



Management Plan

of

Babylon

Property Nominated by the Government of Iraq in January 2018 for Inscription on the World Heritage List



This document was developed by State Board of Antiquities and Heritage SBAH. The property of Babylon benefits from a management plan completed and endorsed in 2015 by the Ministry of Tourism and Antiquities (now Ministry of Culture, Tourism and Antiquities). This management plan is currently being revised to take stock of new developments in the conservation priorities and management structure of the property. We are therefore submitting with the nomination file a draft management plan that reflects the current stage in the continuing process of adjusting management priorities to Babylon's Outstanding Value, in order to send the complete MP as soon as possible.

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ACRONYMS

AHD	Antiquity and Heritage Directorate
DAI	Deutsches Archaeological Institute
GoI	Government of Iraq
LGB	Local Government of Babil
MoCTA	Ministry of Culture and Tourism and Antiquities
MoE	Ministry of Environment
MoEd	Ministry of Education
MoF	Ministry of Finance
MoHESR	Ministry of Higher Education and Scientific Research
MoI	Ministry of Interior
MoMPW	Ministry of Municipalities and Public Works
MoO	Ministry of Oil
MoP	Ministry of Planning
MoTA	Ministry of Tourism and Antiquities
NCWH	National Committee for World Heritage
NGO	Non-Governmental Organization
NSCPA	National Steering Committee for Protected Areas
OGWHC	Operational Guidelines for the Implementation of the World Heritage Convention (2013)
OUV	Outstanding Universal Value
SBAH	State Board of Antiquities and Heritage
SMT	Site Management Team
UNESCO	United Nations Educational, Scientific and Cultural Organization
WMF	World Monument Fund

Management Framework

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- Section I. Key Messages
- Section II. Purpose of the Management Framework
- Section III. General Overview of the Property
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- Section XII. Resource Mobilization

Section I. Key Messages

In January 2018, the Government of Iraq submitted to the World Heritage Committee a property under the name ***Babylon*** for inscription on the World Heritage List. the property located in the governorate of **Babil** , nominated area about **1054.3 hectare**. The buffer zone comprises an additional 154.5.

Gaining inscription on the World Heritage List, the most prestigious international designation for a heritage site, is a highly demanding and competitive process. Iraq as a State Party to the World Heritage Convention must provide convincing arguments about the **Outstanding Universal Value** (OUV) of the property. The country must also make very serious commitments regarding the **protection and conservation** of what constitutes the OUV of the property.

Inscription on the World Heritage List can ensure **international support** for the conservation efforts carried out by the Government of Iraq, and for local socio-economic development programme implemented by national and local authorities.

Yet the **strongest commitments** for the protection and conservation of the cultural values of *Babylon* must come from inside Iraq: the national government, local governments and authorities, the private and non-governmental sectors, academics and researchers, the media, and most importantly the communities living in and around the property.

This is why great care was taken to develop a **management system** for the property allowing all **stakeholders** to play an active and positive role in the protection and conservation of this cultural gem.

Section II. Purpose and Scope of the Management Framework

As part of the process of enhancing the management of this Property, management plan was prepared in 2017-2018 and benefits from a management plan completed and endorsed in 2015. The plans were developed by national expert, supported by international experts, and through a consultation process with institutional and civil society stakeholders at the local and national levels. They include specific information on the key values and attributes of property, and a set of actions addressing protection and conservation issues. This plan is included the main references for the day-to-day management of the property.

The overall Management Framework provides for an integrated approach to the management of the property. It constitutes an overarching scheme to guide, harmonize and coordinate the work of the main agencies involved in the management of the property.

Specifically, the Management Framework:

- Recalls the principles guiding the management of the property, namely the conservation of its physical attributes, integrity and authenticity (which form the basis for its global value) as defined in the World Heritage Nomination File for Babylon submitted to the World Heritage Centre in January 2018;
- Compiles existing threats to the attributes of the property;
- Summarizes existing legal and institutional foundations for its management;
- Sets the overall vision, strategic goals and objectives for the management of the property;
- Outlines the main operational objectives;
- Clarifies the mechanism ensuring coordination and cooperation between all parties involved in the management and development of the property;
- Addresses common issues such as human and financial resource mobilization, monitoring and reporting to the World Heritage Committee, and commitments by stakeholders on the implementation of the present Management Plan.

Section III. General Overview of the Property

Babylon property for inscription on the World Heritage List. the property located in the governorate of **Babil** , The size of the nominated property is 1054.3 hectare. The boundaries include all excavated archaeological remains, modern reconstructions of ancient buildings and artificial alterations to the landscape, together with all unexcavated archaeological areas of the ancient city contained in its outer walls that give the property its Outstanding Universal Value under World Heritage criteria (iii) and (vi). The buffer zone is proposed at a distance of 100 meters from the property boundaries from every direction in accordance with the instructions issued by the State Board of Antiquities and Heritage (SBAH) on the protection of archaeological sites following the Iraq Antiquities Law No.55 of 2002. It covers an area of 154.5 hectares.

The site's boundaries have been based on the perimeter of the ancient Outer city walls and an agricultural map compiled by the Ministry of Irrigation in 1949. A survey conducted by the SBAH and WMF in 2010 served to re-identify the site's boundaries, which has been approved by the Chairman of the SBAH and the Babil Province Governor.

Map 1.1. General Map of the Proposed Property



Table 1.1. Centre Point Coordinates of the Property

Property	Governorate(s)	Coordinates of the central point
Babylon	Babil	N 32° 32' 31.09", E 44° 25' 15.00"

Table 1.2. Size of the Property and Associated Buffer Zones

Property	Area (ha)	Area of buffer zone (ha)
Babylon	1054.3	154.5
Total area of the property with buffer zone	1,208.8	

SECTION IV. Significance and Proposed Outstanding Universal Value

4.1. Significance

Babylon is an archaeological and symbolic site that stands as a unique testimony of one of the most influential empires of the ancient world and that has exceptionally wide ranging and long-lasting cultural associations of value for humanity as a whole .

One of the largest, oldest settlements in Mesopotamia and the Middle East, and was the seat of successive powerful empires under such famous rulers as Hammurabi and Nebuchadnezzar. As the capital of the Neo-Babylonian empire (626-539 BC), it is the most exceptional testimony of this culture at its height and represents the expression of this civilization's creativity through its unusual urbanism, the architecture of its monuments (religious, palatial and military or defensive) and their decorative equipping as artistic expression of royal power. Babylon radiated not only political, technical and artistic influence over all regions on the ancient Near and Middle East, but it also left a considerable scientific legacy in the fields of mathematics and astronomy. As an archaeological site, Babylon possesses exceptional cultural and symbolic associations of universal value. The property represents the tangible remains of a multifaceted myth that has functioned as a model, parable, scapegoat and symbol for over two thousand years. Babylon figures in the religious texts and traditions of the three Abrahamic faiths and has consistently been a source of inspiration for literary, philosophical and artistic works originally in the Western world. Today, Babylon also inspires artistic, popular and religious culture on a global scale and remains an icon of Iraqi national identity .

The buildings and other urban features contained within the boundaries of the property (outer and inner-city walls, gates, palaces, temples including the ziggurat, the probable inspiration for the Tower of Babel, etc.), include all its attributes as a unique testimony to the Neo-Babylonian civilization, in particular its contribution to architecture and urban design. These attributes also form the material basis for the property's cultural and symbolic associations. Eighty-five percent of the property is still unexcavated and of primary importance to support the site's Outstanding Universal Value through further conservation and research. The location and identification of the ancient city of Babylon and its attributes are well established by historical documentation, in particular a wealth of cuneiform tablets of various periods found at the site. The city's spatial organization is legible even if the morphology of the mud-brick buildings has long been impacted by natural factors and man-made interventions. Twentieth-century removals to museums together with the reconstruction of some major buildings have nevertheless allowed most buildings to retain the distinctive attributes they bore after being excavated .

The property is legally protected and under the oversight of the State Board of Antiquities and Heritage. It is managed by the Directorate of Antiquities and Heritage of the Babil Province. The management plan addresses in priority conservation issues and benefits from the highest levels of federal and provincial support.

4.2 Proposed Criteria for Inscription on the World Heritage List

On the basis of these qualities, the Government of Iraq has proposed to inscribe the property on the World Heritage List under criteria (iii), (vi).

4.2.1. Criterion (iii): *To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

Babylon is one of the largest, oldest settlements in Mesopotamia and the Middle East with earliest references dating to the third millennium BC. It was the seat of successive powerful empires under such famous rulers as Hammurabi and Nebuchadnezzar, and a political and cultural center that radiated its influence over all regions on the ancient Near and Middle East.

As the capital of the Neo-Babylonian empire (626-539 BC), it is the most exceptional testimony of this culture at its height and represents specifically the expression of this civilization's creativity through its urbanism, the architecture of its monuments (religious, palatial and military or defensive) and their decorative equipping as artistic expression of royal power. The property is also of exceptional significance for the history of the ancient Middle East before, during and after the Neo-Babylonian period, an importance supported by an extremely rich record of documentation, particularly cuneiform archives.

Babylon's cultural legacy was enhanced by previous Akkadian and Sumerian cultural achievements, which included the cuneiform writing system, a significant tool for today's knowledge of the history and evolution of the region in general and Babylon in particular. In turn, Babylon exerted considerable political, scientific, technological, architectural and artistic influence upon other human settlements in the region, and on successive historic periods of the Antiquity. Astronomy was first elaborated as a science in the city, alongside advances in mathematics that would inform all subsequent studies of the stars.

4.2.2. Criterion (Vi): *To be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.*

As an archeological site, Babylon possesses exceptional cultural and symbolic associations of universal value. The property represents the tangible remains of a multifaceted myth that has functioned as a model, parable, scapegoat and symbol for over two thousand years. Babylon figures in the religious texts and traditions of the three Abrahamic faiths and has consistently been a source of inspiration for literary, philosophical and artistic works originally in the Western world. Today, Babylon also inspires artistic, popular and religious culture on a global scale.

The Bible offered Babylon's greatness as a cautionary tale, a warning against hubris, idolatry, and the moral laxity linked to the city's wealth. The

Holy Qur'an mentions it in reference to a tale of human weakness. In the works of Greek historians, Babylon was distant, exotic and incredible. Classical texts attribute two of the seven wonders of the world to Babylon: the walls of the city, whose remains are still visible today, and the Hanging Gardens. The innumerable artistic and literary representations of the Tower of Babel and the Hanging Garden are iconic or philosophical but they have their origin in real ancient structures of which archaeological traces are still preserved: the ziggurat Etemenanki and Nebuchadnezzar's palatial complex.

Babylon is also a powerful political metaphor. In the Judeo-Christian tradition, it is a degenerated archetype. In the twentieth century – the age of nationalism and post-colonial independence –, it became the symbol of power and historical pride and was heavily invested by Iraqi leaders who strived to leave their mark on the site by reconstructing the grandiose monuments of Nebuchadnezzar.

SECTION V. Integrity and Authenticity

5.1. Integrity

The boundaries of the archaeological site encompass the outer walls of the neo-Babylonian city on all sides. These limits are well marked by remnants of the fortifications in the form of mounds visible on the ground. They are confirmed by archaeological surveys. The buildings and other urban features contained within the property include all archaeological remains since the time of Hammurabi until the Hellenistic period, and specifically urbanistic and architectural features from the Neo-Babylonian period where the city was at the height of its power and glory. These represent the main attributes of the property as a unique testimony to the Neo-Babylonian civilization, and the material basis for its cultural and symbolic associations. Most of these attributes are located at the center of the property: remains of the inner wall, the city gates, the Processional Way, major temples, particularly the ziggurat, and palaces. The outer city walls and the Summer Palace, located to the north of the property, also represent major attributes.

The morphology of Babylon's historic buildings is affected by natural factors and man-made interventions, and none of the ancient monument or urban feature has remained intact since Antiquity. As early as the Hellenistic period, the high-quality material that went into erecting Babylon's iconic monuments under Nebuchadnezzar II started being reused in new buildings. Medieval Baghdad was partly built with bricks from ancient Babylon shipped on the Euphrates. In the course of time, the unbacked bricks remaining on the site were eroded by the natural elements and reverted to mud. Ancient grandiose monuments became archaeological mounds with foundations and wall remains buried under the surface. In the early twentieth-century, the Deutsche Orient-Gesellschaft excavated then removed the fourth and most elaborate stage of the Ishtar Gate to rebuild it in the Pergamon Museum in Berlin in 1930. Vast numbers of other artefacts, including architectural elements, were looted or made their way to Western museums.

On this vast site, several constructions have been built upon the unexcavated archaeological layers: the medieval Islamic shrine of Amran bin Ali, dating in its current shape from the Ottoman period; scattered rural settlements associated with date palm agriculture – an enduring feature of the site since the Antiquity; and, in the twentieth-century, facilities for archaeologists, management, visitors and tourists. Artificial topographical features (hills and lakes) were also created in the 1980s, one of them topped with a presidential palace. These are all traces of the continuous use – agricultural, religious, commercial, scientific, political and educational – of river banks since the time of ancient Mesopotamia. The impact of these interventions on the unexcavated archaeological layers is limited: the foundations of buildings are absent or shallow, and artificial topographical features were created in areas selected for their secondary archaeological importance. Three parallel pipelines installed since the 1970s cross the eastern sections of site buried in shallow trenches.

