess whether further management measures (bank protection, relocation, etc.) are required. Preempt any adverse impact. PCR conservation.	EMO	NTPC
	Undertake a risk assessment of the likelihood of impact for those PCR of national significance, i.e. the abandoned kilns located along the Xe Bang Fai.	Assess whether further management measures (bank protection, relocation, etc.) are required. Preempt any adverse impact. PCR conservation.	EMO	NTPC
	Conduct a community awareness program.	Design community management to selfmonitor sites. Empower the community and preempt any adverse impact. PCR conservation.	RMU	NTPC
	If the site is disturbed in any way, provide the site custodian with adequate compensation.	Ensure harmony in the community.	RMU	NTPC
Geographic dislocation from the PCR resulting from resettlement. This may cause uncertainty and disharmony within the village.	Conduct a community awareness program.	Prepare the community for the potential impacts of inundation on PCR sites.	RMU	NTPC
	Provide the community with replacement land (or equivalent) outside inundation zone and, if required, compensation for the conduct of appeasement ceremonies for the site.	For the establishment of a new PCR site (e.g. territorial spirit site, temple, etc.).	RMU	NTPC
	Assist the community to manage the site selection process and physical relocation of the spirit hut.	Empower the community and give sense of belonging.	RMU	NTPC
	Engage a Lao PCR Specialist in cultural anthropology, to conduct the community awareness program, to oversee the appeasement ceremonies, and to establish a new PCR site as needed.	Conduct the community awareness program, to oversee the appeasement ceremonies, and to establish PCR at new locations. Ensure the mitigation measures are conducted in a culturally sensitive manner and within the regulations of GOL.	RMU	NTPC
In the longer term there is the potential for immigration and tourism to result in the creation of a market for private collections of movable PCR objects.	Conduct a community awareness program to educate the owners of movable PCR in the importance of not selling the item. For those items of national significance, consideration given to purchasing the item for safe storage or display in the National Museum.	Prevent the PCR item from being sold and leaving Lao PDR.	GOL	GOL

8. Institutional Strengthening

Implementation of mitigation measures is dependant on NTPC ability to control the plan and on the capacity of relevant government department to fulfill their obligations. The successful implementation of the Chance Find Procedure will be reliant on the construction workforce's ability to recognize PCR objects/sites. As a lot of activities will be implemented by the RMU, the PCR Plan will put a lot of emphasis on improving their capacity in the field of PCR.

8.1 Department of Museums and Archaeology

There is a need for the Department of Museums and Archaeology (DMA) within the MIC to provide personnel that have a knowl-

edge of recognizing and dealing with PCR objects and sites. With assistance from NTPC, there should be no problems with this provision. DMA personnel have worked extensively on the baseline PCR survey, acquiring the necessary capacity to carry out their advisory role to NTPC during construction. The PCR Plan includes provision for financial help to DMA to enable chance finds to be dealt with in an effective manner.

In addition, there is also potentially a need for DMA to provide education to the HC workforce on identification of PCR objects that may be uncovered during the course of construction activities, and to provide training to the RMU regarding PCR sites and the appropriate mitigation measures for dealing with them.

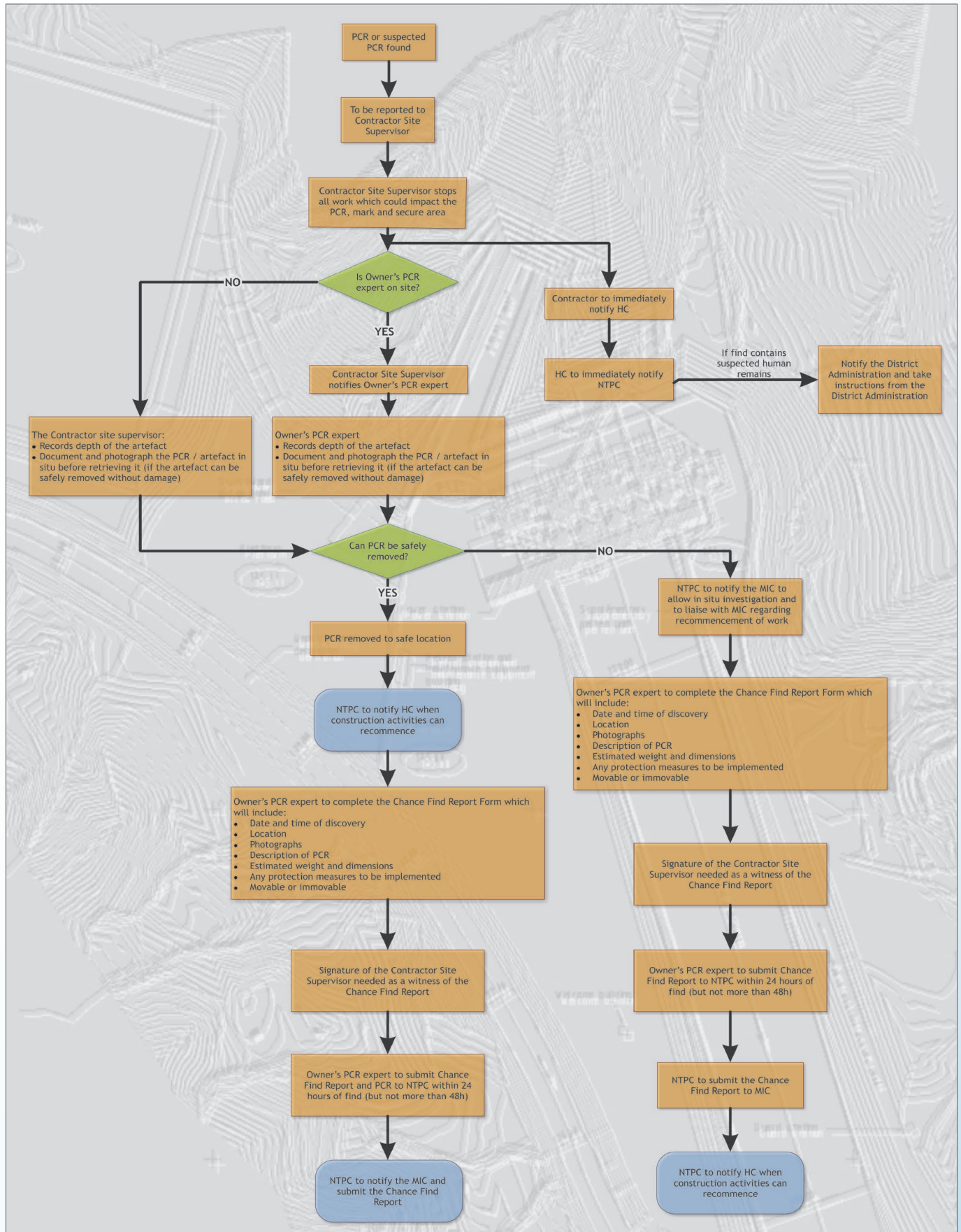


Figure O.1: PCR chance find procedure

Table O.2: Summary of Impact Assessment

Site ID	Site Name	Village Name	Construction Phase Impacts							Inundation Impacts				Operational Phase Impacts				
			Loss of Land	Air Quality	Noise	Vibration	Visual	Water Quality	Access	Migrant Workers	Loss of Land	Ground Water Level	Loss of Access	Resettlement	Loss of Land	Drawdown	Water Level	Immigration
AS2	Pha Phen	Nam Thi	•						•									
HS1	Abandoned Temple	Nakai Tai				•			•	•	•		•				•	
HS2	Phetsarath's Hunting Lodge	Nakai Tai											•					
HS3	French Administration Post	Nakai Neua											•					
HS4	Road 8b	various	•							•								
HS5	Tham Arong	Tha Thod							•								•	
HS6	Kouan Ku	Thong Mang						•	•								•	•
HS21	Wat Vang Tha	Kaeng Savang												•				
HS25	Abandoned Kilns	Mahaxai Kang												•		•		
HS26	Wat Viengkeo	Phova Neua												•		•		
HS28	Konglea / Itsala Army Camp	Oudom	•															
HS29	French Army Camp	Oudom	•															
SS1	Kaeng Norn	Sop Hia	•						•	•								
SS2	Kaeng Pa Nom	Ban Thalang	•						•	•								
SS3	Phi Mueang	Nakai Tai	•						•	•		•						
SS4	Phi Mueang	Nakai Neua								•								
SS5	Vang Lamong	Sop Phene					•			•								
SS6	Phi Mueang	Sop On								•								
SS7	Phi Mueang	Ka Oy									•							
SS8	Phi Mueang	Done								•								
SS9	Phi Mueang	Khone Khen								•								
SS10	Phi Mueang	Oudomsouk	•						•									
SS43	Phi Meuang	Pong	•															
SS49	Phi Meuang	Bung Houa Na Neua	•															
SS50	Phi Meuang	Na Muang	•															
SS51	Phi Meuang	Lau Fai	•															
SS52	Phi Meuang	Nonesan	•															
SS53	Phi Meuang	Kenghet																
SS55	Phi Meuang	Nongsa	•															
SS57	Phi Meuang	Pha Nang												•		•		
SS58	Phi Meuang	Tha Kor												•		•		
SS59	Phi Meuang	Veunsanan												•		•		
SS64	Phi Meuang	Phine	•															
SS11	Bor Kua	Nakai Neua, Nakai Tai	•						•	•								
SS12	Vang Nam Xot	Thalang																•
SS13	Pong Ta E	Thalang								•								
SS14	Pong Pa Phai	Thalang, Nong Boua Kham	•							•								
SS15	Tha Tham Pa Kang	Thalang	•						•									
SS16	Houay Saynong	Hat Khamphane								•								
SS17	Takearn	Hat Khamphane								•								
SS18	Bor Sangtew and Bor Pouak	Sop Ma, Keng Gnao, Nong Boua (abandoned), Boua Ma						•		•								
SS19	Kaeng Meune and Lan Nam Tao	Sop Ma, Keng Gnao								•								

Table O.2: Summary of Impact Assessment cont.