5.2. Authenticity

The location and identification of the ancient city of Babylon and of the various material attributes supporting its Outstanding Universal Value have been established by a large body of archaeological and historical research conducted scientifically and published since the late nineteenth century. Even if some debate exists as regards the actual location and even existence of the Hanging Gardens, it is nevertheless well established by historians of Antiquity that classical Greek authors placed them in the palace of Nebuchadnezzar in Babylon. Furthermore, vast amounts of original documentation on ancient Babylon is conserved in the world museums in the form of cuneiform tablets and other artefacts.

Some physical aspects of the property have often been viewed as problematic in terms of authenticity. Reconstructions were performed by the Iraqi archaeological authority starting in the 1960s after excavation campaigns. They were meant to address the scarcity of visible monumental remains to make the site attractive for visitors and convey a political message. These interventions used modern material and have been duly criticized for failing not only to adopt international conservation techniques but also, at times, for weakening original remains. Such interventions were grounded in the nationalist and post-colonial philosophy of their time and rooted in the values attributed to Babylon by previous political powers.

Yet they did not affect the legibility of the spatial organization of the urban core into religious, political and administrative districts, and of the inner and outer city's limits that are clearly discernible today. Furthermore, modern reconstruction systematically followed original plans revealed by excavations works conducted by the German and Iraqi archaeologists. Works were executed on top of original foundations or excavated remains of walls some several meters high. In most cases, although modern additions were not clearly marked, they are distinguishable from original remains. The main distinctive attributes of the excavated ancient buildings have thus been retained. Since 2011, the Iraqi State Board of Antiquities and Heritage that has authority over the site has adopted a new conservation philosophy: incomplete monuments are to be conserved but not reconstructed, and modern additions will be removed whenever they affect conservation.

Some major identified buildings, excavated or not, have been unaffected by reconstructions. This is the case with the outer city walls, the Northern Palace, the Esagila, several secondary temples, and the ziggurat. Additionally, excavations and reconstructions have focused on large public buildings leaving much to discover about residential neighborhoods, commercial and industrial quarters. It is noteworthy that ninety percent of the site is neither unexcavated nor rebuilt, a situation that presents remarkable opportunities to support the site's Outstanding Universal Value through further conservation and research.

SECTION VI. Threats to the Conservation of the Property

6.1. Key Threats

All identified key threats affecting the status of conservation of the property attributes and values are listed below.

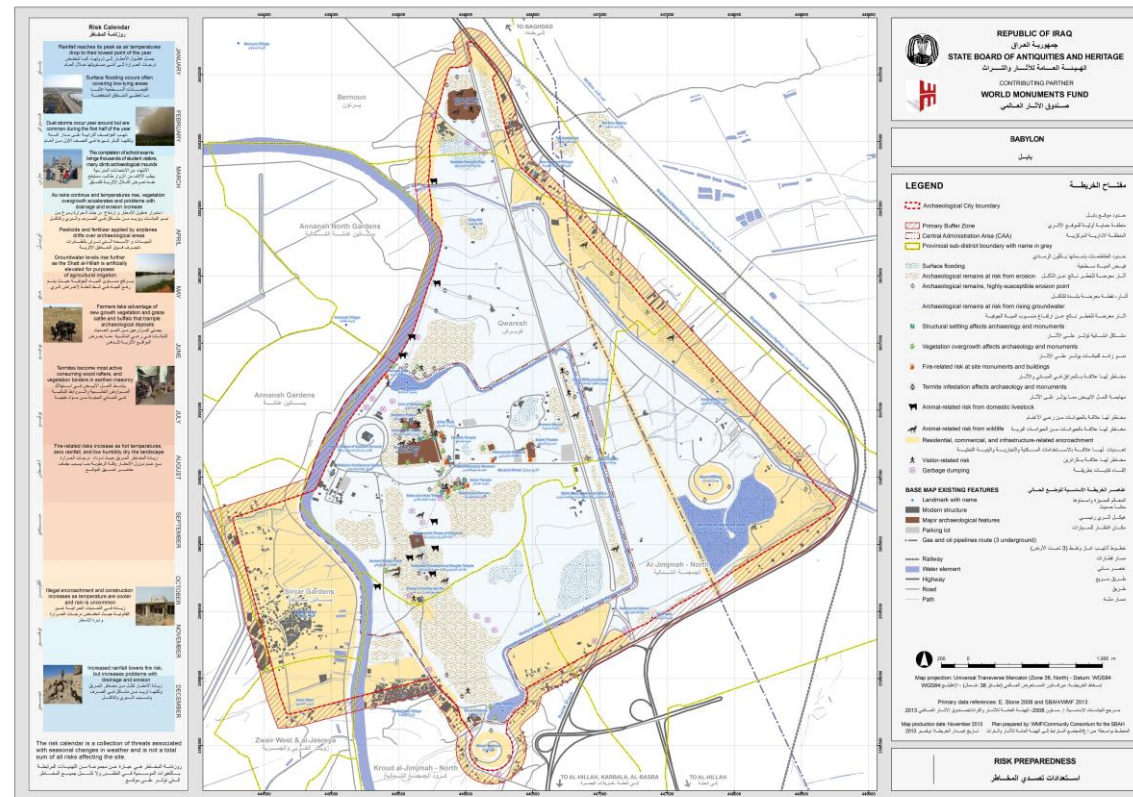
Table 1.3. Key Threats to the Conservation of the Property

Threats	Level
Infrastructure Development	Medium
Modification of hydrological Systems	Medium
Agriculture Expansion	Medium
Mining/oil	Very low
Water Pollution	Very low
Solid Waste	Low
Climate Change	Low
Desertification	Very low
Fishing	Very low
Hunting	N/A
Grazing/animal husbandry	Low
Invasive and Exotic Species	Very low
Military/security activities	Medium
Natural Catastrophes	Very low
Tourism and Visitor Pressure	Medium
Lack of regular maintenance/conservation interventions	High
Improper conservation interventions	High
Water and/or wind erosion	Very high
Invasive vegetation growth	Medium
Uncontrolled access/trespassing	Medium

6.2. Risk Preparedness

The State Board of Antiquities and Heritage SBAH, as the overarching body coordinating between institutions concerned with the management of the property, will develop a **Risk Preparedness Plan** in consultation with all stakeholders with a view to addressing, managing and mitigating all key risks.

Map: 1-2 Risk Preparedness



SECTION VII. Legal and Institutional Foundations for the Management of the Property

7.1. Existing Legal Framework

The current legal frameworks effective in Iraq, along with those under development and supported by international conventions and treaties, address the strategic goal of protecting and sustaining the significant cultural heritage including archaeological sites – throughout Iraq. Various laws, bylaws and regulations support the protection and sustainable management of the various areas through defining cooperation and coordination mechanisms between relevant agencies. The following table summarizes the different legal instruments and regulatory tools relevant to the protection of the cultural attributes of the property.

Table 1.4. National and International Legal Instruments and Regulatory Tools Relevant to the Protection of the Property

National Legal Instruments		International Instruments Adopted by Iraq	
State Board of Antiquities and Heritage Law No. 45	2000	World Heritage Convention	1974
Antiquity and Heritage Law No. 55	2002		
Constitution of Iraq	2005		
Investment Law No. 13	2006		
Ministry of Environmental Law No. 37	2008		
Ministry of Planning Law No. 19	2009		
Protection and Enhancement of the Environment Law No. 27	2009		
Ministry of Tourism and Antiquities Law No. 13	2012		
Other National Regulatory Tools			
Poverty Reduction Strategy	2009		
National Development Plan (2013-2017)	2013		
Integrated National Energy Strategy for 2013-2030 (INES)	2013		
National Environmental Strategy and Action Plan for Iraq (2013-2017)	2013		

(Complete Management Plan) offers an evaluation of the existing legal framework with a view to:

- Assessing the overall enabling environment for the protection, conservation, management, presentation, stakeholder participation and sustainability of the cultural attributes of the proposed property;
- Determining to what level the obligations to the World Heritage Convention are met and protection is enforced at the country level under existing legislations and regulations;
- Offering recommendations for enhancing the existing legal framework for the protection of the cultural attributes of the property.

7.2. Existing Institutional and Strategic Frameworks

The **State Board of Antiquities and Heritage** (SBAH), currently under the **Ministry of Culture and Tourism and Antiquities** (MoCTA), is the main authority directly responsible for the follow up of the conditions and conservation of these properties. At the governorate level, **Antiquity and Heritage Directorates** (AHD) are directly responsible for ensuring the conservation, management and monitoring of archaeological sites inside their respective jurisdiction. They are assisted by the Antiquity and Heritage Police that maintains a permanent presence at Babylon. Archaeological mission of WMF involved in research and conservation.

SECTION VIII. Overarching Management System of the Property

This section clarifies the mechanism ensuring coordination and cooperation between all parties involved in the management and development of the property. It highlights responsible actors, lines of authority, and coordination mechanisms. Detailed management systems included in the Complete Management Plan.

SECTION IX. Vision, Goals and Strategic Objectives

9.1. Visions Statement for the Property

On the basis of initial consultations with stakeholders, the authors of this Management Plan have drafted the following long-term vision for the property:

This vision statement will be further refined through a more comprehensive consultation process with the managing authorities and the stakeholders in the property on the basis of the following principles:

- The vision should be a statement which:
 - Captures the expectations of all stakeholders, and represents a consensus.
 - Creates a clear, inspirational but realistic picture of what it is hoped the property will be like in 20-30 years.
 - Furthers local, national and international conservation principles and standards.
 - Shows how the values and integrity of the property are to be safeguarded and improved.
 - Fully respects the important values of the property and ensures their conservation.
 - Functionally links the property to its surrounding landscapes.
 - Identifies how the property contributes to the improved welfare of local people, and resonates with the social, economic and environmental aspirations of the stakeholders in the area, consistent with the overriding requirement for protection of its values.

9.2. Overall Management Goals and Objectives

The **overall management goal** is to protect the integrity and authenticity of the property physical cultural attributes – and hence their global value – over the long-term.

In order to attain this goal, management plan of the property have been developed along the following strategic **common objectives**:

1. Protect the property from the mains threats susceptible to impact their integrity, authenticity, and key attributes. Such threats include, in particular, development and environmental pressures, neglect and unsustainable use.
2. Communicate and advocate the importance and values of the property to the Iraqi and international public including local communities, civil society, institutions and decision-makers, scientists and visitors.
3. Facilitate the involvement of all key stakeholders, including local communities, in the planning, management and monitoring of the property from environmental, cultural, social and economic perspectives.
4. Coordinate with the international community on the management of the property in terms of funding, joint programming, monitoring, conservation and development.
5. Ensure that legal and administrative mechanisms, together with human and financial resources, are in place to achieve the above objectives.

9.3. Specific Management Goal and Objectives for the Property

The conservation of the property adopts the approach of **Integrated Heritage Management Planning** and encompasses the following sets of constituents:

- Protection (legal and planning frameworks);
- Research and conservation;
- Capacity building;
- Management and infrastructure development;
- Interpretation, education, visitation, and tourism;
- Awareness building and partnerships.

On that basis, **the management goal** for the property has been defined as follows:

To ensure the long-term conservation of all the archaeological remains included in the property, limiting negative impacts while respecting the value of this heritage for local people and visitors, and providing economic benefits to local stakeholders based on the sustainable use of the site.

Strategic objectives of constituents are as follows:

- **Protection objectives:**
To provide for legal, institutional and planning mechanisms allowing the effective implementation of site.
- **Research objectives:**
To foster and regulate excavation and research, encourage public archaeology, and develop national documentation capacities.
- **Conservation objectives:**
To develop and implement coordinated, sustainable and cost-effective conservation plans and actions, including monitoring and maintenance regimes.
- **Capacity building objectives:**
To establish, improve and sustain the required technical and professional capabilities for the efficient protection, conservation and management.
- **Management and infrastructure development objectives:**
To establish, improve and sustain the required management system and infrastructure for the efficient protection, conservation and management.
- **Interpretation, education, visitation, and tourism objectives:**
To disseminate high-standard knowledge about the site, and provide a quality visiting and educational experience aligned on international standards.
- **Awareness building and partnerships objectives:**
To encourage the local population and authorities to be partners in protecting the site and their surroundings, and allow local communities to benefit from visitation and tourism activities.

SECTION X. Operational Objectives and Timeframe

This section outlines the main operational objectives for the conservation of all attributes and values of the property with their timeframes.

Complete Management Plan will offer complete details.

Section XI. Reporting Mechanism

Iraq as a State Party to the World Heritage Convention has an obligation to regularly prepare **reports about the state of conservation** and the various protection measures put in place at World Heritage sites in the country. These reports allow the World Heritage Committee to assess the conditions at the sites and, eventually, to decide on the necessity of adopting specific measures to resolve recurrent problems. One of such measures could be the inscription of a property on the List of World Heritage in Danger. Reporting also provides a mechanism for regional co-operation and exchange of information and experiences between States Parties to the World Heritage Convention.

Periodic reporting happens every six years.