Site ID	Site Name	Village Name	Construction Phase Impacts								Inundation Impacts				Operational Phase Impacts				
			Loss of Land	Air Quality	Noise	Vibration	Visual	Water Quality	Access	Migrant Workers	Loss of Land	Ground Water Level	Loss of Access	Resettlement	Loss of Land	Drawdown	Water Level	Immigration	Access
SS20	Tham Phra	Sop Hia																	•
SS21	Thong Pong Song	Nam Nian									•								
SS22	Theunkalang	Done									•								
SS23	Boungvang	Done									•								
SS24	Phi Meuang	Lau Na Ngam								•								•	
SS26	Phi Meuang	Gnommalath Tai								•								•	
SS27	Phi Meuang	Nong Ping Neua								•								•	
SS32	Nong Kokmong	Korbong	•					•		•								•	
SS33	Spirit Rock	Kout Phadang															•		
SS34	Kouan Arah	Gnommalath Tai																	•
SS35	Tham Noi	Tham Phuang								•								•	
SS36	Tham Phuang	Tham Phuang					•	•		•							•	•	
SS37	Tham Wat Sa	Nong Ping								•								•	
SS38	Pang Phi Nam Bor	Nong Ping	•					•		•							•	•	
SS39	Natural Spring	Kenglek						•									•		
SS41	Tham Bong	Pha Thoung	•	•	•	•	•			•								•	
SS42	Tham Pha Thoung	Pha Thoung								•								•	
SS66	Pak Houay Mong	Mahaxai Kang													•		•		
SS67	Pha Pet	Nam Thi			•		•			•							•		
SS68	Groundwater Spring	Pakkatan	•												•				
SS69	Hin Sao Man	Phonsy	•												•				
TS1	Wat Sen Sayalarm	Nakai Neua		•	•	•					•								
TS2	Wat Thalang	Ban Thalang	•	•	•	•					•								
TS3	Abandoned Temple	Done									•								
TS4	Wat Nongphai	Sop On									•								
TS5	Wat That	Phonesavang									•								
TS6	Abandoned Temple	Bouama									•								
TS7	Nong Sim	Keng Gnao									•								
TS8	Wat Sibounheuang	Oudomsouk	•	•	•	•				•								•	
TS9	Wat Tha Thod	Tha Thod							•										•
TS11	Wat Nong Ping	Nong Ping								•								•	
TS13	Wat Tha Pha	Tha Pha								•					•			•	
TS18	Wat Sbounheuang	Gnommalath Tai	•	•	•	•	•			•								•	
TS19	Wat Sisavang Outomphone	Sorm	•	•	•	•	•			•	•								
TS20	Wat Sisaat Souvannalarm	Thamlai	•	•	•	•	•			•	•								
TS27	Wat Sen Sayalarm	Mahaxai Kang									•	•							
TS28	Wat Phova Tai	Phova Tai									•	•							
TS29	Wat Phova Neua	Phova Neua									•	•							
TS30	Wat Sisaket	Pha Nang									•	•							
TS31	Wat Phra Ku	Pong									•	•							
TS32	Wat Keng Khene	Keng Khene									•	•							
TS33	Wat Sisaat	Keng Pe									•	•							
TS36	Catholic Church	Keng Kasi									•	•							

Table O.2: Summary of Impact Assessment cont.

Site ID	Site Name	Village Name	Construction Phase Impacts								Inundation Impacts				Operational Phase Impacts			
			Loss of Land	Air Quality	Noise	Vibration	Visual	Water Quality	Access	Migrant Workers	Loss of Land	Ground Water Level	Loss of Access	Resettlement	Loss of Land	Drawdown	Water Level	Immigration
TS37	Wat Palai	Palai									•	•						
TS43	Wat Oudom	Oudom	•	•	•	•				•								
C1	Cemetery	Bouma									•							
C2	Cemetery	Bouma									•							
C3	Cemetery	Done									•							
C4	Cemetery	Done									•							
C5	Cemetery	Done									•							
C6	Cemetery	Done									•							
C7	Cemetery	Hat Khamphane	•								•							
C8	Cemetery	Ka Oy									•				•			
C9	Cemetery	Ka Oy									•				•			
C11	Cemetery	Keng Gnao									•							
C12	Cemetery	Khone Khene									•				•			
C13	Cemetery	Khone Khene									•				•			
C14	Cemetery	Khone Khene									•				•			
C15	Cemetery	Khone Khene									•							
C16	Cemetery	Nakai Neua												•				
C17	Cemetery	Nakai Neua												•				
C18	Cemetery	Nakai Tai												•				
C19	Cemetery	Nakai Tai									•				•			
C20	Cemetery	Nam Nian	•								•				•			
C22	Cemetery	Nong Boua Kham, Nakai Tai	•								•			•	•			
C23	Cemetery	Nong Boua Kham									•			•	•			
C24	Cemetery	Oudomsouk									•			•	•			
C25	Cemetery	Oudomsouk	•							•								
C26	Cemetery	Phonphanpek	•							•	•			•	•			
C27	Cemetery	Phonsavang									•							
C28	Cemetery	Sophia	•							•	•							
C29	Cemetery	Sop Ma	•								•							
C30	Cemetery	Sop On									•				•			
C31	Cemetery	Sop Phene									•							
C32	Cemetery	Thalang	•								•			•	•			
C38	Cemetery	Thong Mang, Phone Lat Khuay, Nong Saeng, Phonsavanh	•												•			
C39	Cemetery	Gnommalath Tai, Gnommalath Neau, Somsanouk	•												•			
C40	Cemetery	Nong Ping	•												•			
C41	Cemetery	Nong Ping	•												•			
C42	Cemetery	Tham Phuang	•												•			
C43	Cemetery	Kenglek, Nong Ping																
C44	Cemetery	Gnommalath	•												•			
C46	Cemetery	Kout Phadang, Korbong and Keovilay																•
C52	Cemetery	Phonesaat	•												•			

Table O.2: Summary of Impact Assessment cont.

Site ID	Site Name	Village Name	Construction Phase Impacts								Inundation Impacts				Operational Phase Impacts			
			Loss of Land	Air Quality	Noise	Vibration	Visual	Water Quality	Access	Migrant Workers	Loss of Land	Ground Water Level	Loss of Access	Resettlement	Loss of Land	Drawdown	Water Level	Immigration
C56	Cemetery	Khamboun	•											•				
C59	Cemetery	Nathong	•											•				
C63	Cemetery	Dongbak (abandoned)	•											•				
C64	Cemetery	Dongphoung	•											•				
C65	Cemetery	Phak Kha Nga Kang	•											•				
C66	Cemetery	Phak Kha Nga Kang	•											•				
C67	Cemetery	Nong Sa	•											•				
C68	Cemetery	Pong												•	•			
C69	Cemetery	Nakok Nai, Lak 7, Lak 9	•											•				
C70	Cemetery	Lak 9	•											•				
C71	Cemetery	Natung, Phonesavanh	•											•				
C72	Cemetery	Phonlai	•											•				
C73	Cemetery	Tarn, Donesavang	•											•				
C74	Cemetery	Phonesaat	•											•				
C75	Cemetery	Phonesaat	•											•				
C76	Cemetery	Phonesaat	•											•				
C77	Cemetery	Nam Phao	•											•				
C78	Cemetery	Phonxai	•											•				
C79	Stupa	Phonxai	•											•				
C80	Cemetery	Phonkeo	•											•				
C81	Cemetery	Phonsaat	•											•				
C82	Cemetery	Pakkatan	•											•				
C83	Cemetery	Pakkatan	•											•				
C84	Cemetery	Phachumkong, Khoksavang	•							•								
C85	Cemetery	Nong Khene	•							•							•	
C86	Stupa	None Khene	•							•								
C87	Abandoned Cemetery	Keovilay (former village)	•							•				•				
CS1	Nong Oudomsouk	Oudomsouk	•															
CS2	Recreation Park (proposed)	Oudomsouk	•															
CS3	Holiday Lodge	Oudomsouk												•				
CS4	Tham Mut	Tham Phuang								•							•	
CS5	Tham Keo	Tham Phuang								•							•	
CS6	Tham Phuang	Tham Phuang								•							•	
CS7	Pha Tham None	Phit Sikhay								•							•	
CS8	Tham Lom	Khok Savang																
CS9	Tham Tholapee	Tha Thod								•							•	
CS10	Tham Heua	Kenglek								•							•	
CS11	Tham Muang	Kenglek								•							•	
CS12	Peo Hia	Khok Savang																
CS13	Tham Phra	Sorm																
CS14	Tham Saolua	Manilath	•		•	•	•			•				•			•	
CS15	Water Hole	Nonesan	•											•				
CS17	Bung Ke	Kengsavang, Nong Song												•	•			

Table O.2: Summary of Impact Assessment cont.

Site ID	Site Name	Village Name	Construction Phase Impacts								Inundation Impacts				Operational Phase Impacts				
			Loss of Land	Air Quality	Noise	Vibration	Visual	Water Quality	Access	Migrant Workers	Loss of Land	Ground Water Level	Loss of Access	Resettlement	Loss of Land	Drawdown	Water Level	Immigration	Access
CS18	Hat Pha Vieng	Mahaxai Kang, Mahaxai Neua, Mahaxai Tai, Phova Neua, Phova Tai													•		•		
CS21	Tad Kham	Hat Phek															•		
CS22	Tham Men, Tham Seu, Tham Gnai	Nakok Nai																	
CS25	War Memorial	Lak 4	•												•				
PS1	Tham Phuang	Tham Phuang								•									
PS2	Pha Phen	Nam Thi	•							•									
PS3	Pha Bong	Nam Thi								•									

note: only impacted sites listed; full list of surveyed PCR sites provided in Tables P.3-10

Table O.3: Archeological Sites

Site ID.	Site Name	Village	Location	Physical Description	Prehistoric Description	Significance
AS1	Tham Pet Sok	Thang Beng	Outside LPA	The site comprises an upper and lower cave. The upper cave may have provided a suitable habitat for early human habitation due to its relative accessibility, living space and availability of light.	Prehistoric earthenware pot shards found on the floor of the upper caves accompanied with a few pieces of animal bones deposited in the soil. The cave may have provided a suitable habitat for early humans since at least the Neolithic period. The cave also contained stoneware pot shards dating to approximately 300 years.	Further investigations would be required to confirm whether the cave was a prehistoric habitation site
AS2	Pha Phen	Nam Thi	Inside LPA 1a	It is believed that the Pha Phen outcrop and its various rock shelters provided a living landscape for prehistoric man. Preliminary investigations have identified a range of artefacts that are believed to be from the Neolithic period and possibly also from the Palaeolithic.	A test pit identified a primary burial site containing a complete skeleton. Preliminary results indicate that the remains are that of a Neolithic man. The cave also contained pottery shards and decorative beads made from shell. These remains are characterised by cave floor deposits containing charcoal, freshwater shells, bones and stone implements.	National and probably international significance. NTPC commissioned the Department of Museums and Archaeology to conduct further investigations and salvage operation in three caves of Pha Phen
AS3	Tham Pha Phra	Nam Thi	Outside LPA	The diversity and number of artefacts discovered in the cave indicate an extended period of habitation at the site.	The cave comprises a large chamber. Parts of the cave contain a stratified prehistoric living floor which projects from the cave walls. These cemented cave floor deposits containing charcoal, freshwater shells, bones and stone implements. Neolithic specimens of polished stone tools without shoulders, a ceramic spindle whorl used for weaving and pottery shards were found in the cave floor. The cave floor deposits have been extensively disturbed by local people excavating the cave floor for fertilizer. However it may also be the work of local 'treasure hunters' in search of fossilized bones and artefacts. The cave site is also a contemporary cultural site containing a collection of Buddha images as described in CS26	National significance and probably international significance