It is the mandate of the **World Heritage Dep.at SBAH** to prepare such periodic reports along the indicative format prepared by the World Heritage Committee. To allow for the World Heritage Dep at SBAH gather the necessary information on the state of conservation of the property, Director of the Property management team will report SBAH on the state of conservation of the property.

Section XII. Resource Mobilization

Effective implementation of the Management Plan is contingent on the adequate allocate of **human and financial resources**.

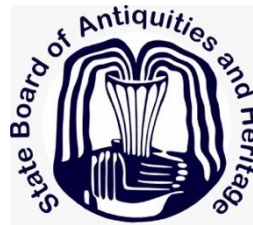
As regards **human resources**, the SBAH will train and/or redeploy their existing staff to ensure that, by early 2019, minimum required management structures are attained. By late 2019, 100% of concerned staff will have been trained to establish full technical and professional capabilities for the management.

As regards financial resources, the SBAH in close coordination with MoCTA and LGB , will develop a **resource mobilization strategy at the end of 2018** to ensure adequate funding for the protection, conservation and development of property on the basis of the Management Plan.



Management Plan of Babylon

Property Nominated by the Government of Iraq in January 2018 for Inscription on the World Heritage List



This document was developed by the Iraqi State Board of Antiquities and Heritage (SBAH) in the framework of the submission of Babylon for inscription on the UNESCO World Heritage List and completed in September 2018. The present management plan was prepared through a consultation with stakeholders from concerned governmental institutions and civil society organizations. As part of this process, the previous management document, completed and endorsed by the Ministry of Tourism and Antiquities (now Ministry of Culture, Tourism and Antiquities) in 2015, was revised to take stock of new developments in the conservation priorities and management structure of the property.

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Acronyms

DOG	Deutsche Orient-Gesellschaft
DAI	German Archaeological Institute
CRAST	Centro Ricerche Archeologiche e Scavi di Torino
GoI	Government of Iraq
MoCTA	Ministry of Culture, Tourism and Antiquities
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MoMPW	Ministry of Municipalities and Public Works
MoO	Ministry of Oil
MoP	Ministry of Planning
NGO	Non-Governmental Organization
OGWHC	Operational Guidelines for the Implementation of the World Heritage Convention (2013)
OUV	Outstanding Universal Value
SBAH	State Board of Antiquities and Heritage

UNESCO United Nations Educational, Scientific and Cultural Organization

WMF World Monument Fund

Introduction

In January 2018, the Government of Iraq submitted to the World Heritage Committee a property under the name Babylon for inscription on the World Heritage List. The nominated property, located in the Governorate of Babil, consists in an area of about 1054.3 hectare and a buffer zone of an additional 154.5 hectare.

Gaining inscription on the World Heritage List, the most prestigious international designation for a heritage site, is a highly demanding and competitive process. Iraq as a State Party to the World Heritage Convention must provide convincing arguments about the Outstanding Universal Value (OUV) of the property. The country must also make very serious commitments regarding the protection and conservation of what constitutes the OUV of the property.

Inscription on the World Heritage List can ensure international support for the conservation efforts carried out by the Government of Iraq, and for local socio-economic development programme implemented by national and local authorities.

Yet the strongest commitments for the protection and conservation of the cultural values of Babylon must come from inside Iraq: the national government, local governments and authorities, the private and non-governmental sectors, academics and researchers, the media, and most importantly the communities living in and around the property.

This is why great care was taken to develop a management plan for the property allowing all stakeholders to play an active and positive role in the protection and conservation of this cultural gem.

Purpose and Scope of the Management Plan

As part of the process of enhancing the management of the property, the present plan addressing in priority the conservation of Babylon's Outstanding Universal Value (OUV) was prepared in 2018 on the basis of a previous management plan completed and endorsed by the Ministry of Tourism and Antiquities (now Ministry of Culture, Tourism and Antiquities) in 2015. The present document was developed by national experts supported by international expertise, and through a consultation process with institutional and civil society stakeholders at the local and national levels. It includes specific information on the key values and attributes of property, and a set of actions addressing all aspects of management, including protection and conservation. This plan represents the main references for the day-to-day management of the property.

Specifically, this management plan:

- Summarizes the main information about the property and its physical features;
- Recalls the principles guiding the management of the property, namely the conservation of its physical attributes, integrity and authenticity (which form the basis for its OUV) as defined in the World Heritage Nomination File for Babylon submitted to the World Heritage Centre in January 2018;
- Identifies existing threats to the attributes of the property;
- Clarifies existing the legal and institutional framework for its management;
- Sets the overall vision, goals and objectives for the management of the property;
- Outlines the main operational objectives;
- Addresses human and financial resource mobilization, monitoring and reporting to the World Heritage Committee, and commitments by stakeholders on the implementation of the present management plan.

Part I. BABYLON'S NOMINATION ON THE WORLD HERITAGE LIST

I.1 General Overview of the Property

The archaeological site of Babylon is located in the Governorate of Babil and is part of the municipality of Hillah. The property nominated for inscription on the World Heritage List covers 1054.3 hectare whereas its buffer zone comprises an additional 154.5 hectare. The boundaries have been based on the perimeter of the ancient Outer City Walls and an agricultural map compiled by the Ministry of Irrigation in 1949. A survey conducted by the State Board of Antiquities and Heritage (SBAH) and the World Monument Fund (WMF) in 2010 served to re-identify the site's boundaries which have been approved by the Chairman of the SBAH and the Babil Provincial Governor. These boundaries include all excavated archaeological remains, modern reconstructions of ancient buildings and artificial alterations to the landscape, together with all unexcavated archaeological areas of the ancient city contained in its outer walls that give the property its OUV under World Heritage criteria (iii) and (vi). The buffer zone is proposed at a distance of 100 meters from the property boundaries from every direction in accordance with the instructions issued by SBAH on the protection of archaeological sites following the Iraq Antiquities Law No.55 of 2002.

Centre Point Coordinates of the Property

Property	Governorate(s)	Coordinates of the central point
Babylon	Babil	N 32° 32' 31.09", E 44° 25' 15.00"

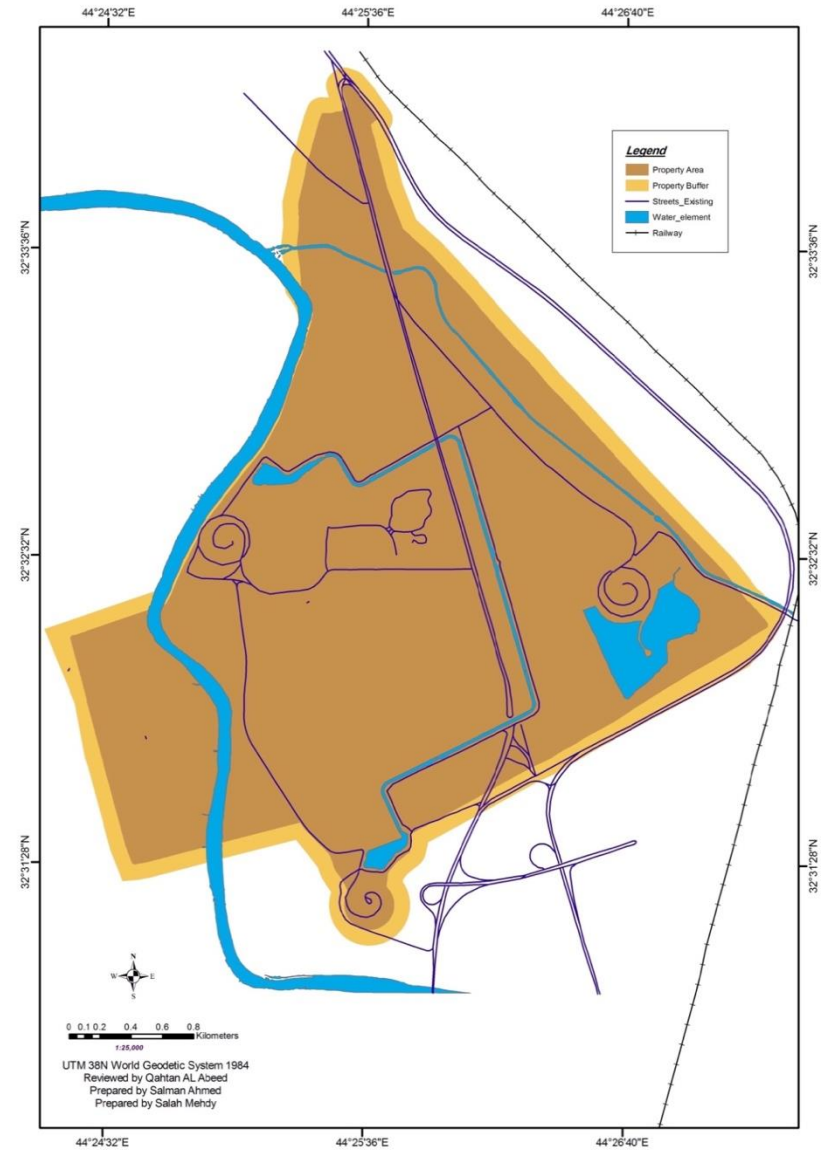
Size of the Property and Associated Buffer Zone

Property	Area (ha)	Area of buffer zone (ha)
Babylon	1054.3	154.5
Total area of the property with buffer zone	1,208.8	

Aerial View of the Property



Sketch of Boundary and Buffer Zone



I.2 Category of Property

In terms of categories of cultural property set out in Article I of the World Heritage Convention (1972), Babylon is an archaeological site that includes groups of buildings and monuments. On the basis of the World Heritage criteria, ICOMOS proposes a more comprehensive list of categories that makes the qualification of Babylon more complex.¹ Under this typology, the property pertains to the category of ‘archeological heritage.’ In terms of sub-categories, Babylon includes ‘groups of buildings’ and ‘monuments’ that relate to its Outstanding Universal Value. However, it is also an archaeological ‘site’ in the sense that it includes vast expanses of unexcavated terrain where the remains of the ancient urban settlement still lay buried. Furthermore, still according to ICOMOS’ typology, Babylon is also a ‘symbolic property’ on account of its association with beliefs, myths and ideas (see below). It is therefore proposed to define the property as *an archaeological and symbolic site that includes groups of buildings and monuments*.

I.3 Significance and Outstanding Universal Value (OUV)

Babylon is an archaeological and symbolic site that stands as a unique testimony of one of the most influential empires of the ancient world and that has exceptionally wide ranging and long-lasting cultural associations of value for humanity as a whole.

One of the largest, oldest settlements in Mesopotamia and the Middle East, Babylon was the seat of successive powerful empires under such famous rulers as Hammurabi and Nebuchadnezzar. As the capital of the Neo-Babylonian empire (626-539 BC), it is the most exceptional testimony of this culture at its height and represents the expression of this civilization’s creativity through its unusual urbanism, the architecture of its monuments (religious, palatial and military or defensive) and their decorative equipping as artistic expression of royal power. Babylon radiated not only political, technical and artistic influence over all regions on the ancient Near and Middle East, but it also left a considerable scientific legacy in the fields of mathematics and astronomy. As an archaeological site, Babylon possesses exceptional cultural and symbolic associations of universal value. The property represents the tangible remains of a multifaceted myth that has functioned as a model, parable, scapegoat and symbol for over two thousand years. Babylon figures in the religious texts and traditions of the three Abrahamic faiths and has consistently been a source of inspiration for literary, philosophical and artistic works originally in the Western world. Today, Babylon also inspires artistic, popular and religious culture on a global scale and remains an icon of Iraqi national identity .

¹ ICOMOS, 2004, *The World Heritage List: Filling the Gaps - an Action Plan for the Future*, p. 55.

The buildings and other urban features contained within the boundaries of the property (outer and inner-city walls, gates, palaces, temples including the ziggurat, the probable inspiration for the Tower Babel, etc.), include all its attributes as a unique testimony to the neo-Babylonian civilization, in particular its contribution to architecture and urban design. These attributes also form the material basis for the property's cultural and symbolic associations. Eighty-five percent of the property is still unexcavated and of primary importance to support the site's OUV through further conservation and research. The location and identification of the ancient city of Babylon and its attributes are well established by historical documentation, in particular a wealth of cuneiform tablets of various periods found at the site. The city's spatial organization is legible even if the morphology of the mud-brick buildings has long been impacted by natural factors and man-made interventions. Twentieth-century removals to museums together with the reconstruction of some major buildings have nevertheless allowed most buildings to retain the distinctive attributes they bore after being excavated.

1.4 Proposed Criteria for Inscription

On the basis of these qualities, the Government of Iraq has proposed to inscribe the property on the World Heritage List under criteria (iii) and (vi).

Criterion (iii): *To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

Babylon is one of the largest, oldest settlements in Mesopotamia and the Middle East with earliest references dating to the third millennium BC. It was the seat of successive powerful empires under such famous rulers as Hammurabi and Nebuchadnezzar, and a political and cultural center that radiated its influence over all regions on the ancient Near and Middle East.

As the capital of the Neo-Babylonian empire (626-539 BC), it is the most exceptional testimony of this culture at its height and represents specifically the expression of this civilization's creativity through its urbanism, the architecture of its monuments (religious, palatial and military or defensive) and their decorative equipping as artistic expression of royal power. The property is also of exceptional significance for the history of the ancient Middle East before, during and after the Neo-Babylonian period, an importance supported by an extremely rich record of documentation, particularly cuneiform archives.