Table O.4: Historical Sites

Site ID.	Site Name	Village	Location	Historical Description	Physical Description	Significance
HS1	Nakai Tai Temple	Nakai Tai		The temple is believed to be 250-300 years old. During the 18th century, the Gnommalath area hosted a sophisticated culture with strong Buddhist influences. The temple design and method of construction is similar to that found in the Gnommalath area. The temple may have been commissioned by lowland communities in an effort to extend their Buddhist influence onto the Plateau.	The site contains the brick foundations of at least four structures. These are believed to include a stupa, sanctuary, library, however the function of the remaining structure is unclear. The site covers an area of at least 50 x 40 m and is littered with bricks. The height of the foundations vary from 1.5 to 1.8 m. Treasure hunters have potentially disturbed the site as evident by the excavated hole in the stupa and numerous bricks which litter the surrounds.	The site is of national significance. It is the oldest remaining Buddhist structure that has been identified on the Nakai Plateau, and may have been the primary centre for Buddhist influence on the Plateau
HS2	Prince Phetsarath's Hunting Lodge	Nakai Tai		The site accommodated a private hunting lodge for Prince Phetsarath from the 1920's-1940's. Locals claim that the building was destroyed in the late 1960's during the 2nd Indochina War, and that the ruins were subsequently pillaged by locals.	All that remains are brick foundations at ground level that would once have supported vertical wooden house posts.	The site is of national significance
HS3	House of the French High Commission	Nakai Neua		Local informants claim the building was the former quarters for the French High Commission. It is speculated that the French tried to reestablish their administrative influence in the province following the 2nd World War. Locals claim that the building was destroyed in the late 1960's during the 2nd Indochina War, and that the ruins were subsequently pillaged by locals.	All that remain are 11 concrete posts that would once have supported a wooden upper floor, and concrete floor tiles	The historical significance of this site is assessed to be relatively low
HS4	Road 8b			Construction of Road 8b is believed to have been conducted in the 1930's. The road was commissioned by the French using local labour. The road corridor was subsequently used by the French and Lao administration during the 1st Indochina War, and the North Vietnamese during the 2nd Indochina War. Road 8b is one of a series of trails that ran through eastern Laos that came to be known collectively as the Ho Chi Minh Trail. From 1965 until 1973, the Ho Chi Minh Trail was subject to a massive bombing campaign by US aircrafts.	On the Nakai Plateau, Road 8b is an un-engineered track providing access between Khamkeut and Gnommalath districts in the dry season only.	Local. The road corridor is a memorial to the loss of life that was witnessed during its construction, and part of a historical landscape comprising the Ho Chi Minh trail.

Table O.4: Historical Sites cont.

Site ID.	Site Name	Village	Location	Historical Description	Physical Description	Significance
HS5	Tham Arong	Tha Thod	Outside LPA	A cave in which a collection of stoneware pots and bronze vessels was discovered in 2004 by a family in the village. It is believed that the collection was hidden in the cave approximately 100 years ago.	The cave contains shards of broken pottery from the same collection that was recovered in 2004. No artefacts of particular historic significance were identified at the site.	Local
HS6	Kouan Ku	Thong Mang	Outside LPA	The site comprises a brick and plaster stupa (decorated with a mosaic of colored glazed), and two rectangular brick structures, which are believed to be a sanctuary and offering hall. The structures date from the 1718th Century. Gnommalath area is believed to have been the centre of an ancient city called "Muang Mahaxai Kong Keo". It is argued that Kouan Ku may have been an integral part of this city in conjunction with a number of other historic sites in the area.	The design and construction of the structures is indigenous to the Gnommalath area. The site also comprises three stone Buddha heads which are positioned at the altar in the sanctuary	National. The remains demonstrate the prosperity and artisanal ability of the area in the 1718th Century.
HS7	Wat Tha Pha	Ban Tha Pha	Outside LPA	The site comprises a brick and concrete stupa, and two rectangular brick structures, which are believed to be a sanctuary and offering hall. The structures date from the 1718th Century. A large Buddha statue has also been constructed at the site and a temple called "Vihara" in which the statue is housed. Local informants indicated that the statue was built in 1912 and claimed to be the biggest Buddha statue in Gnommalath. The temple also comprises a collection of wooden Buddha images some of which may be up to 100 years old.	The stupa is shaped in the form of a lotus flower and measures 3 x 3 m and 8 m high. The base of the sanctuary measures 3 x 5 m. The great Buddha statue is made of brick and plaster, faces south and measures 5 x 5 m at base and 7m high.	National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS8	Kouan Ngua	Tha Pha	Outside LPA	The site comprises a brick and concrete stupa, and one rectangular brick structure, which is believed to be a sanctuary. The structures date from the 18th Century. The site in conjunction with Kouan Ku and Wat Tha Pha may have comprised a state that exercised considerable power and Buddhist influence over the area.	The design and construction of the structures is indigenous to the Gnommalath area, and similar to the abandoned temple at Kouan Ku and Wat Tha Pha.	National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS9	Abandoned Temple	Ban Tha Pha	Outside LPA	The site comprises two brick structures, one of which is believed to be a sanctuary and the second can not be identified. The structures date from the 18th Century.	The base of the sanctuary measures 3 x 5 m. The unidentified structure measures 3 x 3 m.	National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS10	Tham Pet Sok	Thang Beng	Outside LPA	Both prehistoric and historic pot shards have been identified in the cave. Some stoneware shards may date from the 18th Century. Three (3) stoneware jars were found which may have been hidden there within the last 100 years.	The upper cave may have provided a suitable habitat for early human habitation. In comparison access to the lower cave is difficult, the floor is not flat and there is no light.	Local. No artefacts of particular historic significance were identified at the site.
HS11	Wat Ban Dong Khuang	Ban Pha Thong	Outside LPA	The site was formerly the location of Ban Dong Khuang. Today the site comprises brick foundations for what is presumed to be an old temple. The structure dates from the 18th century and was allegedly destroyed during the Thai War at the end of the 19th century and that objects were stolen.	The site is now overgrown by trees. The brick foundations have been highly disturbed. Local villagers conduct religious ceremonies at the site. A spirit hut has been constructed 200 m from the site.	Potential National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS12	Wat Muang Phit	Phit Sikhay	Outside LPA	The area formerly comprised a city called Muang Phit. Today there are two sites which contain the remains of structures which are believed to date from the 18th Century. The first site comprises some brick foundations however there is insufficient surface remains to determine the extent and nature of the structure. There is also a block of limestone located at this site, which may have been a sema stone. The second site comprises the brick foundations of a sanctuary and stupa.	This first site is overgrown with vegetation. At the second site the physical integrity of both the sanctuary and stupa have been disturbed by the growth of vegetation.	Potential National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS13	Abandoned Temple	Wat That	Outside LPA	The site comprises two brick structures, one sanctuary and one stupa. The structures date from the 18th Century.	The base of the sanctuary measures 5 x 7 m and 0.9 m high. The base of the stupa measures 3 x 3 m and 2 m high.	Potential National. It demonstrates the prosperity and artisanal ability of the area in the 18th Century.
HS14	Abandoned Temple	Phone Lat Khuay	Outside LPA	According to local informants the site was the former location of a temple which was constructed from wood in the early to mid 20th Century.	There are no visible above ground remains of the temple at the site.	Local. No artefacts of particular historic significance were identified at the site.
HS15	Wat Sibounheuang	Gnommalath Tai	Outside LPA	The Sibounheuang Temple was moved to this site from the former site in the mid 19th Century. The temple was destroyed in the late 1960s by American air bombing raids, and subsequently moved again.	The site comprises the remains of a brick and concrete stupa and archway.	Local. No artefacts of particular historic significance were identified at the site.

Table O.4: Historical Sites cont.