Babylon's cultural legacy was enhanced by previous Akkadian and Sumerian cultural achievements, which included the cuneiform writing system, a significant tool for today's knowledge of the history and evolution of the region in general and Babylon in particular. In turn, Babylon exerted considerable political, scientific, technological, architectural and artistic influence upon other human settlements in the region, and on successive historic periods of the Antiquity. Astronomy was first elaborated as a science in the city, alongside advances in mathematics that would inform all subsequent studies of the stars.

Criterion (Vi): To be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.

As an archeological site, Babylon possesses exceptional cultural and symbolic associations of universal value. The property represents the tangible remains of a multifaceted myth that has functioned as a model, parable, scapegoat and symbol for over two thousand years. Babylon figures in the religious texts and traditions of the three Abrahamic faiths and has consistently been a source of inspiration for literary, philosophical and artistic works originally in the Western world. Today, Babylon also inspires artistic, popular and religious culture on a global scale.

The Bible offered Babylon's greatness as a cautionary tale, a warning against hubris, idolatry, and the moral laxity linked to the city's wealth. The Holy Qur'an mentions it in reference to a tale of human weakness. In the works of Greek historians, Babylon was distant, exotic and incredible. Classical texts attribute two of the seven wonders of the world to Babylon: the walls of the city, whose remains are still visible today, and the Hanging Gardens. The innumerable artistic and literary representations of the Tower of Babel and the Hanging Garden are iconic or philosophical, but they have their origin in real ancient structures of which archaeological traces are still preserved: the ziggurat Etemenanki and Nebuchadnezzar's palatial complex.

Babylon is also a powerful political metaphor. In the Judeo-Christian tradition, it is a degenerated archetype. In the twentieth century – the age of nationalism and post-colonial independence –, it became the symbol of power and historical pride and was heavily invested by Iraqi leaders who strived to leave their mark on the site by reconstructing the grandiose monuments of Nebuchadnezzar.

I.5 Integrity

The boundaries of the archaeological site encompass the outer walls of the neo-Babylonian city on all sides. These limits are well marked by remnants of the fortifications in the form of mounds visible on the ground. They are confirmed by archaeological surveys. The buildings and other urban features contained within the property include all archaeological remains since the time of Hammurabi until the Hellenistic period, and specifically urbanistic and architectural features from the Neo-Babylonian period where the city was at the height of its power and glory. These represent the main attributes of the property as a unique testimony to the Neo-Babylonian civilization, and the material basis for its cultural and symbolic associations. Most of these attributes are located at the center of the property: remains of the inner wall, the city gates, the Processional Way, major temples, particularly the ziggurat, and palaces. The outer city walls and the Summer Palace, located to the north of the property, also represent major attributes.

The morphology of Babylon's historic buildings is affected by natural factors and man-made interventions, and none of the ancient monument or urban feature has remained intact since Antiquity. As early as the Hellenistic period, the high-quality material that went into erecting Babylon's iconic monuments under Nebuchadnezzar II started being reused in new buildings. Medieval Baghdad was partly built with bricks from ancient Babylon shipped on the Euphrates. In the course of time, the unbacked bricks remaining on the site were eroded by the natural elements and reverted to mud. Ancient grandiose monuments became archaeological mounds with foundations and wall remains buried under the surface. In the early twentieth-century, the Deutsche Orient-Gesellschaft excavated then removed the fourth and most elaborate stage of the Ishtar Gate to rebuild it in the Pergamon Museum in Berlin in 1930. Vast numbers of other artefacts, including architectural elements, were looted or made their way to Western museums.

On this vast site, several constructions have been built upon the unexcavated archaeological layers: the medieval Islamic shrine of Amran bin Ali, dating in its current shape from the Ottoman period; scattered rural settlements associated with date palm agriculture – an enduring feature of the site since the Antiquity; and, in the twentieth-century, facilities for archaeologists, management, visitors and tourists. Artificial topographical features (hills and lakes) were also created in the 1980s, one of them topped with a presidential palace. These are all traces of the continuous use – agricultural, religious, commercial, scientific, political and educational – of river banks since the time of ancient Mesopotamia. The impact of these interventions on the unexcavated archaeological layers is limited: the foundations of buildings are absent or shallow, and artificial topographical features were created in areas selected for their secondary archaeological importance. Three parallel pipelines installed since the 1970s cross the eastern sections of site buried in shallow trenches.

1.6 Authenticity

The location and identification of the ancient city of Babylon and of the various material attributes supporting its OUV have been established by a large body of archaeological and historical research conducted scientifically and published since the late nineteenth century. Even if some debate exists as regards the actual location and even existence of the Hanging Gardens, it is nevertheless well established by historians of Antiquity that classical Greek authors placed them in the palace of Nebuchadnezzar in Babylon. Furthermore, vast amounts of original documentation on ancient Babylon is conserved in the world museums in the form of cuneiform tablets and other artefacts.

Some physical aspects of the property have often been viewed as problematic in terms of authenticity. Reconstructions were performed by the Iraqi archaeological authority starting in the 1960s after excavation campaigns. They were meant to address the scarcity of visible monumental remains to make the site attractive for visitors and convey a political message. These interventions used modern material and have been duly criticized for failing not only to adopt international conservation techniques but also, at times, for weakening original remains. Such interventions were grounded in the nationalist and post-colonial philosophy of their time and rooted in the values attributed to Babylon by previous political powers.

Yet they did not affect the legibility of the spatial organization of the urban core into religious, political and administrative districts, and of the inner and outer city's limits that are clearly discernible today. Furthermore, modern reconstruction systematically followed original plans revealed by excavations works conducted by the German and Iraqi archaeologists. Works were executed on top of original foundations or excavated remains of walls some several meters high. In most cases, although modern additions were not clearly marked, they are distinguishable from original remains. The main distinctive attributes of the excavated ancient buildings have thus been retained. Since 2011, the SBAH with authority over the site has adopted a new conservation philosophy: incomplete monuments are to be conserved but not reconstructed, and modern additions will be removed whenever they affect conservation.

Some major identified buildings, excavated or not, have been unaffected by reconstructions. This is the case with the outer city walls, the Northern Palace, the Esagila, several secondary temples, and the ziggurat. Additionally, excavations and reconstructions have focused on large public buildings leaving much to discover about residential neighborhoods, commercial and industrial quarters. It is noteworthy that ninety percent of the site is neither unexcavated nor rebuilt, a situation that presents remarkable opportunities to support the site's OUV through further conservation and research.

Part II. STATE OF PLAY

II.1 Site Description

Topographical Features

Situated on an alluvial plain, the important feature of the site's mostly flat topography is the Shatt al-Hillah which separates from the Euphrates River at the Hindiya Split approximately 30 kilometers upstream from Babylon, reuniting 70 kilometers downstream from the site. Once wide and meandering, the river is now regulated by levees and barrages for flood protection, irrigation, and municipal water requirements. The river's depth varies from 7 to 15 meters.

In addition to the Shatt al-Hillah, Babylon has several other bodies of water. North of the archaeological site boundary, an Ottoman-era irrigation canal now called the Babil River starts at the Shatt al-Hillah, cuts through eastern Babylon between the outer and inner-city walls and exits at the southeast corner towards adjacent farmland. Between these two water courses lay the manmade Lakes Saddam and Tammuz, dug during the 1980s and connected by the Hawliyah (circumferential) Canal. A seasonal, shallow body of water known as Lake Nissan is connected to the Babil River irrigation canal.

Between the Shatt al-Hillah and the Hawliyah Canal's east end, an undulating landscape of archaeological mounds culminates at Amran Hill (49.6 meters above sea level). The site's other high point, also an archaeological mound, is the Summer Palace (50.9 meters above sea level).

During the 1980s, then Iraqi dictator Saddam Hussein built three artificial hills, conical with flat tops (30 meters high and 300 meters diameter), in triangular formation and 2.5 kilometers apart. Mount Nissan is located inside the southeast corner of the site; Mount Saddam between the Shatt al-Hillah and Southern Palace; and Mount Tammuz outside the southern edge of the Neo-Babylonian outer walls. These hills were purportedly intended as stations of a suspended telepherique transport system to carry visitors over the site. Saddam Hussein's former palace on Mount Saddam is the only visible building on the three hills.

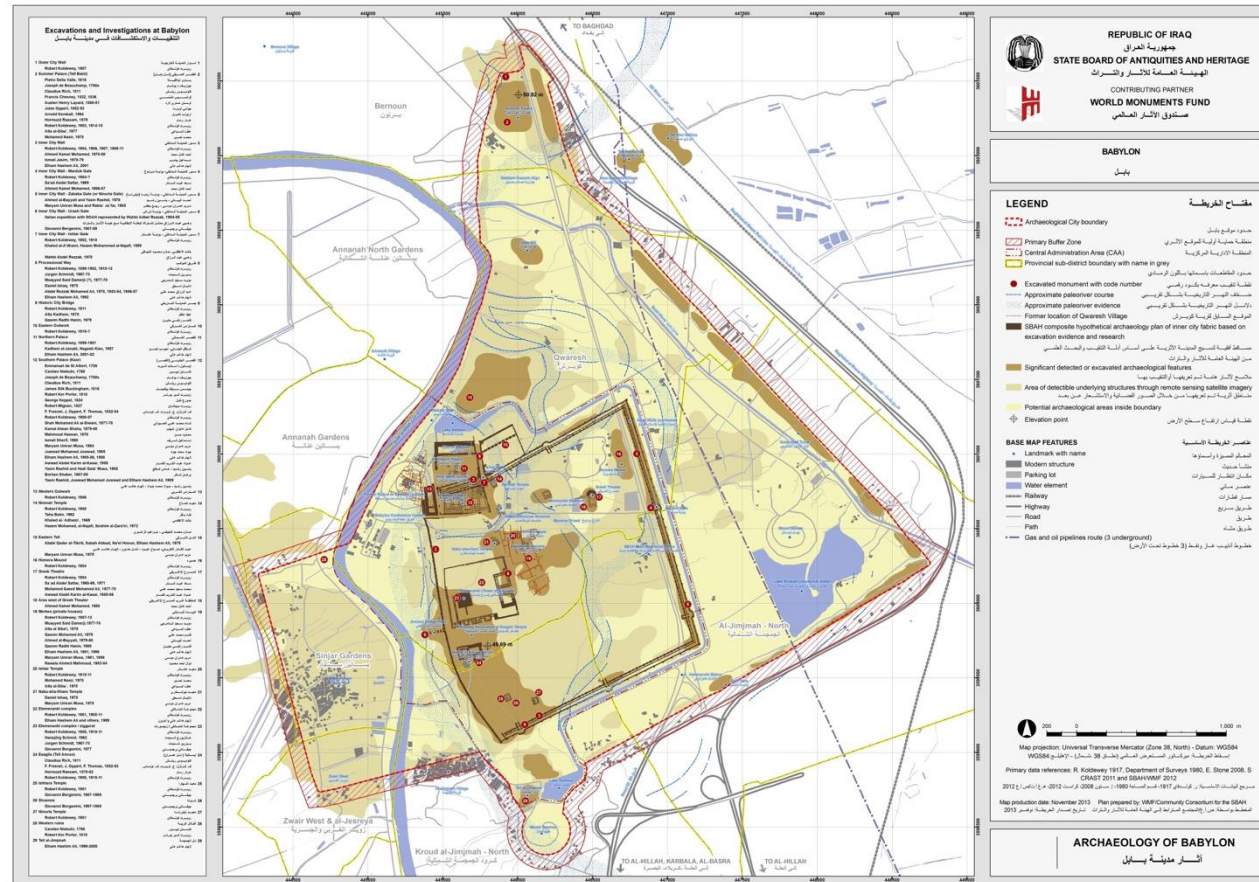
The villages of Annanah and Sinjar on the west bank of the Shatt al-Hillah, al-Jimjmah on the east bank, New Kweiresh (corresponding to the modern-day al-Intisar Village) to the northeast, and Bernoun to the northwest, all lie within Babylon's administrative purview and are prominent land features.

Archaeology

The property's visible archaeological remains date mostly from the Neo-Babylonian period (626-539 BC) and include portions of temples,

palaces, fortification walls, monumental gateways as well as the remains of the ziggurat Etemenanki. The urban plan of the ancient city was arranged around a spine through the city, running north-south, and known as the Processional Way. Unexcavated areas form the majority of the property and encompass traces of ancient interactions with the natural environment (i.e. irrigation canals diverting water from the Euphrates).

Archaeology of Babylon



Historic structures include:

Outer City Walls

Nebuchadnezzar's easternmost city of Babylon was surrounded with a great wall built during his reign. The outer wall, including the quay walls, has a length of 10.5 kilometers. Remains of this wall can be seen starting from the Northern Palace, passing the Summer Palace and continuing to the southeast for a distance of four kilometers. It continues to the west at a right angle, three kilometers to the east bank of the Euphrates, which divides the city into two halves. The Outer City Walls consist of three walls in total. Outside of these fortifications was the 80-meter moat. A 2.5 kilometer section of the wall along the river was completely demolished by brick miners during the nineteenth century. No conservation has been conducted at the Outer City Walls.

Inner City Walls

Babylon was world famous for its defensive fortifications of the city. They so impressed visitors that the walls were considered one of the Wonders of the World. The city wall, also called the inner wall, surrounded the city from all sides with the Euphrates flowing in the middle dividing the city in two parts. These city walls may date back to late Old Babylonian times some 1600 BC, but the present constructions are late Neo-Assyrian, later rebuilt by Nabopolassar and Nebuchadnezzar II, who ruled from 605 to 562 BC. The wall around the city has a length of 8 kilometers with an additional series of quay walls, all 2 kilometers long, on the east side of the old river (the west side have never been excavated). The wall consists of two mudbrick walls and a double quay wall of baked brick bordering an 80-meter wide moat. The innermost mudbrick wall has a width of 6.50 meter and the second mudbrick wall has a width of 3.70 meter. They had large and small towers at distances of 10-18 meter and were separated by a distance of 7.20 meters. Outside these walls was a heavy double quay wall of baked brick with towers making the whole wall area 40 meter wide. Outside the quay wall was the 80-meter-wide moat giving a width to the fortification of 120 meters around the city. A section of this wall is preserved as a partition wall between the northern palace and the main palace. Another section was partially excavated in the northeast, north of the Gate of Marduk. It was partially reconstructed on the ruins and foundations of the original wall of a length of about 60 meters and a width of 7 meters, in original materials but while the upper layers in the north and the south were built with modern material. Large parts of the western side later collapsed due to natural factors. The eastern side of the Inner City Walls form a chain of about 1,650 meters long. The northernmost part of this section contains 240 meters of original remains, which are visible *in situ*.

In 2012, in collaboration with World Monuments Fund (WMF), the SBAH conducted conservation in one part of the Inner City Wall, specifically, the portion west of Ishtar Gate. The works included: drawing and documenting the wall related to the current groundwater levels, reinforcing parts of the wall, cleaning the wall's roofs and filling cracks with tar to prevent rainwater leak, and covering one part of the wall to protect it from factors of erosion and rain.

Ishtar Gate

The largest and most lavish gate into the northernmost section of the inner city, the Ishtar Gate marks a significant portion of the Processional Way. The gate connected the Northern Palace with the sanctuary of Marduk (the Esagila Temple in the heart of Babylon) and Etemenanki. The procession of the gods passed through the Ishtar Gate during New Year celebrations. Approximately 50 meters long from end gate-to-end gate, the Ishtar Gate is made of unglazed brick featuring various low-relief animals such as Mushkhushshu, a dragon-like creature, the animal of Marduk, as well as the god Adad, the bull. These animals, along with the relief lions decorating the Processional Way, protected the city. Each side of the gate consists of nineteen, 12-meter high, wall sections decorated with the low-relief protective animals. A number of bricks are sealed with cuneiform inscription referring to the reign of King Nebuchadnezzar II. Bound with tar, and still intact as of today, the gate has few interventions apart from the 1980s brick courses and concrete found in some places. Reference the Ishtar Gate is first seen in late Old Babylonian cuneiform texts ca. 1650 BC. Yet due to the massive rebuilding by Nebuchadnezzar II, the only dateable remains are from several reconstructions occurring during his reign. For example, Nebuchadnezzar removed the mudbrick gate but left some remains of Nabopolassar's quay wall in brick (unexposed) adjacent to the gate. Nebuchadnezzar also raised the levels of the Processional Way and the Ishtar Gate several times. This has been confirmed both by excavation and cuneiform texts. Two levels, one of them with a well-preserved street level, can be seen at the gate and further to the north along the Processional Way. Remains of two higher street levels from Nebuchadnezzar also exist with finer elaborations of the animal reliefs. The uppermost level even had a façade of blue glazed brick with the animals in glazed relief. This uppermost gate building was taken away long before excavation by brick miners but the Deutsche Orient-Gesellschaft (DOG), between 1899-1917, collected huge amount of glazed brick fragments, which they used together with modern glazed brick for the reconstructed gate in Vorderasiatisches Museum in Berlin. The Ishtar Gate represents a highpoint in architecture and technical accomplishment for the culmination of Babylonian art. Today, we see the *in situ* portion of the first phase of the Ishtar Gate. In front of and inside the Ishtar Gate, there were in ancient time statues standing on pedestals. Most of these supports were square but one was cylindrical. The cylinder belonging to higher street level now stands well preserved and a recently conserved landmark in front of the Ishtar Gate.

Conservation works at the Ishtar Gate began in 1938 when SOAH (State Organization of Antiquities and Heritage) filled cracks within the gate. In 1958, work continued on low-relief mythic animals. In 1975, several towers were filled with modern bricks and cement. In addition, storm water drainage elements were constructed. In 1978, work included conserving and restoring the eroded parts of the gate's base, reinforcing its foundations and insulating them from salts. In the 1980s, the gate's roofs were covered with old bricks, bound by cement, the floor was also covered in cement. Two modern tanks, the former to the southeast and the later to the north west of the gate, were installed for rainwater harvesting. After 2009, in the aftermath of Coalition Forces' departure, the SBAH signed a participatory contract with WMF to conduct significant conservation work at the monument. In 2012, the work started and included: extensive condition and climatic studies, full documentation by using 3D laser scanning. In addition, measures were taken to improve capillary action, vaporization and treatment of humidity beneath the walls, alter the topography of the ground around the gate to ensure the flow of rainwater away from the walls, construct buffers on the gate's surface to stop the flow of rainwater into the walls, along with specific crack monitoring and climatic.

Marduk Gate

The principal gate into the easternmost section of the inner city, the Marduk Gate is named the city's patron deity. Like all of the city's major gates, it lies at the end of a wide, straight road running to the ancient city's center. Unlike the Ishtar Gate, Marduk Gate is smaller and not lavishly decorated. Excavated in 1914 by the DOG, the Marduk Gate was rebuilt in 1978 with modern, fired bricks and cement mortar laid on the mudbrick foundations of the Neo-Babylonian structure. The ancient flooring was destroyed and replaced with a steel rebar and concrete covered with cement tiles. The current height of the gate is 13 meters. The gate is separated by 5.5-meter-wide corridor and walls adjacent to the gate towers rise about 6 meters high. Although a reconstruction, the Marduk Gate remains *in situ*.

Southern Palace

The largest of Babylon's palaces, the Southern Palace contained some five hundred rooms arranged around five large and 50 smaller courtyards. In the third court, three doors located on the southern side give access to the Throne Hall. Decorated by a series of glazed panels depicting lions, palmettes, and flower motifs, this hall was built by Nebuchadnezzar II of brick with bitumen mortar. It is located above the previous palace of Nabopolassar and was the principle royal residence throughout the Neo-Babylonian and Achaemenid periods and was probably used by Alexander the Great. Robert Koldewey as part of the DOG excavated here and proposed the northeastern portion of the palace as the site of the Hanging Gardens. Alternatively, a large archive with hundreds of cuneiform clay tablets found in the basement of this building suggest it was a center for large-scale food distribution. Outside the west wall of the palace was an *apadana* (columned hall) of the Achaemenid period. Glazed brick fragments, found elsewhere in the palace, are also common to this period. Additional excavations were conducted by Iraqi archaeologists in the mid-1980s with the aim of rebuilding large parts of one level of Nebuchadnezzar's palace. The excavation plans of Koldewey were used for palace reconstructions undertaken during the 1980s. In this respect, reconstructed walls were placed on the remains of the original walls.

Northern Palace

Built by Nebuchadnezzar II, the Northern Palace lies north of the Southern Palace, with the two structures separated by the Inner City Walls. A large archive with more than 1000 cuneiform tablets was excavated by Koldewey here. The tablets dealt with the property of the Persian governor residing in the palace before destruction by a large fire around 400 BC. The palace also contained the so-called 'museum of ancient artifacts' and spoils from Hittite and Aramaic kingdom collected by the Neo-Babylonian kings, including royal stelae. Like the nearby Southern Palace, the Northern Palace was arranged around a series of square-shaped courtyards with a double-throne room. This palace exists as an exposed brick ruin after its early-twentieth century excavation by the DOG. Intact lime of Babylonian Era can be found at this palace as well as layers of tar mortar. The Northern Palace is not restored and retains a high level of integrity within the site.

The Lion of Babylon

Thought to be from the royal museum of Nebuchadnezzar II, this basalt sculpture is one of the few elements of site not *in situ*. Today, the lion stands on a brick and rubble base started by Claudius Rich and added to during mid-twentieth-century excavations, its surface is covered with decorative concrete renders. The statue is a feature of the present archaeological city of Babylon, it is 2 meters long and 185 centimeters high

and was found by local villagers on the year 1776 in the ruins of northern palace.

Summer Palace

Built during the Neo-Babylonian period and added to in the Achaemenid, Seleucid, and Islamic periods, the Summer Palace was known as such because it employed ventilation shafts. The ruins of the palace are located north of the site's centre, atop a natural mound known locally as Jebel Babil. Since the mound was named for the ancient city, European travellers typically thought it was the ruins of the Etemenanki. The palace has a square footprint of 250 x 250 meters consisting of a number of rooms of different sizes. According to cuneiform inscriptions on bricks bearing the stamp of King Nebuchadnezzar II, the building had a defensive role. This is confirmed by the quality of its building material and technique: solid baked bricks sealed by asphalt mortar. British author and politician, Austen Henry Layard made a preliminary exploration of the mound in 1850 but decided that excavating it would be too complex and costly. The DOG was more successful, revealing the Summer Palace's foundations and substructure. Although subject to centuries of exposure, erosion, brick removal and artifact looting, the ruined palace, at 18 meters above the surrounding terrain, is an affecting archaeological monument. Today, the original bricks and palm matting can be seen *in situ*. In this respect, the Summer Palace retains a high integrity.

Ishtar Temple

The Ishtar Temple lies within the holy compound (Ka-dingir-ra) to the East of the Nabu sha khare Temple and was one of Babylon's major shrines with Ishtar of Agade figuring prominently in the Babylonian pantheon. Like the Ninmakh and Nabu sha khare temples, the Ishtar temple follows a classical Babylonian broad-cella floor plan, but it is also known to have been rebuilt at least three times. The temple was one of several areas on site where significant cuneiform archives were found. Dedicated to the main deity of the city, the goddess Ishtar, this temple lies in the Sacred Complex and is a rectangular building (37 x 31 meters) of unbaked bricks composed of a courtyard surrounded by 22 rooms. The clay is used in building to stick the bricks together. It was originally built under Nabopolassar and then rebuilt twice, once under Nebuchadnezzar II, and the second under Nabonidus (556-539 BC). The three levels were uncovered during excavations by Koldewey. Like the Ninmah and Nabu sha khare temples, the Ishtar temple follows a classical Babylonian broad-cella floor plan. The temple was one of several areas on site where significant cuneiform archives were found. During the late 1970s under the Revival of Babylon project, Iraqi archaeologists constructed walls on original foundations to reconstruct the temple. Today, Ishtar Temple contains a courtyard surrounded by 22 rooms roofed with palm tree trunks, reeds and baked bricks. The temple walls overlooking the courtyard contain buttresses, recesses, and multipurpose rooms. In the temple yard, a well-used for ablution, is found.

In 2011, WMF has worked with Iraq's State Board of Antiquities and Heritage to conserve this temple through general cleaning campaign (removing debris and remains of ancient habitation out of the temple of Ishtar and the surrounded zone). Conservation work addressed immediate needs such as inserting wooden clamps and scaffolding to support the walls and provide better protection against the risk of collapse.

Ninmakh Temple

Located near the Ishtar Gate and constructed under Nebuchadnezzar II, *E-mah*, temple of the mother goddess Ninmakh, follows the traditional Babylonian temple plan: a central courtyard with a well and a *cella* (inner chamber) with a niche for the statue of the goddess. Many clay tablets describing the construction of the temple were found here. It is associated with the angels Harut and Marut, mentioned in the Quran as having revealed hidden (i.e. magical) knowledge at Babylon. Ninmakh Temple is mostly intact and is made of brick. This building contains a unique structural element—a *kisu*—an earthen retaining wall dating to the reign of Assyrian King Ashurbanipal (668-627 BC). Discovered during nineteenth century by British excavations and later investigations by German archaeologists, the temple contained a quantity of cuneiform tablets bearing information about the building. Conservation began in 1958 by the SBAH and included the beginning of a full reconstruction in 1968. In the 1970s, conservation works focused on rebuilding the cracked walls. The roof of the temple was also reconstructed during this time. Within this project, modern bricks, cement material, and fermented clay were used. In 1993, the concrete roof was replaced with roof reed mats.

In 2011, the SBAH worked with WMF to prepare a study to assess damages at the temple.