Site ID.	Site Name	Village	Location	Historical Description	Physical Description	Significance
HS16	Wat Siboun-hueang	Gnom-malath Tai	Outside LPA	The temple is believed to have been abandoned following the Thai War in the late 19th Century. The temple was subsequently relocated to the western side of the Nam Gnom in the mid20th Century.	The site is marked by two stupa and the brick foundations of a sanctuary.	Local. No artefacts of particular historic significance were identified at the site.
HS17	Wat Pho	Kenglek	Outside LPA	According to local informants the site was the former location of a temple called Wat Pho, which was constructed from wood in the early 20th Century. The village monk died at the age of 89 in 1959. The temple was abandoned in 1961 during the 1st Indochina War.	The site is marked by some wooden posts which are believed to have been the structural supports for the temple.	Local. No artefacts of particular historic significance were identified at the site.
HS18	Wat Ta Sida	Kout Pha-dang	Outside LPA	According to local informants the site was the former location of a temple, which was constructed from wood in the early 20th Century.	The site is marked by some wooden posts which are believed to have been the structural supports for the temple.	Local . No artefacts of particular historic significance were identified at the site.
HS19	Abandoned Temple	Na Myxay	Outside LPA	According to local informants the site was the former location of a temple, which was constructed from wood in the early 20th Century.	There are no visible above ground remains of the temple.	Local . No artefacts of particular historic significance were identified at the site.
HS20	Phra Chao Gnai	Tha Thod	Outside LPA	It is believed that the two stupas located at the site date from the beginning of the 19th Century. The architecture of the stupas is unique to the Gnom-malath area. The site is significant from both a historic and religious perspective. A large Buddha statue has also been constructed at the site and a number of smaller stupas have been constructed to hold cremation urns.	The stupas are constructed from brick and concrete.	Provincial significance. The structures are less significant than the stupas located within the temples at Koun Ku, Koun Ngua and Wat Tha Phra.
HS21	Wat Vang Tha	Kaeng Savang	Outside LPA	The site was the former location of a temple called Vang Tha, which was believed to be constructed from wood in the early 20th Century.	There are no visible above ground remains of the temple. However the survey team did identify an abandoned kiln, kiln slag and shards of pottery.	Local . No artefacts of particular historic significance were identified at the site. The remains of the kiln are not unique to the area.
HS22	Sema Stones	Na Mouang	Outside LPA	The sema stones are believed to predate the 18th century. Sema stones are used during the Mon civilisation, from the 7th until the 11th century. Influences from this state are believed to have reached central Laos which is evident by the frequency of sema stones. Traditionally sema stones were located at temple sites and as border markers for states of power. It was believed that the sema stones offered protection against invaders.	In total 9 sema stones were identified in a linear arrangement along track. The sema stone is a pink colored sand stone and floral motifs are still evident on one of the stones. The design of the stones appears to vary. A number of the stones are subsurface and only partially visible.	National
HS23	None Mortek	Thasano Gnai	Outside LPA	The concentration of pottery shards and remains of a kiln, suggests that this site was used for the mass production of stoneware. The age of the site is believed to date from the 18th Century.	The site comprises a 4 m high mound littered with pottery shards. A structure, believed to be the rim of a kiln is also evident. The site covers an area 30 x 30 m.	Provincial and potential National. In conjunction with None Nakhathao (HS24) the site may once have been a major production area for stoneware in the region.
HS24	None Nakhathao	Thasano Noi	Outside LPA	The concentration of pottery shards and remains of a kiln, suggests that this site was used for the mass production of stoneware. The age of the site is believed to date from the 18th Century.	The site is littered with pottery shards. A structure, believed to be the rim of a kiln is also evident. Some of the pot shards comprise green and grey glaze. The site covers an area 150 x 250 m.	Provincial and potential National. In conjunction with None Mortek (HS23) the site may once have been a major production area for stoneware in the region.
HS25	Abandoned Kilns	Mahaxai Kang, Phova Tai, Phova Neua	Inside LPA Xe Bang Fai	Kilns used to produce lime, an ingredient used both for chewing beetle nut and for the production of plaster. Limestone was sourced from the surrounding karst. It is believed that the kilns were established in the mid 1800s and production ceased in the 1950s due to the social disruption caused by the Indochina War and the increased availability of commercial lime. The lime was traded with settlements along the Xe Bang Fai and as far as the confluence with the Mekong River in Nakhon Phanom.	More than 50 abandoned lime kilns located on the Xe Bang Fai embankments, both upstream and downstream of Mahaxai Kang. The remains of the kilns are evident by hardened clay walls and the circular flue. The size of the kilns vary however typical dimensions are height 3 m, width 2.5 m, and wall thickness 20 cm.	Provincial and potential National. Isolated kilns have previously been identified in Lao PDR however collectively they show the scale of lime production in the Mahaxai area.
HS26	Wat Vieng-keo	Phova Neua	Inside LPA Xe Bang Fai	The site of an abandoned temple. The temple was established in 1958 but was subsequently destroyed during the 2nd Indochina War. The villagers no longer have cause to visit the site.	All that remains at the site are 14 wooden stumps that would have supported the temple building.	Local . No artefacts of particular historic significance were identified at the site.

Table O.4: Historical Sites cont.

Site ID.	Site Name	Village	Location	Historical Description	Physical Description	Significance
HS27	Abandoned Sanctuary	Tene	Outside LPA	The structures are believed to date from the 18th century.	The site is heavily concealed by vegetation however it is believed to comprise one sanctuary and one stupa.	Potential National. The remains demonstrate the prosperity and artisanal ability of the area in the 18th Century.
HS28	Konglea / Itsala Army Camp	Oudom	Inside LPA 3	From 1958 to 1960 the site was used as a Lao army camp.	The property abuts the eastern edge of the existing Road 8B alignment. No above surface structures of historic significance are evident at the site.	Local. No artefacts of particular historic significance were identified at the site.
HS29	French Army Camp	Oudom	Inside LPA 3	The site of a former French army camp. The site is believed to have been used pre1950.	The property abuts the western edge of the existing Road 8B alignment. No above surface structures of historic significance are evident at the site. Local informants claimed that earth works conducted at the site in the 1980's, uncovered human remains.	Local. No artefacts of particular historic significance were identified at the site.

Table O.5: Spirit Sites

Site ID.	Site Name	Ritual Centre	Villages	Location	Physical Description	Cultural Description	Significance
SS1	Kaeng Norn	Sop Hia	Sop Hia		The spirit is located at the Kaeng Norn on the Nam Theun. The focal point of the spirit is a sandstone rock on the western side of the river, which measures approximately 5 m x 3 m.	Spirit name is Thama Ransi. Territorial name is Din Hin Kiu Nam Yala. The informants believe the rock is inhabited by a woman who was the former medium of Ban Sop Hia. It is said the site is so sacred that birds are unable to fly above the area. Today the villagers do not conduct festivities at the site. However the spirit is still believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS2	Kaeng Pa Nom	Thalang	Thalang		The spirit is at Kaeng Pa Nom, located beneath the Ban Thalang bridge on the Nam Theun.	Spirit name is Ta Sang. Territorial name is Din Kaeng Pa Nom. Origin of spirit is the former medium and village head. The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS3	Phi Mueang	Nakai Tai	Nakai Tai, Nong Boua Kham		The spirit is located at Saet mountain (approximately 40 km north of the village), however the spirit also extends along the western rim of the Plateau. Because Saet mountain is far, the villagers have selected a different site for communicating to the spirit. This site comprises three (3) sacred trees and the area that falls between them.	Spirit name is Chao Phu Saet. Territorial name is Din Phu Saet (Daet Luang). Origin of spirit is the soninlaw of the spirit of Ban Nakai Neua, Chao Khwa Lakhon. The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS4	Phi Mueang	Nakai Neua	Nakai Neua		The spirit is located in a forested area to the north of the village. The place is marked by a bamboo spirit hut and a “Khen” tree.	The spirit name is Chao Khwa Lakhon and Chao Suliya. Territorial name is Din Bau Sang Khan Tau. Origin of spirit is the founder of the village, who resisted the Siamese invasion, and his son who inherited his father’s position as leader. Both the hut and tree are regarded as sacred. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS5	Vang Lamong	Sop Phene	Sop Phene		The spirit is located on a bend in the Nam Theun called Vang Lamong. The place is marked by an old “Khen” tree and a deep pool. The spirit hut located in the village adjacent to the house of the ritual expert.	The spirit name is Chao Saen Sysanxai. Territorial name is unknown. Origin of spirit is the founder of the village. Local informants retold a folk story whereby the sacred Buddha “Phra Ongsen”, currently located in the Mahaxai temple, was brought to Vang Lamong during the New Year festivities. However the Buddha image fell into the water and it could not be recovered due to the depth of the water.	Local
SS6	Phi Mueang	Sop On	Ban Sop On, Ban Sop Ma, Ban Hat Kham-phane, Ban Keng Gnao, Ban Boua Ma, Ban Sailom and Ban Phon-savang		Bamboo spirit hut located in an area of protected forest on the bank of the Nam Theun. The hut has been located here since 1988.	The spirit name is Phimmasen and Phimmasaun. Territorial name is Din Bau Puak Buak Mu. Origin of spirit is the original names of the father and son who were mediums in Ban Sop On. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield. The spirit is also closely connected to the salt mines located near Ban Sop Ma.	Local
SS7	Phi Mueang	Ka Oy	Ka Oy		Bamboo spirit hut located in a forested area approximately 300 m from the village.	The spirit name is Koyi and Kokhad. Territorial name is Din Khanan. Origin of spirit is the founder of the village. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS8	Phi Mueang	Done	Done		Bamboo spirit hut located in a forested area containing Hai and Peuai trees.	The spirit name is Chao Sua. Territorial name is Din Katap. Origin of spirit is the founder of the village and the soninlaw of the spirit of Ban Khone Khen. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS9	Phi Mueang	Khone Khen	Khone Khen		Bamboo spirit hut located beside a Dou tree in a forested area.	The spirit name is Chao Hualan Ban Sin. Territorial name is Din Sin. Origin of spirit is the founder of the village. A refugee who fled the Siamese attack on Vientiane. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local

Table O.5: Spirit Sites cont.

Site ID.	Site Name	Ritual Centre	Villages	Location	Physical Description	Cultural Description	Significance
SS10	Phi Mueang	Oudomsouk	Oudomsouk		Wooden spirit hut located on the edge of a forested area behind the temple.	Territorial name is unknown. The site was identified by local villagers when Ban Oudomsouk became the district centre in 1993. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS24	Phi Meuang	Lau Na Ngam	Lau Na Ngam	Outside LPA	The embodiment of the spirit is located at the base of Mai Sam Lam mountain. The focal point of the spirit is a tree (Kok Peuay) adjacent to a natural spring. The village does not have a spirit hut.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS25	Phi Meuang	Tha Thod	Tha Thod	Outside LPA	The embodiment of the spirit is in a forest located on the eastern bank of the Nam Gnom.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS26	Phi Meuang	Gnom-malath Tai	Gnom-malath Tai	Outside LPA	The embodiment of the spirit is in a forested limestone outcrop called Pha Kapath. The site comprises a wooden spirit hut. A limestone rock shelter located adjacent to the spirit hut contains two wooden Buddha images.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS27	Phi Mueang	Nong Ping Neua	Nong Ping Neua	Outside LPA	The spirit is located in an open forest surrounded by rice fields to the west of the village. The place is marked by a bamboo spirit hut beside a large Kok Peuay tree.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS28	Phi Meuang	Kenglek	Kenglek	Outside LPA	The spirit is located in a forest called Phou Lek adjacent to the Nam Gnom. The place is marked by a bamboo spirit hut and numerous Kok Peuay trees.	According to the ritual expert the spirit name is Chao Sisavang Vatthana a former spirit medium who came from Ban Phadang.	Local
SS29	Phi Mueang	Pha Thoung	Pha Thoung, Phon Khene	Outside LPA	The embodiment of the spirit is located in an open forest located near the abandoned temple of Kouang. The place is marked by a wooden spirit hut and large Kok Peuay trees.	The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS30	Phi Mueang	Phit Sikhay	Phit Sikhay	Outside LPA	The embodiment of the spirit is located in an open forest surrounded by rice fields. The place is marked by a wooden spirit hut and large Kok Peuay trees.	The origin of spirit is the founder of the village (Chao Houng and Chao Ka).	Local
SS31	Phi Mueang	Khok Savang	Khok Savang, Thoy	Outside LPA	The embodiment of the spirit is located in a forest to the west of the village. The place is marked by three wooden spirit huts.	According to the local ritual expert the villagers respect three spirits at this site, the Phi Meuang, Chao Seu ("spirit tiger") and Chao Seu's friend. The spirit is believed to be the guardian of the village – it protects the people from sickness, brings prosperity, and ensures a good crop yield.	Local
SS43	Phi Meuang		Pong	Inside LPA 55	Spirit hut located southwest of the village in a sacred forest on elevated ground.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS44	Phi Meuang		Sorm	Outside LPA	Spirit hut located northeast of the village on a limestone outcrop.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS45	Phi Meuang		Thamlai	Outside LPA	Spirit hut located in a sacred forest northwest of the village.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS46	Phi Meuang		Koktong	Outside LPA	Spirit hut located north of the village in a sacred forest and adjacent to a ground-water spring.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS47	Phi Meuang		Nam Phou	Outside LPA	Spirit hut located north of the village in a sacred forest and adjacent to Houay Nam Phou.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS48	Phi Meuang		Tung	Outside LPA	Spirit hut located in a sacred forest to the north of the village and adjacent to Houay Tung.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local

Table O.5: Spirit Sites cont.

Site ID.	Site Name	Villages:	Location	Physical Description	Cultural Description	Significance
SS49	Phi Meuang	Bung Houa Na Neua, Bung Houa Na Tai, Bung Houa Na Kang	Partially Inside LPA 54	Spirit hut located in a sacred forest southwest of the village.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS50	Phi Meuang	Na Muang	Partially Inside LPA 54	Spirit hut located in a sacred forest 1 km north of the village.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS51	Phi Meuang	Lau Fai	Partially Inside LPA 54	Spirit hut located in a sacred forest north of the village.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS52	Phi Meuang	Nonesan	Inside LPA 55	Spirit hut located in a sacred forest north of the village and adjacent to Houay Tung.	The spirit hut has been located at this site since 2001. The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS53	Phi Meuang	Kenghet	Outside LPA	Spirit hut located north of the village in a sacred forest.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS54	Phi Meuang	Phak Kha Nga Kang	Outside LPA	Spirit hut located in a sacred forest west of the village and adjacent to a creek.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS55	Phi Meuang	Nongsa	Outside LPA	Spirit hut located east of the village adjacent to a pond.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS56	Phi Meuang	Thasano Gnai, Thasano Noi	Outside LPA	Spirit hut located southwest of the village adjacent to the Mekong river.	The origin of the spirit is the founder of Thasano Gnai who formerly had influence over the surrounding villages. Today the site also receives visitors from villages located on the opposite side of the Mekong in Thailand. The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS57	Phi Meuang	Pha Nang	Outside LPA	Spirit hut located in the grounds of Wat Sisaket, southwest of the village and adjacent to the Xe Bang Fai.	The Phi Meuang was moved from Mahaxai in 2000. The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS58	Phi Meuang	Tha Kor	Inside LPA Xe Bang Fai	Spirit hut located southeast of the village, in a sacred forest and 5 m from the eastern bank of the Xe Bang Fai. The spirit hut is constructed from wood with a grass roof.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS59	Phi Meuang	Veun-sanan	Inside LPA Xe Bang Fai	Spirit hut located northeast of the village, in a sacred forest and approximately 60 m from the eastern bank of the Xe Bang Fai. The spirit hut is constructed from wood and corrugated iron.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS60	Phi Meuang	Hat Phek	Inside LPA Xe Bang Fai	Spirit hut located northwest of the village, in a sacred forest and approximately 60 m from the eastern bank of the Xe Bang Fai. The spirit hut is constructed from wood with a grass roof.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS61	Phi Meuang	Nakok Nai	Outside LPA	Spirit hut located approximately 800 m south of Road 12 B, at the foot of a limestone cliff.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS62	Phi Meuang	Na Kham	Outside LPA	Spirit hut located south of the village and south of Road 12 B, in a sacred forest.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS63	Phi Meuang	Lau	Outside LPA	Spirit hut located north of the village, in a sacred forest.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS64	Phi Meuang	Phine	Outside LPA	Spirit hut located east of the village, in a sacred forest south of Road 12 B.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local

Table O.5: Spirit Sites cont.

Site ID.	Site Name	Villages	Location	Physical Description	Cultural Description	Significance
SS62	Phi Meuang	Na Kham	Outside LPA	Spirit hut located south of the village and south of Road 12 B, in a sacred forest.	The spirit is believed to be the guardian of the village – it protects the people from sickness, and brings prosperity.	Local
SS11	Bor Kua	Nakai Neua, Nakai Tai	Inside LPA 26a and Inundation Area	Villages believe the salt lake or “Bor Kua” is embodied with a spirit. The villagers have traditionally collected salt from the lake. It is the practice of the villagers to make offerings to the salt lake spirit	The salt lake is located northeast of Nakai Neua on the Nongsen Creek, a minor tributary of the Nam Theun.	Local
SS12	Vang Nam Xot (Vang “pool”)	Thalang	Inside Inundation Area	The villagers believe a guardian spirit resides in a water hole on the Nam Theun. Villagers are accustomed to making prayers at the site. The spirit ensures the boatman has a safe journey, the fisherman a bountiful catch, and the rowers the strength to win the races at the annual boat festivals held on the Mekong River.	The water hole is located at the confluence of the Nam Theun and Nam Xot.	Local
SS13	Pong Ta E	Thalang	Inside Inundation Area	The villagers believe an ancestry spirit resides in a grassland which traditionally has been used as a hunting ground by local villagers. The origin of the spirit relates to an old man by the name of Ta E who lost his life in this area. Today the villagers do not specifically worship or conduct ceremonies at the site.	The site is located approximately south-west of Ban Thalang.	Local
SS14	Pong Pa Phai	Inside Inundation Area	Thalang, Nong Boua Kham	The villagers believe a spirit resides in a grassland which traditionally has been used as a hunting ground by the local villagers. The origin of the spirit is unknown. Today the villagers do not specifically worship or conduct ceremonies at the site.	The site is located west of Ban Thalang.	Local
SS15	Tha Tham Pa Kang	Thalang	Inside LPA 10a and Inundation Area	The villagers believe a Naga spirit resides in an underwater cave on the Nam Theun. The origin of the spirit is unknown. Today the villagers do not specifically worship or conduct ceremonies at the site.	The site is located on the Nam Theun downstream of the Ban Thalang bridge.	Local
SS16	Houay Saynong	Hat Kham-phane	Inside Inundation Area	The villagers believe a spirit resides in a sandstone wall on the Saynong Creek, a tributary of the Nam Theun. The origin of the spirit is associated with the death of a farmer, who extended his cultivation area too close to the site.	The site is located upstream of the Saynong Creek from the Nam Theun. The site comprises a sandstone outcrop which overhangs the Saynong Creek.	Local
SS17	Takearn	Hat Kham-phane	Inside Inundation Area	The spirit of the Gnou Souang (a species of snake) is embodied in a sandstone outcrop and that it is possible to see the print of the snake’s underbelly. The origin of the spirit is unknown however it is believed to be directly associated with the visual interpretation of the physical patterns in the sandstone. Today the villagers do not specifically worship or conduct ceremonies at the site	The site is located on the Nam Theun at its confluence with Saynong Creek, and comprises a sandstone outcrop extending into a series of rapids.	Local
SS18	Bor Sangtew and Bor Pouak	Sop Ma, Keng Gnau, Nong Boua (abandoned), Boua Ma	Inside Inundation Area	The salt lakes locally known as Bor Sangtew and Bor Pouak are embodied with a spirit. Seven days before collecting salt the village is required to sacrifice a buffalo for the spirit. The villagers are no longer performing formal ceremonies at the site.	The site is located south of Sop On on the Nam Ma, a minor tributary of the Nam Theun. Salt crystallisation was evident in the river bed.	Local
SS19	Kaeng Meune and Lan Nam Tao	Sop Ma, Keng Gnau	Inside Inundation Area	According to the folk story, the villagers living along the Nam Theun and Nam Noy gathered together their treasures with the intention to place them in a hole on the site designated for construction of the Phra Nom Stupa (located in the present day town of Nakhone Phra Nom, Thailand) over 300 years ago. However treasures were placed on a boat and sent downstream. Upon reaching the rapids, word was received that construction of the Phra Nom Stupa had already commenced. The treasures were subsequently unloaded at Kaeng Meune and buried at an adjacent site called Lan Nam Tao.	The site is located on the Nam Theun downstream from B. Sop Ma. Kaeng Meune comprises a sandstone outcrop. Lan Nam Tao is located inland from Kaeng Meune and comprises a sandstone outcrop.	Local
SS20	Tham Phra	Sop Hia	Outside LPA	The cave and its surrounds have been used by the village for the enactment of religious ceremonies including Lao New Year. Four bronze Buddha images formerly owned by the village were also hidden in the cave until their disappearance 4 years ago.	The cave comprises a space housed between numerous large sandstone boulders north of Ban Sophia on the edge of a sandstone rock platform.	Local
SS21	Thong Pong Song	Nam Nian	Inside Inundation Area	The spirit resides in a small salt pond. The origin of the spirit is unknown. Today the villagers do not specifically worship or conduct ceremonies at the site.	The lake is located adjacent to a series of grasslands located southeast of the village.	Local
SS22	Theunka-lang	Done	Inside Inundation Area	The spirit of a monk resides near the pond. On the day of the full moon it is claimed that a temple gong can be heard emanating from the area. The origin of the spirit is unknown. Today the villagers do not use the water in the pond for bathing as they believe this will disturb the spirit and they shall fall sick. Ceremonies are not routinely performed at the site.	The pond forms a tributary to the Nam Theun is located southwest of Ban Done.	Local

Table O.5: Spirit Sites cont.