Nabu sha khare Temple

Nabu, the god of writing and scholarship and the son of Marduk, Babylon's patron deity, had a temple, located between Etemenanki and the city's royal palaces, dedicated to him at Babylon. This was the place where kings received the royal sceptre as part of their investiture. The temple (whose official Sumerian name, *Egidrikalamasuma*, means 'house that confers the scepter to the country') contained many cuneiform school tablets. Made of mudbrick, this temple is one of the most architecturally sophisticated of any other known Babylonian temples and is located in the sacred area to the west of the Processional Way. One of the most important temples at the site, the building is adorned with intact Babylonian era rectangles, vertical and horizontal bars that revolve around its facades and entrances with black and white colors. King Nebuchadnezzar mentioned that it was rebuilt four times. The temple is a rectangular building with two entrances, the main in the east and another in the north. The temple has one *cella* for Nabu, the god of writing. Another *cella* may have been for his consort Tashmetum. The walls of the preserved temple were originally made of unbaked mudbrick and clay mortar with reed mats between every seventh or ninth row of bricks. Between 1979–1980, SOAH excavations directed by Danial Ishaq revealed the lower portions of a mud-brick wall up to four meters high dating either to the late-Assyrian period (Esarhaddon, 680–669 BC) or the early years of Nebuchadnezzar's reign. Substantial quantities of original plaster and painted surfaces were preserved in the courtyards, probably thanks to its infill by Nebuchadnezzar as part of work to raise the level of the Processional Way. The preservation of such a large portion of lower wall distinguishes the building among temples at Babylon. The preservation is partly due to the fact that it was constructed under Assyrian rule using unbaked mudbricks, which were less desirable to brick-diggers than the baked Nebuchadnezzar bricks found in much of the site. The site was also built over and later used as the foundation for further construction. In its current form the temple is the result of a reconstruction performed in the early 1980s using modern baked bricks and cement bricks as well as traditional materials and treatments. The surface was slightly elevated to achieve a drainage slope that directs water away.

In 2011-2012, the SBAH in close cooperation with WMF undertook an extensive condition assessment with recommendations for future conservation efforts by the SBAH.

Esagila Temple

Like other Mesopotamian cities, Babylon was filled with temples and shrines. Yet, by the end of the second millennium BC the city had acquired a special religious status. Marduk rose to the head of the Babylonian pantheon and his temple, Esagila ('house whose top is high') was the most important in the city and one of the great shrines of the ancient Near East. Esagila, seat of Marduk and his consort Zarpanitu, contained a large shrine to their son Nabu, patron deity of Borsippa, as well as smaller shrines to other gods. This region was continuously inhabited as evidenced by the Hellenistic Period remains and the Islamic shrine of Amran Bin Ali. The statue of Marduk resided here and had its own eventful history. Looted by Elamite invaders, recovered by Nebuchadnezzar I, stolen, perhaps destroyed, and replaced by the Assyrians, this most sacred of icons was repeatedly involved in the power politics of the day. Koldewey's floor plan shows the probable location of Marduk's sanctuary, which the builder of the temple, Nebuchadnezzar II, claimed to have covered with gold, 'that it might shine like the sun.' Seen as a square-shaped hole today, the extant temple is what remains of the excavations carried out by Robert Koldewey and the DOG. Beneath the hill of Amran Bin Ali, these remains are of a building complex. Koldewey's plans show a square-shaped building with a length of 78.3 meters and a western facade of 85.8 meters. It consists of a 31.3-meter long, 37.6-meter wide courtyard surrounded by a number of chambers. The temple was built of unglazed bricks and its floor was covered with unbaked bricks, with walls of white plaster.

Shrine of Amran Bin Ali

The tomb and shrine of Amran Bin Ali, a son of Imam Ali bin Abi Talib (600-661 CE), sits atop Amran Hill south of the main Babylon reconstructions. Although it is not a principle Shi'a pilgrimage destination, Amran Bin Ali receives a number of visitors. The tomb lies beneath an Ottoman-era shrine and is accessed by a flight of recycled-brick stairs descending into the mound. While fighting beside his father, Amran was mortally wounded in the battle of al-Nahrawan in CE 658 (38AH). Two of his companions also died as Imam Ali's army moved toward Babylon and are buried in the shrine. According to some traditions, Imam Ali chose the site of his son's tomb for its height and historical importance. Seven Ottoman sheikhs were buried in proximity. The tomb of Amran Bin Ali is associated with miraculous healing. Water from the courtyard well, purportedly 27 meters deep, is said to cure infertility, skin diseases and headaches. A buckthorn tree, known for its medicinal purposes, was planted near the well. Portions of the shrine date to different periods; the oldest is the archaeological tell on which the shrine rests and that supplied some of the materials used in the shrine's construction. The central shrine, a double-domed structure, possibly dates to the eighteenth century. In the twentieth century a walled courtyard and new ancillary structures enclosed the shrine. Following 2003, several modern structures were added to the shrine atop archaeological layers.

Ninurta Temple

The foundations were uncovered by the DOG located in the south of the city. The ground plan of the temple consists of a central courtyard surrounded by a group of chambers. Due to natural conditions, these remains have been mostly buried except a small portion of a mudbrick wall resulting in a group of mounds surrounding the excavation pit. Pottery sherds dated to the Hellenistic, Sassanid and Islamic periods are scattered throughout.

Z- Temple

Excavated by DOG, this temple is located in the southern part of the city and to the west of the temple of Nene. The ground plan consists of two parts with three courtyards surrounded by a group of chambers and corridors. The walls of the temple were constructed of unbaked bricks while the *kisu* surrounding the temple was built with bricks. Pottery sherds scattered on the surface of the mound, some colored, date to subsequent settlement periods.

Gula Temple

Located in the southern part of the city, 200 meters to the south-east of the shrine of Amran Bin Ali, the remnants of this temple were eroded during the work of the DOG and became merely mounds of dust where pottery sherds are scattered.

Processional Way

A spine running north-south through the innermost section of the city, the Processional Way organized the secular and non-secular, public and private, royal and rural areas of the city. *In situ* features of this area include the brick and tar street paving dating to Nebuchadnezzar II. This important thoroughfare measured 440 meters long and 6-8 meters wide. During the New Year festival, the Processional Way served as a space where the gods, the king, and his court walked from Bit Akitu (the house of the New Year), through the heart of the city, to the complex of Marduk (Etemenanki and Esagila). At the time, glazed brick lions in low-relief decorated a section of the lower parts of the building walls flanking the Processional Way. The Processional Way was originally excavated by the DOG and the flanking lions were removed and are now located in the Vorderasiatisches Museum (Berlin). In 1958, cleaning works were conducted on the street, towers and facades. Additional excavation and conservation interventions were also initiated during this time. The original baked brick covered with bitumen paving of the Processional Way can be seen today protected by a chain-link rope and flanked by reconstructed Northern Palace walls made by the SBAH during the 1970s/80s.

Greek Theater

Theatres and gymnasia were essential elements of the Hellenistic city. The theatre and adjoining gymnasium at Babylon were built during the Seleucid period (perhaps under Alexander), and the theatre was rebuilt during the Parthian period. Using the ancient site plan, a new theatre complex was built in stages starting in the early 1970s. The first work phase recreated the courtyard, lower seating areas, and modern amenities in the wings. This was to provide facilities for culture and arts as well as a small Alexander the Great museum for displaying antiquities dated after the Neo-Babylonian period. In the mid-1980s, in preparation of the Babylon Festival, a second phase

enlarged the seating by adding an upper level viewing box for Saddam Hussein. The scant original masonry was subsumed and left under the reconstruction. Modern fired bricks, cement and steel rebar were used throughout.

Etemenanki, the Ziggurat of Babylon

Etemenanki ('foundation platform of heaven and earth') was one of the largest ziggurats in ancient Mesopotamia. It is cited in ancient Greek accounts as the Temple of Belus, and in the Bible as the Tower of Babel. Its imposing footprint (91 metres by 91 meters) is recorded in Babylonian texts and has been confirmed archaeologically. At a height of around 91 meters, the ziggurat towered over the city and surrounding plains. The temple at the top of was probably covered in the same blue-glazed bricks as the Ishtar Gate. In antiquity, few had access to the temple where secret rituals took place. No records of these rites survive, only speculative descriptions in classical sources. The structure was augmented, partially demolished and rebuilt on several occasions. Sennacherib made a point of razing it along with the rest of Babylon. His son Esarhaddon and grandsons Ashurbanipal and Shamash-shuma-ukin began a reconstruction that was halted by the civil war between the two brothers. The ziggurat was a major feature of Nebuchadnezzar's building program. Ironically, little of the structure survives partly due to the high-quality baked bricks he used. As elsewhere, these bricks were systematically extracted and recycled for new construction over centuries. Nebuchadnezzar's structure survived into the Persian period, until a rebellion in Babylon provoked its destruction by Xerxes. Alexander the Great famously intended to restore Etemenanki but died having succeeded only in clearing the mountain of rubble left by Xerxes' demolition, a feat that was said to have involved ten thousand laborers for two months. A Sasanian fort was later built on the ziggurat's ruins. Throughout subsequent centuries it was mined for reusable brick particularly for the outer surface of the ziggurat. German excavations in the 1960s recovered the base of the ziggurat's outer surface and their trenches now form a moat around the unbaked mud brick heap. The site is currently inaccessible to visitors.

Babylonian Houses

Early excavations in Iraq and elsewhere generally overlooked domestic architecture, but their importance to archaeologists became clear as the discipline evolved. The DOG identified street and building plans and traced the *merkes* (center) including a large residential area. In the 1980s, SOAH excavated three Babylonian Houses, as well as a smaller temple between Nabu sha khare and Ishtar temples, as part of this residential area. These were reconstructed based on their association with the major nearby temples and the original earthen building foundations to show examples of traditional priest and temple caretaker houses from the period. They also completed the line of buildings stretching from Nabu sha khare to Ishtar temples. A fifth house lies behind the Hammurabi Museum and a second house is located to the west of the Greek Theater.

Ancient Bridge Piers

Koldewey's workers unearthed several piers of a bridge that once spanned the Shatt al-Hillah linking Babylon's western and eastern quarters. Baked bricks used in the piers were unstamped, but Koldewey thought the bridge dated to either Nabopolassar's reign or the early period of Nebuchadnezzar. It is possible that this is the 'stone' bridge referred to in classical sources. The bridge was re-excavated

in the 1970s and again in the 1990s, when an asphalt road and utility lines were installed to serve the Babylon Conference Center. Seven pillars were discovered having a length 163 meters and measuring 21 meters wide. Nine meters separated each pillar.

Unexcavated Areas

A majority of the nominated property is unexcavated. Most of these areas are on the southern part near the Esagila Temple as well as wide expanses of the northern parts where only the Summer Palace has been excavated.

Modern Structures

The Iraqi Government built site administration facilities at the site during the 1950s-1960s. Support buildings were added to the visitor areas near the Southern Palace and Processional Way during this time. In the 1980s, clusters of buildings were added to the central archaeological zone to serve the Revival of Babylon Project and accompanying festivals. Furthermore, there are several privately-owned buildings in the southwest corner of the core of the site.

The Nebuchadnezzar Museum and its Surroundings

Built in 1951, the Babylon Site Museum, renamed the Nebuchadnezzar Museum, was the first modern construction addressing visitors' interests and needs. A half-scale replica of the north face of Ishtar Gate was added in 1954 along with a picnic ground and garden as well as a fountain sculpture featuring a copy of Hammurabi's Code of Law. Together these served as early visitor facilities.

The two-story Babylon Casino was built in front of the blue gate in 1970, with a restaurant, nightclub, and expanded parking area. Constructed in the 1960s, the excavation house behind the museum was enlarged in 1980 in preparation for the Revival of Babylon Project. Several SBAH staff lived there until 2003. A small guesthouse was built behind the casino and to house site guards another cluster of buildings in a former picnic garden.

Hammurabi Museum

Built in 1973 to house artifacts from the Old Babylonian period, the Hammurabi Museum stands alone, midway between the reconstructed Greek Theatre and the Nebuchadnezzar Museum. Within the new site development plan, this building is being turned into a Visitor Center. Its rehabilitation was completed in 2018 but still has to be furnished.

Babylon Conference Center

This cluster of modern facilities, built to provide services for Saddam Hussein's palace and the Babylon Festival, is on the Shatt al-Hillah's east bank.

Former Palace of Saddam Hussein

Saddam Hussein chose a site adjacent to Nebuchadnezzar's ancient palaces and overlooking the Shatt al-Hillah for this grandiose residence, built in the late 1980s. The village of Old Kweiresh was demolished and replaced by an artificial mound to elevate the palace. The man-made Lake Saddam and utilities buildings were also added. There are no architectural drawings but the palace's floor space is estimated at 67,000 square meters. Palace decorations evoke Babylon's past; murals depict scenes from ancient Babylon and Ur, the date palm motif from Nebuchadnezzar's palace is replicated in many rooms and bas-reliefs above doorways portray Saddam Hussein commanding his armies like the ancient royals. On the ground floor a marble-clad throne room overlooks the Shatt al-Hillah.