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
SS23	Boung-vang	Done	Inside Inundation Area	The villagers believe the site is sacred and somehow related to Theun Kalang (Site SS22) however, this could not be substantiated. Ceremonies are not routinely performed at the site.	The site comprises a pond within a forest.	Local
SS32	Nong Kokmong	Korbong	Outside LPA	Villagers believe that Nong Khokmong is embodied with a spirit. It is not the practice of the villagers to make offerings at the site.	The pond is located north of Ban Gnom-malath on the eastern side of the road. The circular shape of the pond resembles a rice mortar.	Local
SS33	Spirit Rock	Kout Phadang	Outside LPA	Local informants believe that a temporary spirit (phi thiem) formerly occupied the rock and they continue to avoid approaching the rock as the spirit has the power to make villagers sick. Villagers do not routinely make offerings to the spirit unless they believe that it has been disturbed.	The rock is located on the bank of the Nam Kathang downstream from the village.	Local
SS34	Kouan Arah	Gnom-malath Tai	Outside LPA	The villagers believe that a spirit resides in a cave located at the site. Ceremonies are not routinely performed at the site however villagers avoid disturbing the tranquillity of the area.	The cave is located in the base of cliff (Pha Sak), west of the village. The entrance to the cave is concealed by forest.	Local.
SS35	Tham Noi	Tham Phuang	Outside LPA	Local villagers consider the cave to be a sacred site because the quartz Buddha, currently residing at Wat Sibounheuang in Gnommalath Tai, was discovered at this site. Ceremonies are not routinely performed at the site.	The cave is located north of the village. No historical objects were identified in the cave.	Local.
SS36	Tham Phuang	Tham Phuang	Outside LPA	Local villagers consider the cave to be an ancestral spirit site. Each year the village of Tham Phuang will hold a ceremony to appease their ancestor's spirits.	The site comprises two limestone caves and a natural spring. It is claimed that main cave extends to the other side of the limestone pinnacle. The site is located north of the village.	Local.
SS37	Tham Wat Sa	Nong Ping	Outside LPA	Local villagers believe that a spirit (phi bang bot) resides at the site. The spirit is able to mend objects that are broken and help the villagers in times of need. Ceremonies are not routinely performed for the spirit however individuals will make occasional offerings. The villagers do however conduct annual festivities at the Buddha image which has been built at the entrance to the cave.	The site is located at the foot of a mountain east of the village. The site is enclosed by forest and comprises a pond and an adjacent cave. At the entrance to the cave a cement Buddha statue has been built.	Local.
SS38	Pang Phi Nam Bor	Nong Ping	Inside LPA	The villagers believe a spirit called Pang Phi Nam Bor, resides at the site. The villagers do not conduct ceremonies at the site	The spring is located on the bank of the Nam Gnom northwest of the village.	Local.
SS39	Natural Spring	Kenglek	Outside LPA	A spirit resides in a natural spring. The source of the spring is believed to be Tham Phuang (SS42). The villagers do not conduct ceremonies at the site, however they do make offerings to the spirit in the event that someone is sick.	The spring is located on the bank of the Nam Gnom north of the village.	Local.
SS40	Peo Nam	Kout Phadang	Outside LPA	The villagers believe a spirit formerly resided in this natural spring. The spring is now used for agricultural use rather than village amenity. The villagers do not conduct ceremonies at the site.	The spring is located southeast of the village.	Local.
SS41	Tham Bong	Pha Thong	Inside LPA	A healing spirit resides in the cave and the adjoining water hole. Villagers are accustomed to making prayers at the site during occasions of illness and at Lao New Year	The cave is located at the northwestern corner of the Phou Phatoung limestone pinnacle.	Local.
SS42	Tham Pha Thong	Pha Thong	Outside LPA	A spirit is embodied in the limestone outcrop. The origin of the spirit is unknown however it is believed that in former times Buddha statues were made in a cave at the base of the cliff. The cave contains a small collection of stone and wooden Buddha images numbering 17 in total. The village conducts a ceremony when a flag located on top of the cliff is replaced with a new one and the spirits are called upon to protect the village.	The limestone pinnacle is located south of the village on the eastern side of Road 12. The cave is located at the base of the cliff and concealed from view by vegetation.	Local.
SS65	Nong Uthong (also referred to as Na Nong Khong)	Kachou	Outside LPA	Villagers believe that Nong Uthong (Nong "pond") is embodied with a spirit.	The pond is located southwest of Ban Na Moang.	Local

Table O.5: Spirit Sites cont.

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
SS66	Pak Houay Mong	Ma-haxai Kang	Inside LPA Xe Bang Fai	The spirit is embodied in two large trees at the site. If they have disturbed the spirit villagers will conduct an appeasement ceremony.	The site is located in the village at the confluence of Houay Mong with the Xe Bang Fai.	Local
SS67	Pha Pet	Nam Thi	Partially inside LPA 1a	The stone monolith and adjacent cliff are sacred and every year an offering is made to the spirit. The spirit protects the rice fields and looks after the well being of the people.	The landscape comprises (i) a large free standing stone monolith (shape of a duck) within a rice paddy, and (ii) a limestone hill (called Pha Pet – “Duck Cliff”).	Local.
SS68	Ground-water Spring	Pakkatan	Inside LPA 7	In former times B. Pakkattan believed that the site was embodied with a spirit. Today the site is owned by B. Phonkeo and many of the Pakkattan villagers have lost their spiritual connection to the site. The villagers of B. Phonkeo do not recognise the spring as a spirit site.	The site comprises a groundwater spring marked by sandy soil on the western edge of Road 8B. The site measures approximately 50 x 100 m.	Local
SS69	Hin Sao Man	Phonsy, Thailand	Inside LPA 7	The rock outcrop is embodied with the spirit of those who lost their life while constructing Road 8b under the French administration. The villagers do not routinely make offerings at the site.	Located on western embankment of Road 8B between B. Pakkattan and B. Nam Nian, the site comprises a sandstone outcrop of length 50 m.	Local

Table O.6: Religious Sites

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
TS1	Wat Sen Sayalarm	Nakai Neua	Inside Inundation Area	The temple hall is used as both a place for religious ceremonies and a place for community meetings. There are no monks living in the village. Monks and novices from Ban Oudomsouk are invited to perform religious ceremonies.	The temple was established in 2001. The temple is located in the village. No Buddhist sanctuary or “sim” is located at the site. No significant movable PCR objects were identified. Three concrete stupas are located at the rear of the temple.	Local
TS2	none	Thalang	Inside LPA 12 and Inundation Area	The newly constructed temple is currently being inhabited by two monks and one novice for performing religious ceremonies such as a funeral and blessings.	The temple was established in April 2004. The temple is located in the village. No movable PCR objects were identified.	Local
TS3	Abandoned Temple	Done	Inside Inundation Area	The temple has not been actively used for religious purposes for more than 10 years. There is no budget in the village to maintain the temple.	The temple was established in 1958. The temple is located on the bank of the Nam On, on the outskirts of the village. No significant movable PCR objects were identified.	Local
TS4	Wat Nong-phai	Sop On	Inside Inundation Area	Today the villagers do not conduct worship at the abandoned temple. However the site is spiritually connected with a festival held in June.	The site is located on the pinch of land at the confluence between the Nam On and Nam Theun, and comprises an abandoned temple. The only visible evidence of the temple is a sand stupa which at its highest point stands 2 m. The area was overgrown with vegetation.	Local
TS5	Wat That	Phonsavang	Inside Inundation Area	The newly constructed temple is representative of both spiritualism and Buddhism.	The temple was established in 2004. The temple is located in a forested area and is constructed from bamboo. Some modern day concrete and glass Buddha images were identified inside the sanctuary, including some wooden folk art. The temple grounds also comprise a concrete stupa built in 1992 which contains the ashes of the former monk.	Local
TS6	Abandoned Temple	Bouama	Inside Inundation Area	The temple has not been actively used for religious purposes for 18 years. There is no budget in the village to maintain the temple.	The temple was established in the 1950s. The temple is located on the outskirts of the village. The building is constructed from timber and comprises a hall, sanctuary and living quarters. A wooden shelter is located adjacent to the temple, containing the bones of the monk who formerly practised in the temple. Some disturbed palm leaf manuscripts and wooden images (folk art) were identified in the temple.	Local
TS7	Nong Sim	Keng Gnao	Inside Inundation Area	The village chief identified that the temple was constructed by the former monk of the village who was nicknamed Phi Pop. Since the death of the monk, the site has been inhabited by his spirit. Today the villagers do not conduct worship at site of the abandoned temple.	The site is located approximately southwest of Ban Keng Gnao close to the former site of the village. The area is overgrown with vegetation. There is no visible evidence of the temple.	Local
TS8	Wat Siboun heuang	Oudomsouk	Inside LPA 18	The temple represents the most formal Buddhist influence on the Plateau. The temple was established in 1995. Currently there are 6 monks and 6 novices living in the monastery. The monks are often called out to conduct ceremonies in other villages on the Plateau.	The site is located behind the district government buildings. The site comprises a hall, a monastery, a drum tower and a number of stupas.	Local

Table O.6: Religious Sites cont.

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
TS9	Wat Tha Thod	Tha Thod	Outside LPA	The temple hall is used as both a place for religious ceremonies and a place for community meetings for the villages of Tha Thod, Phone Lat Khuay, Thong Mang and Lao Na Ngam.	The site comprises a monastery and an offering hall. The temple is located in the village of Tha Thod. No significant movable PCR objects were identified.	Local
TS10	Wat That	Wat That, Korbong	Outside LPA	The temple has been abandoned since the monk passed away. The former monastery is however still used for village meetings.	The site comprises a sanctuary / meeting hall, former monastery and a stupa. The sanctuary was constructed in the early 20th century when the village was established. The temple complex is located in the village. A drum and wooden gong are housed at the monastery. No other movable PCR objects were identified.	Local
TS11	Wat Nong Ping	Nong Ping	Outside LPA	The temple facilities are actively used for traditional Buddhist ceremonies and village meetings. A monk resides at the temple who is responsible for presiding over all Buddhist ceremonies.	The site comprises two sanctuaries, a meeting hall, a monastery and a drum pavilion. The old sanctuary and monastery was constructed in 1920 when the village was established. The temple complex is located in the village. The sanctuary contains a rich collection of wooden and stone Buddha images.	Local
TS25	Wat Phothikham	Kachou	Outside LPA	The temple hall is used as both a place for religious ceremonies and for community meetings. A spirit rock located in the temple grounds is believed to bring good fortune to those who appease the spirit.	Established in the early 20th century and subsequently refurbished, the site comprises an offering hall, sanctuary and monastery. The temple grounds also encompass a spirit rock which has been relocated from a spirit site called Sang Phuak Nga Nin. A number of carved stone Buddha statues are located at the site but these are not believed to be particularly significant PCR objects.	Local
TS26	Catholic Church	Kham-nonesung	Inside LPA 55	Catholicism was introduced to the village in recent years by Norwegian Church Aid. The church was established as part of the development assistance. A priest from Thakhek visits the village periodically.	The site comprises a wooden church. No objects of PCR significance were identified at the site.	Local
TS27	Wat Sen Sayalarm	Mahaxai Kang	Inside LPA Xe Bang Fai	The temple is used as both a place for religious ceremonies and for community meetings by surrounding villagers. The temple was first established in the early 1900s but was destroyed in the 2nd Indochina War. The temple we see today was rebuilt in the early 1980's.	The site comprises an offering hall, sanctuary and monastery, constructed in the late 1970's following their destruction in the 2nd Indochina War. A drum pavilion is located opposite the temple on the banks of the Xe Bang Fai. A collection of Buddha statues of PCR significance are housed in the sanctuary.	Provincial
TS28	Wat Phova Tai	Phova Tai	Inside LPA Xe Bang Fai	The temple is used as both a place for religious ceremonies and for community meetings. The sanctuary was built in 1901. The most valuable Buddha image in the sanctuary is Phra Ong Teu.	The site comprises a sanctuary and monastery, and an offering hall currently under construction. A collection of Buddha statues are housed in the sanctuary which are fabricated from bronze and wood.	Local
TS29	Wat Phova Neua	Phova Neua	Inside LPA Xe Bang Fai	The temple was established in the 1930s. The site is used as both a place for religious ceremonies and for community meetings.	The site comprises a sanctuary, offering hall, monastery, Buddha statue and drum pavilion.	Local
TS30	Wat Sisaket	Pha Nang	Inside LPA Xe Bang Fai	The temple was rebuilt in 1993 following its destruction in the 2nd Indochina War. The site is used as both a place for religious ceremonies and for community meetings. One monk resides at the site.	The site comprises a sanctuary, offering hall, Buddha statue and drum pavilion. The sanctuary houses 13 wooden Buddha statues however these are not considered to be of high PCR significance.	Local
TS31	Wat Phra Ku	Pong	Inside LPA Xe Bang Fai	The original temple was built in 1965. The structure was destroyed in the 2nd Indochina War and rebuilt in 1976. The site is used as both a place for religious ceremonies and for community meetings. No monks presently reside at the site.	The site comprises a sanctuary, offering hall, and monastery. The former temple site is also marked by a small hut, the sema stones of the original temple are also visible. No objects of PCR significance were identified at the site.	Local
TS32	Wat Keng Khene	Keng Khene	Inside LPA Xe Bang Fai	The temple was built in 2003. The site is used as both a place for religious ceremonies and for community meetings. No monks reside at the site.	The site comprises a monastery. No objects of PCR significance were identified at the site.	Local
TS33	Wat Sisaat	Keng Pe	Inside LPA Xe Bang Fai	The temple was relocated to this site in the 1990s. The site is used as both a place for religious ceremonies and for community meetings. No monks presently reside at the site.	The site is located on the banks of the Xe Bang Fai and comprises an offering hall, and monastery. No objects of PCR significance were identified at the site.	Local
TS34	Wat Siboun-heuang	Tha Kor	Outside LPA	The temple was built in 1947. The site is used as both a place for religious ceremonies and for community meetings. No monks permanently reside at the site.	The site comprises an offering hall and monastery. No objects of PCR significance were identified at the site.	Local
TS35	Wat Non-esaat	Nonesaat	Outside LPA	The temple was built in 2003. The site is used as both a place for religious ceremonies and for community meetings. One monk resides at the site.	The site comprises a monastery. No objects of PCR significance were identified at the site.	Local

Table O.6: Religious Sites cont.

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
TS36	Catholic Church	Keng Kasi	Inside LPA Xe Bang Fai	Catholicism was introduced to the village in recent years by Norwegian Church Aid. The church was established as part of the development assistance. A priest from Thakhek visits the village periodically.	The site comprises a wooden church and house. No objects of PCR significance were identified at the site.	Local
TS37	Wat Palai	Palai	Inside LPA Xe Bang Fai	The temple was built in 2004. One monk and one novice reside at the site.	The site comprises a wooden monastery. No objects of PCR significance were identified at the site.	Local
TS38	Wat Phosy Keo	Kua Xe	Inside LPA Xe Bang Fai	The temple was built in 2004. One monk, one nun and one novice reside at the site.	The site comprises three monasteries and one offering hall. The site is used as a place for religious ceremonies. No objects of PCR significance were identified at the site.	Local
TS39	Wat Phousy	Na Tung	Outside LPA	The temple was built in 1997. One monk from B. Nakhom and one novice have been residing at the site since 2004. The site is used as a place for religious ceremonies.	The site is located northwest of the village and comprises one monastery. A collection of 7 Buddha images made from wood is housed within the temple. These objects are not considered to be of high PCR significance.	Local
TS40	Wat Sys Nga	Na Kham	Outside LPA	The temple was originally established in 1969 then rebuilt following the 1st Indochina War in 1984. The site is used as a place for religious ceremonies.	The site is located within the village and comprises one offering hall and one monastery. No objects of PCR significance were identified at the site.	Local
TS41	Wat Lau	Lau	Outside LPA	No monk currently resides at the temple however monks are invited from neighbouring villages to preside over religious ceremonies.	The site is located on the northern side of the village and comprises an offering hall and monastery with a second monastery under construction. A collection of approximately 15 Buddha images made from wood and concrete is housed within the temple. These objects are not considered to be of high PCR significance.	Local
TS42	Wat Phou-sakeo	Lak 4	Outside LPA	The site is used as a place for religious ceremonies.	The site is accessed from Road 13, south of the Lak 4 intersection. The site comprises a sanctuary, at least 50 stupas and a Buddha altar.	Local
TS43	Wat Oudom	Oudom	Inside LPA 3	The temple was built in 1995. The site is used as a place for religious ceremonies and community meetings.	The site abuts the eastern edge of Road 8b. It comprises two monasteries, and one sanctuary. There are three stupas located approximately 30 m from the existing Road 8B alignment. No objects of PCR significance were identified at the site.	Local
TS44	Wat Nam Thi	Nam Thi	Outside LPA	The offering hall was constructed in 2003. The site is used as a place for religious ceremonies.	The offering hall is located approximately 100 m from the eastern edge of Road 8B. No objects of PCR significance were identified at the site.	Local
TS45	Wat Phonxai	Phonxai	Outside LPA	The site is used as a place for religious ceremonies and village meetings.	The site is located approximately 100 from the western edge of Road 8B and comprises an offering hall and monastery. No objects of PCR significance were identified at the site.	Local

Table O.7: Cemetery Sites

Site ID.	Village	Location	Significance
C1	Bouama	Inundation Area	Local
C2	Bouama	Inundation Area	Local
C3	Done	Inundation Area	Local
C4, 5, 6	Done	Inundation Area	Local
C7	Hat Khamphane	LPA 26a and Inundation Area	Local
C8	Ka Oy	Inundation Area	Local
C9	Ka Oy	Inundation Area	Local
C10	Ka Oy	Outside LPA	Local
C11	Keng Gnao	Inundation Area	Local
C12	Khone Khene	Inundation Area	Local
C13	Khone Khene	Inundation Area	Local
C14	Khone Khene	Inundation Area	Local
C15	Khone Khene	Inundation Area	Local
C16	Nakai Neua	Inundation Area and Resettlement Area	Local
C17	Nakai Neua	Inundation Area and Resettlement Area	Local
C18	Nakai Tai	Inundation Area and Resettlement Area	Local
C19	Nakai Tai	Inundation Area	Local
C20	Nam Nian	Inside LPA 4 and Inundation Area	Local
C22	Nong Boua Kham, Nakai Tai	Inside LPA 12 and Inundation Area	Local
C23	Nong Boua Kham	Inside Inundation Area	Local
C24	Oudomsouk	Inside Inundation Area	Local
C25	Oudomsouk	Inside LPA 18	Local
C26	Phonphanpek	Inside LPA 26a and Inundation Area	Local
C27	Phonsavang	Inside Inundation Area	Local
C28	Sop Hia	Inside LPA 5d and Inundation Area	Local
C29	Sop Ma	Inside LPA 26a and Inundation Area	Local
C30	Sop On	Inside Inundation Area	Local
C31	Sophene	Inside Inundation Area	Local
C32	Thalang	Inside LPA and Inundation Area	Local
C33	Lau Na Ngam	Outside LPA	Local
C34	Nong Saeng, Phone Lat Khuay, Wat That, Korbong, Keovilay, Lau Na Ngam	Outside LPA	Local
C35	Tha Thod	Outside LPA	Local
C36	Na Mixay, Phone Kor, Nong Bone	Outside LPA	Local
C37	Na Mixay	Outside LPA	Local
C38	Thong Mang, Phone Lat Khuay, Nong Saeng, Phonsavanh	Inside LPA 38	Local
C39	Gnommalath Tai, Gnommalath Neau, Somsanouk	Inside LPA 51	Local
C40	Nong Ping	Inside LPA 52	Local
C41	Nong Ping	Inside LPA 52	Local
C42	Tham Phuang	Inside LPA 51	Local
C43	Kenglek, Nong Ping	Outside LPA	Local
C44	Gnommalath	Inside LPA 37	Local
C45	Keovilay, Wat That and Kout Phadang	Outside LPA	Local
C46	Kout Phadang, Korbong and Keovilay	Outside LPA	Local
C47	Khok Savang	Outside LPA	Local
C48	Pha Thoung, Phone Khene	Outside LPA	Local
C49	Pha Thoung	Outside LPA	Local
C50	Nong Saeng	Outside LPA	Local
C51	Thang Beng	Outside LPA	Local

Table O.7: Cemetery Sites cont.

Site ID.	Village	Location	Significance
C52	Phonesaat	Inside LPA 49a	Local
C53	Sorm	Outside LPA	Local
C54	Thamlai	Outside LPA	Local
C55	Koktong	Outside LPA	Local
C56	Khamboun	Inside LPA 55	
C57	Khok Keng Khene, Bung Hua Na	Outside LPA	Local
C58	Kua Xe	Outside LPA	Local
C59	Nathong	Inside LPA 54	Local
C60	Na Muang	Outside LPA	Local
C61	Na Muang	Outside LPA	Local
C62	Khamnonesung	Outside LPA	Local
C63	Dongbak (abandoned)	Inside LPA 54, 55	Local
C64	Dongphoung	Inside LPA 54, 55	Local
C65	Phak Kha Nga Kang	Inside LPA 55	Local
C66	Phak Kha Nga Kang	Inside LPA 55	Local
C67	Nong Sa	Inside LPA 55	Local
C68	Pong	Inside LPA Xe Bang Fai	Local
C69	Nakok Nai, Lak 7, Lak 9	Inside LPA 55, 57	Local
C70	Lak 9	Inside LPA 57	Local
C71	Natung, Phonesavanh	Inside LPA 57	Local
C72	Phonlai	Inside LPA 57	Local
C73	Tarn, Donesavang	Inside LPA 57	Local
C74	Phonesaat	Inside LPA 57	Local
C75	Phonesaat	Inside LPA 57	Local
C76	Phonesaat	Inside LPA 57	Local
C77	Nam Phao	Inside LPA 3	Local
C78	Phonxai	Inside LPA 3	Local
C79	Phonxai	Inside LPA 3	Local
C80	Phonkeo	Inside LPA 7	Local
C81	Phonsaat	Inside LPA 7	Local
C82	Pakkatan	Inside LPA 7	Local
C83	Pakkatan	Inside LPA 7	Local
C84	Phachumkong, Khoksavang	Inside LPA 54, 56	Local
C85	Nong Khene	Inside LPA 49a	Local
C86	Nong Khene	Inside LPA 49a	Local
C87	Keovilay	Inside LPA 34	Local