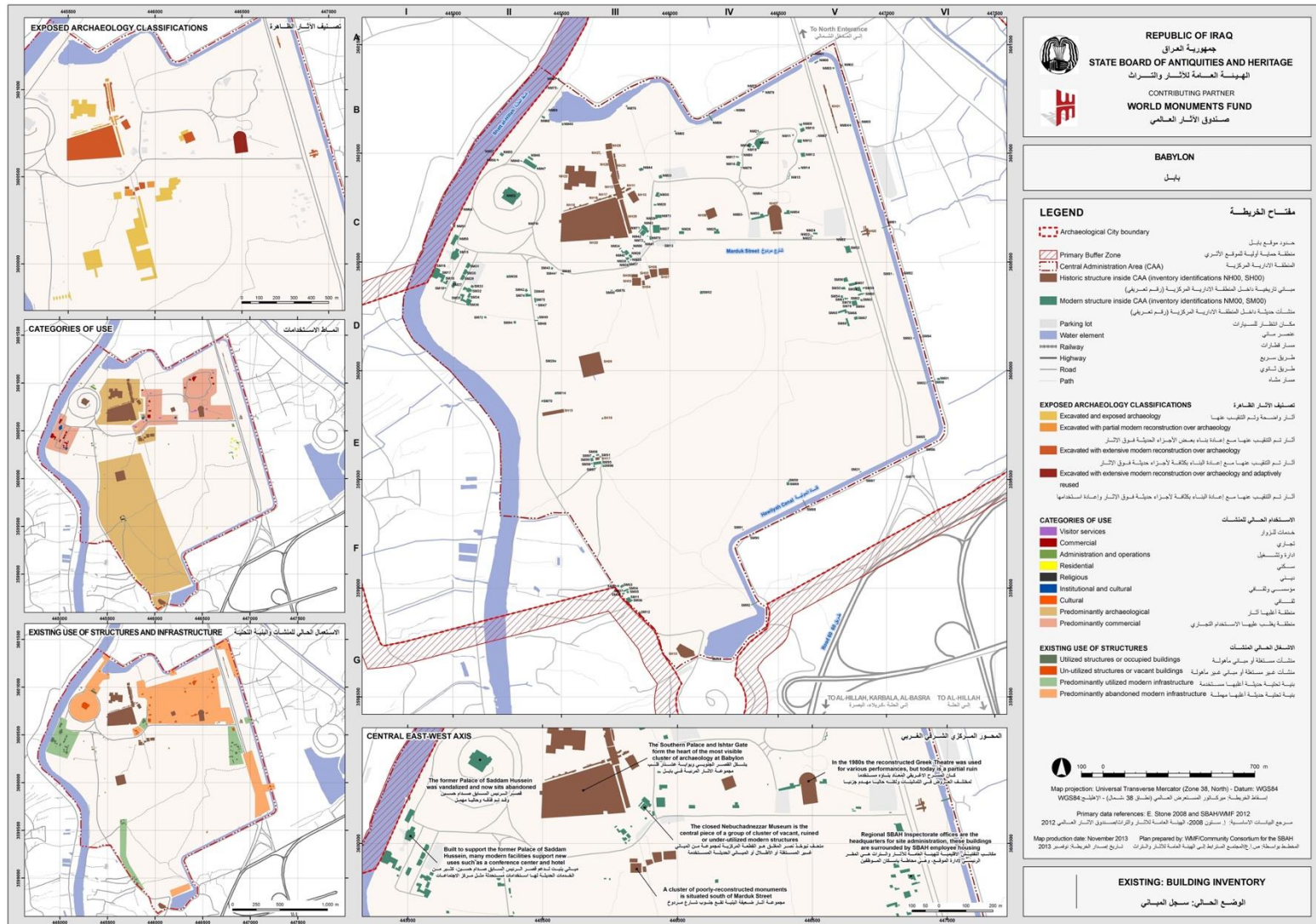
Tourist Village

Located behind the Greek Theatre this cluster of buildings was designed for visitors. During the Babylon Festival, services included two restaurants, a bar, shopping bazaar, laundromat, and bathrooms.

SBAH Provincial Inspectorate Headquarters

The Babil Inspectorate offices were built in a fenced garden compound in the 1960s and its courtyards later enlarged and enclosed. Over the years additional housing was added, including four semi-attached units. A police station was erected to the north and later used as a temporary artifact storage magazine. The Inspectorate still operates from these buildings, with the recently partially refurbished Babil Inspectorate offices at the center. Several SBAH staff and their families reside in subsidized housing in this area.

Building Inventory



II.2 State of Conservation

Most of the buildings in Babylon, as elsewhere in Mesopotamia, were of unbaked mudbrick with mud as mortar and plaster. Baked brick with asphalt as mortar was used for all construction in contact with water. During the reign of Nebuchadnezzar II there was a marked increase in the use of high-quality baked brick. Many of the official buildings were constructed by such baked brick with asphalt as mortar. Later in the reign of Nebuchadnezzar, lime mortar replaced asphalt but was only used for many upper parts of buildings, specifically those not in direct contact with water. High-quality baked bricks were later removed by brick miners and reused throughout the area.

Conservation and restoration works at Babylon started in the 1930s and were conducted intermittently until 1978 when the Revival of Babylon Project and International Babylon Festival started. In the 1980s, a program of excavations was accompanied by major reconstructions. Some used original mud-bricks found on site together with mud plaster. However, in several other cases, modern bricks and cement was utilized. A series of major buildings were reconstructed on the original plans and, in most cases, on top of original walls that reached a height of up to 3 m. Recent surveys estimate that, on average, reconstructed buildings encompass thirty percent of original archaeological material. The latter can be distinguished from modern additions.

The site's archaeological buildings are generally incomplete due to natural and man-made factors, from erosion to removal of building material. Those that have been the object of restoration and reconstruction during the twentieth century. Several conservation issues affect the property (see following section) and addressing them is a priority of the management plan.

Outer City Walls

Excavated by the German mission in the early twentieth-century, there were not attempts at conserving them. They were breached in the 1920s when the north-south Baghdad Railway line was laid through Babylon. The railway was later rerouted but gaps in the wall are still visible at the north and south ends of the archaeological site. As a result of the Baghdad-al-Basra highway's 1981 redevelopment, larger sections of the inner-city wall parallel to the rail line were demolished, and the gaps where it penetrated the outer wall were widened. The road and railway were subsequently re-routed around Babylon but the damage remains.

Inner City Wall

Parts of the visible mounds were excavated by the German archaeological mission. Starting in 1978, there were several rebuilding attempts on the rubble and foundations of the original wall trace. This partially reconstructed wall, 60 meters long and seven meters wide, uses unbaked materials while the upper layers at the north and south are of modern, filled and half-filled brick resting on a layer of vegetable matting.

In 2012, in collaboration with WMF, SBAH conducted conservation works on one section of the wall to the west of Ishtar Gate. The work included:

- Detailed drawing and documentation with all sketches and database related to the current groundwater levels.
- Reinforcement of cracks and weak areas.
- Demolishing remnants of the recent military occupation of this site.
- Filling up holes caused by erosion using bricks.
- Cleaning the wall's roofs and filling cracks with tar to prevent rainwater damage.
- Covering one part of the wall to protect it from erosion and rain.
- Installation of wooden shoring.

Ishtar Gate

Restoration started in 1938 when the Iraqi archaeological authority filled cracks in the gate. In 1958, other restoration works were carried on a part of the mythical animals beneath the western side of the gate. In 1975, conservation works on several towers in the gate were made after being filled with bricks and cement and paved. Rainwater was discharged by outer sewage outlets. Works also included six towers and continued to fill gaps in other towers. Excavation and analysis works were conducted by lifting debris and dust, filling the gate on the side opposite to Ninmakh Temple. The proposed plan also included conserving and restoring the eroded parts of the gate's base, reinforcing its foundations and insulating it from salts. In the 1980s, some parts of the gate's roofs were covered with old bricks bound by cement. The floor was covered with concrete adjacent to walls' facades on both sides. Two modern tanks were added for rainwater harvesting.

After 2009, the gate received great attention by SBAH and WMF. Several preliminary studies were conducted and execution started in 2012. The work has consisted, to date, of the following:

- Full documentation with a 3D laser scan.
- Complete cleaning and eliminating of bushes, trees and plants.
- Reinforcement of unstable parts.
- Excavation to determine water table levels and wall material.
- Removed the concrete, moisture-keeping floor adjacent to walls. This process helps vaporization and treatment of humidity beneath the walls.
- Cleaned and conserved rainwater storages at the two corners of the gate.
- Altered the topography of the ground around the gate to ensure the flow of rainwater away from the walls.
- Constructed buffers on the gate's surface to stop the rainwater flowing into the walls.
- Controlled cracks in the gate's wall by using crack monitors which are continuously monitored.
- Continuous monitoring of humidity using weather station.
- Injected cracks with suitable material friendly to the original construction material.
- Filled joints between the bricks with a mixture specially prepared for this purpose, in accordance with internationally-recognized

specifications and standards.

- Conducted all necessary chemical analyzes of groundwater, soil and bricks to identify their components and the proportions of each element.
- Preserved the southern part of the gate with modern baked bricks with the original specifications.
- Covered the eastern part of the gate with geotextile to prevent further erosion.
- Installation of wooden scaffolding and construction of supporting walls.

The cylinder of baked brick located to the north of the Ishtar Gate entrance has undergone preliminary conservation in 2017. Basic cleaning of the structure was undertaken as well as the installation of wooden scaffolding and sandbags around the base. The base was further stabilized by injection and some reconstruction with original and modern bricks.

Marduk Gate

Excavated partly by Koldewey in 1914, then left exposed and decaying it was re-excavated by in 1973 by Sa'ad Abid al-Sattar. The SOAH rebuilt Marduk Gate in 1978 with modern, fired bricks and cement mortar laid adjacent to and on top of the mud-brick core of the Neo-Babylonian structure. Ancient flooring was covered or replaced with a steel rebar and concrete slab base covered with cement tiles. On the north and south ends, the gates' brickwork edges were 'combed' to prepare for the reconstruction of the adjoining inner city, however this work never occurred.

Southern Palace

In 1938, two arches in one of the palace's gates were reconstructed. In 1958, the building was cleaned from dust and rubble to the level of the arch floor and the old walls were restored by using old bricks and tar. In 1968, restoration works on the walls of the throne room were performed. Restoration and repair works were carried out in the 1970s, before the building was reconstructed in 1988.

For centuries baked bricks were removed from the Southern Palace to use in other buildings. By the time of the German excavations little of the palace proper remained except for its foundations and wall fragments. A floor plan was reconstructed based on the foundations and some aboveground traces (fragments of glazed brick decoration in the throne room and central courtyard) discovered by Koldewey's team.

Starting in 1978 the palace was extensively excavated, and in the mid-1980s it was the target of Saddam Hussein's most ambitious reconstructions. As elsewhere, these were executed hastily directly on top of the original structures and largely following Koldewey's floor plans. Later phases used modern, fired bricks, some bearing Saddam Hussein's inscription, to emulate those stamped by Nebuchadnezzar and previous kings. The height of the walls after rebuilding is 13 meter with the original walls reaching 5 meters and distinguishable from the reconstructed parts. Except for the floor plans, the reconstruction probably bears little resemblance to the original

palace, but despite damage to the original structure, the building is stable thanks to a drainage system created during reconstructions of the 1980s.

Northern Palace

Brick thieves carted off most of the palace, leaving only the difficult-to-harvest bonded masonry masses which stand today. Following the German excavations, early Iraqi excavations begun in this palace in 1957. The palace was not reconstructed like the Southern Palace and is thus relatively untouched and *in situ*. In 1992 and 2002 the SOAH performed limited re-excavations to better present the site.

Summer Palace

Following the German excavations, Iraqi excavations and conservation work were performed in this palace in 1978. In part, they addressed the weathering affecting the foundations, substructures and architectural details left open by the DOG. The monument was, however, not reconstructed and no new conservation work has been undertaken since excavation.

Ishtar Temple

The German mission carried out large-scale excavations in this temple. In 1970, SOAH cleaned up the northwest corner of the temple to carry out field surveys and performed further excavations. After decades of exposure to the elements, a first phase of reconstruction on the original foundations was undertaken between 1978-89. Rooms have been reroofed with palm tree trunks, reeds and baked bricks in the 1980s by the SBAH.

Since 2011, SBAH and WMF have launched new conservation works through general cleaning (removing debris from the temple and the surrounding zone), inserting wooden clamps and scaffolding to support the eastern wall. Documentation and conservation plans were completed, and protective iron gates installed.

Ninmakh Temple

Following the German excavations, conservation was first performed by Iraqi archaeologists in 1958 beginning with excavations by Taha Baqir. As the first Babylon monument to be reconstructed starting in 1966, Ninmakh Temple served as a model for the later 1980s reconstructions. In 1986, parts of the temple were rebuilt using the modern bricks, joint cement material, and the outer walls were covered with fermented clay while the inner walls were covered with plaster and fermented clay. In 1993, the entire concrete roof was replaced with wood and reed mats after the northwest corner collapsed, weakened by excavations at Ishtar Gate in the 1980s.

In 2011, the SBAH and WMF undertook a damage assessment. On this basis, the first phase of conservation work began in 2018 by removing the clay and plaster from the 1986 restoration which had fallen from the walls, filling the cracks and reinforcing the ceiling.

Nabu sha khare Temple

Excavations lead by Danial Ishaq in 1970-80 were followed by conservation of the lower brick wall using modern bricks and moisture-proof cement mixed with asphalt, sand, and lime. Entrance arches were reconstructed with modern bricks and plaster. The building was also reroofed and felt was used as insulation material against rainwater while tree trunks coated with black oil and covered with mats and palms branches almost prevent water from entering the building. A layer of fermented clay mixed with straw, mats, felt, and a layer of soil were placed on top of the two. The topography was elevated slightly to direct water away. Finally, bricks were used for paving the surface of the temple. In 1987, the outer walls were raised and coated with fermented clay mixed with straw.