Table O.8: Other Cultural Sites

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
CS1	Nong Oudom-souk	Oudomsouk	Inside LPA 18	The pond is the site for the annual boat racing festival held in October.	The pond is located on the western edge of the town. A small dam has been constructed on the northern edge of the pond.	Local
CS2	Recreation Park (proposed)	Oudomsouk	Inside LPA 20b	The district government has proposed to develop a recreation park at this site. According to government informants the proposal has been identified in their 2003 planning document.	The exact location and size of the park is unknown, nor is it clear when the park would be developed.	Local
CS3	Holiday Lodge	Oudomsouk	Inside Resettlement Area	In 1996 Princess Pratheb, daughter to King Bhumipol Adunyadet of Thailand, made a private visit to the Nakai Plateau. The Princess used the lodge for three (3) nights during her visit.	It is a single storey, wooden building which is elevated on stilts. It is located east of the district centre. The building has fallen into disrepair since the Princess's visit.	Local
CS4, CS5	Tham Mut and Tham Keo	Tham Phuang	Outside LPA	The cave and surrounds is used as a recreation site by the local villages. There is potential for the site to attract tourists.	The site comprises a large limestone cave, an underground stream and a pond.	Local
CS6	Tham Phuang	Tham Phuang	Outside LPA	The cave and surrounds is both a spirit and recreation site for the local villages. Although bathing and fishing is not permitted the villagers do enjoy the tranquillity of the site. There is potential for the site to attract tourists.	The site comprises a limestone cave called, an underground stream and a pond.	Local
CS7	Pha Tham None	Phit Sikhay	Inside LPA 56	The cave and surrounds is used as a recreation site by the local villagers. There is potential for the site to attract tourists.	The site comprises three limestone caves in a cliff face. The caves extend over a distance of approximately 200 m.	Local
CS8	Tham Lom	Khok Savang	Outside LPA	During the aerial bombing campaigns of the 2nd Indochina War, the cave was used as a shelter site for Lao and Vietnamese soldiers. There is potential for the site to attract tourists.	The site comprises a limestone cave in a cliff face. The cave extends over a distance of at least 50 m.	Local
CS9	Tham Tholapee	Tha Thod	Outside LPA	The cave and surrounds is recognised recreation site for the local villages. There is potential for the natural beauty of the site to attract tourists.	The site comprises a large limestone cave and an underground stream.	Local
CS10, 11	Tham Heua, Tham Muang	Kenglek	Outside LPA	During the aerial bombing campaigns of the 2nd Indochina War, the cave was used as a shelter site and hospital. Today the cave is a recognised recreation site for the local villages. There is potential for the natural beauty of the site to attract tourists.	The site comprises a large limestone cave that can be accessed by one of two entrances.	Local
CS12	Peo Hia	Khok Savang	Outside LPA	A natural spring used by the village as a source of drinking water.	The site comprises a pond at the base of a limestone cliff.	Local
CS13	Tham Phra	Sorm	Outside LPA	Local informants confirmed that a bronze Buddha statue, currently located in Wat Sen Sayalarm was formerly located in the cave. The Buddha was moved to the temple in the early 20th century by the Governor of Mahaxai. Small flecks of gold leaf are evident on the floor of the cave and local informants believe this originates from the Buddha statue. Shards of clay pots and bones are also evident on the cave floor. It is possible that these pots may have been cremation urns. Local villagers visit the site to perform Buddhist ceremonies.	The cave is located in a karst pinnacle north of Ban Sorm.	Local
CS14	Tham Saolua	Manilath	Inside LPA 55	Local villagers visit the site to perform Buddhist ceremonies. The statues are not believed to be of high PCR significance. Local informants indicated that the collection previously included bronze images but these have since been lost.	The sand stone rock shelter is located southeast of the village. The rock shelter comprises a collection of more than 36 stone and 30 wooden Buddha images.	Provincial
CS15	Water Hole	Nonesan	Inside LPA 55	The water hole is spiritually connected to the Phi Meuang (SS52). Water is collected from the site and used in the appeasement ceremonies for the territorial spirit.	The water hole is located in a creek bed, approximately 450 m from the village and 100 m from the territorial spirit hut.	Local
CS16	Tham Phra	Bungthale Mai	Outside LPA	Local villagers visit the site to perform Buddhist ceremonies. The statues are not believed to be of high PCR significance.	The sand stone rock shelter is located south west of the village. The rock shelter comprises a collection of more than 20 stone and concrete Buddha images, plus various miscellaneous statues.	Local
CS17	Bung Ke	Kengsa-vang, Nong Song	Inside LPA Xe Bang Fai	The site was formerly an important fishing ground and thus the subject of local folk tales.	The site is located on a bend in the river where the flow of the river is breached by a sand bar.	Local

Table O.8: Other Cultural Sites cont.

Site ID.	Site Name	Village	Location	Cultural Description	Physical Description	Significance
CS18	Hat Pha Vieng	Mahaxai Kang, Mahaxai Neua, Mahaxai Tai, Phova Neua, Phova Tai	Inside LPA Xe Bang Fai	Villagers from Mahaxai and Phova celebrate O Pan Sah (commonly known as boat racing festival) at the site. The celebrations involve the construction of three large sand stupas which represent Wat Sen Sayalarm, Wat Phova Tai and Wat Phova Neua, and the presentation of offerings in Tham Pha Vieng.	The site comprises a sand embankment on a bend in the Xe Bang Fai, upstream of B. Mahaxai Kang.	Local
CS19	Tham Lom	Phova Tai	Outside LPA	Local villagers visit the site to perform Buddhist ceremonies. The statues are not believed to be of high PCR significance.	The cave is located in a limestone pinnacle. The cave contains a collection of approximately 40 Buddha images, primarily made from wood and stone.	Local
CS20	Tham Phra and Tham Lot	Pha Nang	Outside LPA	The site comprises a cave which has been used as a place of worship for at least four generations. The cave is the subject of local folk tales and is well known throughout the Province. The adjacent cave site of Tham Lot was used as a place of refuge during the aerial bombing campaigns if the 2nd Indochina War.	The caves are located in a limestone pinnacle southwest of the village. Tham Phra contains two stupas (one built in 1958 and the other in 1994) and a collection of over 100 wooden Buddha images. Some of the images show a high quality of craftsmanship however with time their physical condition has deteriorated.	Provincial
CS21	Tad Kham	Hat Phek	Inside LPA Xe Bang Fai	A site of natural beauty which affords recreational value for the local villagers. The site has the potential for tourism development.	A water fall located 50 m upstream of the confluence of the Houay Tad Kham, and the Xe Bang Fai. The site comprises a 5 m high wall of sandstone over which the flow of the tributary passes.	Local
CS22	Tham Men, Tham Seua, Tham Gnai	Nakok Nai	Outside LPA	Sites of natural beauty which afford recreational value for the local villagers. The sites have the potential for tourism development. The caves were used as a place of refuge during the aerial bombing campaigns if the 2nd Indochina War from 1971 to 73.	Three large caves sites located south of Road 12 and south of B. Lak 9.	Local
CS23	Tham Than	Nakham	Outside LPA	Local villagers visit the site to perform Buddhist ceremonies. The statues are not believed to be of high PCR significance.	The cave is located in a limestone pinnacle, approximately 400 m east of B. Nakham. The cave contains one wooden and two concrete Buddha images.	Local
CS24	Tham Phra	Phine	Outside LPA	Local villagers visit the site to perform Buddhist ceremonies. The statues are not of high PCR significance.	The cave is located in a limestone pinnacle on the southern side of Road 12, south of B. Phine. The cave contains one wooden and two concrete Buddha images.	Local
CS25	War Memorial	Lak 4	Inside LPA 57	The memorial commemorates the loss of life during the 2nd Indochina War. The site is open to the public and used for the conduct of official functions in remembrance of lost life.	The site is located on south eastern side of Road 12, approximately 350 m from the Road 13 junction.	Local
CS26	Tham Pha Phra	Nam Thi	Outside LPA	In the 1950's more than 50 ceramic, painted Buddha images were placed in the cave. These images and the cave are sacred for the people of Ban Nam Thi. The local villagers "water" the images and make an offering to Buddha as part of their Lao New Year ceremony. The ceremony looks after the well being of the people.	Tham Pha Phra is located on the western side of the Phou Phako massif. At the rear of cave there is a rock shelf holding more than 100 Buddha images. Note the Buddha images themselves are not significant PCR objects.	Local

Table O.9: Palaeontological Sites

Site ID.	Site Name	Villages	Location	Palaeontological Description	Physical Description	Significance
PS1	Tham Phuang	Tham Phuang	Outside LPA	Whilst fossil assemblages are not well documented in Laos, it is considered unlikely that the fossil occurrence is unusual to the area or of unique scientific interest. However, the occurrence of the fossils within a cave setting could have the potential to be a site with educational and / or tourist values.	The cave is located at the base of a limestone outcrop on the eastern side of Road 8b, north of B. Tham Phuang. The limestone outcrop in places contains a marine fossil assemblage including crinoids and shells. It is believed that the age of these rocks are Carboniferous.	Local
PS2	Pha Phen	Nam Thi	Inside LPA 1a	The composition of these deposits, and in particular the bones, is likely to provide evidence of both human and animal life during the early to late Paleolithic period.	The south western side of the Pha Phen limestone pinnacle contains three primary rock shelters extending over a distance of 200 m. These three rock shelters comprise a stratified sequence of prehistoric living floors containing, freshwater shells, and fossilised bones. These deposits have been cemented and in places carbonate veining is evident. In at least one cave these cave floor deposits have been disturbed. It is thought likely that this is the activity of local peoples in search of fossilized bones or prehistoric artefacts and without the knowledge of the potential significance of these deposits.	Potential National
PS3	Pha Bong	Nam Thi	Inside LPA 1a	Whilst fossil assemblages are not well documented in Laos, it is considered unlikely that the fossil occurrence is unusual to the area or of unique scientific interest. However, the occurrence of the fossils within a cave setting could have the potential to be a site with educational and / or tourist values.	Pha Bong is located on the western side of the Phou Phako limestone massif. The limestone outcrop in places contains a marine fossil assemblage including crinoids and shells. It is believed that the age of these rocks are Carboniferous. The fossil assemblage is most spectacularly displayed in a cave on the eastern side of Pha Bong.	Local
PS4	Possible Dinosaur print	Veun-sanan	Outside LPA	Impression in sandstone believed to be Jurassic to Cretaceous age (approximately 65 to 200 million years ago) may possibly be a foot imprint of a dinosaur or erosion feature. No other imprints were found near the site and this would appear important to have confidence that this is a dinosaur footprint.	The site is located approximately 300 m from the Xe bang Fai, and comprises a sandstone outcrop. The imprint measures approximately 10 x 10 cm.	Unknown , unlikely to be significant