The temple's reconstruction as part of the Revival of Babylon Project was executed using inappropriate materials, and the building was not properly documented prior to the work. The southwest corner, weakened during excavation, was partially rebuilt and reburied to provide stability. This intervention encouraged moisture penetration. Within a few years, the temple began to disintegrate. Repairs made in the mid-1990s were inadequate and large sections of the lower original masonry and modern roof have collapsed. Incompatible modern wall plasters have caused the collapse of sections of original wall masonry and obliterated most traces of ancient decorations.

Beginning in 2011, the SBAH and WMF prepared a set of conservation guidelines; some of which have been implemented. These are:

- Cleaned and documented the temple.
- Sampled the original walls in order to study chemical composition.
- Installed geotextile to cover the original floorings (protection) and roof (to prevent further damage from rain).
- Inserted scaffolding in all rooms.
- Excavated to detect the depth of kisu walls surrounding the temple from the western and southern sides.
- Opened water canal from the southwestern side of the temple towards the northwestern side to drain rain water.

So far, approximately 400 square meters of modern backfill was re-excavated from around the building and the original courtyard paving tiles revealed. All interior spaces were braced pending development of a final conservation plan.

Processional Way

In 1958, following excavations by the DOG, part of the western side was conserved by filling gaps using original bricks and tar found on site. In 1979, new excavations uncovered an addition stretch of street to the west of Ishtar Temple. In 1986-1987 two large walls were built along the street. South of the restored sections, military vehicles damaged the ancient paving in 2003–2004.

Restoration started in 2018 by removing the metal fence lining the Processional Way on both sides.

Greek Theater

Using the ancient site plan, a new theatre complex was built in stages starting in the early 1970s. During the first phase, the courtyard, lower seating areas, and modern amenities were built. In the mid-1980s, a second phase enlarged the seating by adding an upper level and viewing box. Modern fired bricks, cement and steel rebar were used throughout.

The site was vandalized in 2003. The gymnasium area was set on fire destroying most of the portico and adjoining rooms, electrical and plumbing systems were stolen, and decorative marble cladding was stripped from the viewing box.

In 2017, SBAH started removing construction remains and undertook further work there in 2018.

Babylonian houses

The houses west of the Greek theater and west of the Ishtar Temple were rebuilt in the 1980s atop the ancient foundations using modern bricks, cement, and fermented mud. Aside from floor plans based on excavation records, there is little evidence from which to extrapolate accurate recreations.

Lion of Babylon

A layer of concrete was removed from the base of the lion and replaced with cement and iron reinforcing bars covered with small rock. A low, concrete lip was added to distinguish the ground level. Finally, a low, iron chain was added around the lion statue. All of these works were undertaken in the interest of further preserving the lion and discouraging visitors from climbing the statue.

No conservation work has ever been conducted at other excavated sites, namely the **outer walls, the Summer Palace, the bridge pillars, Esagila, Ninib and Z Temples, and the Ziggurat (Etemenanki).**

Although most of ancient Babylon lies underground, large excavated areas were left exposed to the elements, many dating to Koldewey's work, others to the Babylon Festival. Some of the exposed remains are overgrown and eroding lumps of earthen masonry. Larger excavated sites at Esagila Temple, the Northern Palace, and the Summer Palace feature larger remnants of fired and mud-brick structures.

These exposed brick elements present urgent conservation and documentation issues. Addressing them as part of the site management plan is a main concern and archaeological investigations are, for now, a secondary priority.

II.3 Site Documentation

Archives

The vast collection of cuneiform texts from Babylon housed at the National Museum of Iraq (Baghdad), the Vorderasiatisches Museum (Berlin) and the British Museum (London), comprise a scholarly resource whose potential has only begun to be explored. Significant ancient texts related to the city's history include Tin.tir=Babylon, a topographic compendium with detailed information on the city and its temples; descriptions of the New Year Festival and its ritual activities; a geographical treatise featuring the earliest known map of the world and a wealth of mathematical, astronomical, astrological and medical documents.

In the 1830s, Hormuzd Rassam's excavations to recover cuneiform texts for the British Museum produced the first large quantity of artefacts that left Babylon for the purpose of study. Robert Koldewey later excavated the largest corpus of material that now forms a major part of Vorderasiatisches Museum's collection.

Despite the scale of interventions in the late twentieth century, the largest concentrated archaeological and conservation implementation project in Iraq, documentation is nearly non-existent. Upheavals related to the collapse of the Saddam Hussein regime led to looting and destruction of most archival documentation related to SBAH activities at the site. The Babil Provincial Inspectorate and Babylon site offices were ransacked in the chaotic weeks between the retreat of forces backing Saddam Hussein and arrival of Coalition Forces. The lack of documentation poses challenges to new conservation activities.

The limited information now available includes a few blueprint drawings, project reports, and videos at the National Museum of Iraq (Baghdad). Some documentation exists concerning new constructions, mainly the Babylon Conference Center buildings, but as the presidential department, Saddam Hussein's diwan, was dissolved in 2003 these were transferred to the Ministry of Housing.

Results of Excavations and Scientific Research

Studies, reports, and plans, including those produced by foreign missions, are held by the SBAH at the Department of Studies and Research in Baghdad. Some of these reports are also available in digital format and an effort to expand the digitization of the collection is under way.

Furthermore, the SBAH keeps copies of results of the excavations conducted at Babylon and of scholarly research on the city which have been

published in monographs or scientific journals in Iraq and internationally.

Objects found in excavations are inventoried and deposited at the Iraqi National Museum in Baghdad. This is considered a standard practice of reporting and submitting finds to the National Iraqi Museum, as stipulated by the contract for archaeological excavations issued by the SBAH to archaeological missions

Building Inventory Database

At Babylon, ancient monuments that were completely reconstructed in the 1980s stand beside ruins exposed for more than a century and modern buildings in various stages of decay. The management plan required a comprehensive survey of existing building stock, ancient and modern (early twentieth century to present), and an assessment of all recent alterations to the site including those associated with roads, infrastructure, and the Camp Alpha military occupation. The building inventory is stored in a geographic information system (GIS) database using GIS software called *ArcView*, an internationally recognized geo-referencing tool that aids planning and formulating proposals. In the GIS database, structures are identified by an alphanumeric coding system and surveyed for a pre-defined set of variables, including construction date, condition, original, and present use. A summary of the building inventory information stored in ArcView appears in map 'Existing Building Inventory'.

II.4 Legal and Regulatory Frameworks Governing the Property

Analysis of the Legal and Regulatory Framework

An evaluation of the existing legal and regulatory framework was performed to:

- Assess the overall enabling environment for the protection, conservation, management, presentation, stakeholder participation and sustainability of the values of the property;
- Determine to what level the obligations to the World Heritage Convention are met and protection is enforced at the country level under existing legislations and regulations.

The review was conducted over legal and regulatory tools with a direct or indirect impact on the protection of cultural heritage, and specifically what is referred to under the Iraqi law as “antiquities and heritage.” These tools are:

- The Constitution of Iraq adopted on the 15th of October 2005;
- Law no. (45) of 2000, Organizing the Antiquities and Heritage Authority;

- Law no (55) of 2002, The Antiquity and Heritage Law;
- Law no. (13) of 2006, The Investment Law;
- Law no. (13) of 2012, The Ministry of Tourism and Antiquity Law;
- Law no. (19) of 2009, The Ministry of Planning Law;
- Law no. (27) of 2009, The Protection and Enhancement of the Environment Law;
- Governmental decrees and guidance.

These tools were reviewed in so far as they include specific provisions with regards to the following major themes:

- Legislative, regulatory and contractual measures for protection;
- Boundaries for effective protection and buffer zones;
- Adequate management systems for maintaining and enhancing the values of the property;
- Sustainable use of the site;
- Capacity building and research;
- Awareness raising and education;
- Promotion of cultural heritage.

These themes are considered primary areas requiring a proactive legislative framework to make sure that the values of the property are protected and sustained for the benefit of future generations.

Analysis of the Legal and Regulatory Framework

Criteria for Evaluation	Analysis
Legal, regulatory and contractual measures for protection	
Legal bases	- The Iraqi Constitution refers to “Antiquities, archaeological sites, cultural buildings, manuscripts and coins” as being “national treasures” under the “jurisdiction of the federal authorities” (Section 4, Article 113). - The law governing the protection, conservation and management of antiquities and heritage is the Antiquity and Heritage Law” (no. 55 of 2002); its objectives are mainly to conserve the antiquities and heritage, the national treasures of Iraq, and to uncover antiquities and heritage making them known to citizens and to the international community, thereby highlighting the singular role Iraqi culture has played in the development of human civilization (Article 1).

	- Furthermore, the objectives of the Antiquity and Heritage Law shall be achieved through the designation of sites, undertaking scientific excavations, the maintenance of antiquities as well as heritage and historic sites, the establishment of museums to provide access to antiquities and heritage, the production of models and heritage materials, the undertaking of studies and research, the organization of conferences and talks that showcase the antiquities of Iraq and its cultural heritage, featuring Iraqi Antiquity and heritage materials in foreign museums, forming archaeologists and heritage specialists and developing their capabilities through training courses, missions abroad and fellowships, and establishing survey teams in charge of the national survey and inventory of antiquities, heritage and buildings in Iraq (Article 2). - By Antiquities, it is understood: the “movable and fixed properties or assets, not less than two hundred (200) years of age, that were built, manufactured, sculpted, produced, written, sketched, or photographed by man. The term, antiquities, also means all human and animal skeletons as well as plant fossils (Article 4/7). - By Cultural Heritage Materials, it is understood: movable and fixed property or assets that are no less than two hundred (200) years of age and are of historic, patriotic, national, religious, or artistic value and that are designated to have such value through a decree issued by the Minister (Article 4/7). - By Historic Site, it is understood: a site, regardless of its age, that was the scene of a significant historic event or of an event of historic significance whatever its age may be (Article 4/8). - The Law for the Protection and Enhancement of the Environment (Law no. 27 of 2009) refers as well to cultural heritage as being a component of the environment warranting protection and enhancement. In this respect, Article 1 of the Law refers to the objective of protecting and enhancing the environment as well as the conservation of natural assets, biodiversity and the cultural and natural heritage. - In the definition of ‘environment’, the Law refers to all environmental elements where living creatures/beings live, and the effects/influences resulting from man’s economic, social and cultural activities within.
Ownership of ‘Antiquities’	- The Iraqi Constitution refers to “Antiquities, archaeological sites, cultural buildings, manuscripts and coins” as being “national treasures” falling under the “jurisdiction of the federal authorities” (Section 4,

	Article 113). These “national treasures shall be managed in cooperation with the regions and governorates, and this shall be regulated by law”. - According to the Antiquity and Heritage Law” (no. 55 of 2002), the “antiquities and heritage of the Republic of Iraq are considered to be among the most important national treasures” (Article 1); they are protected by the law and shall be conserved. - According to Article 7 of the Antiquity and Heritage Law (no. 55 of 2002), all historic and archaeological sites, including archaeological mounds, owned by public entities, shall be registered in the name of the Ministry of Finance and will be subjected to the authority of the Antiquity and Heritage Authority.
Adequate long-term legal, regulatory, institutional and/or traditional protection and management to ensure safeguarding (OGWHC, Sec. 97)	- According to Article 8 of the Antiquity and Heritage Law (no. 55 of 2002), the Antiquity Authority, in coordination with the relevant government agencies, shall conduct a comprehensive archaeological survey of archaeological and cultural sites and buildings in Iraq, with the aim to establish their locations and dimensions on topographical maps with fixed coordinates. The Authority shall also indicate the nature of these properties, whether archaeological properties or buildings, as well as inform the land register in Baghdad and the relevant municipalities of their attributes. - In the case of the fortuitous discovery of movable or immovable antiquities, it is necessary to notify an official entity within 24 hours from this discovery. The concerned entity would then take charge of informing the Antiquity Authority of such a discovery (Article 12). - Occupants or tenants of properties which incorporate immovable archaeological or heritage sites shall allow the Antiquity Authority to enter the property in order to access those sites with the aim to examine them, document them as well as excavate, maintain and conserve them (Article 13/1).
Legal and regulatory measures at national and local levels should assure the survival of the property and its protection against development and change that might negatively	- According to Article 9/1 of the Antiquity and Heritage Law (no. 55 of 2002), when state agencies and social sector agencies seize property located inside or outside the boundaries of the base maps of urban areas, or when they partition or divide such property, they shall refrain from exploiting archaeological sites and buildings or from making distributions (or allocations) of those sites. The relevant state agencies shall put in place appropriate buffer zones for such sites, in coordination with the Antiquity Authority.

impact the OUV and its integrity and/or authenticity; oversight rights over planning and public works (OGWHC, Sec. 98)	- Agencies engaged in the distribution of reclaimed agricultural land where antiquities are located shall obtain the written consent of the Antiquity Authority before leasing or selling such land (Article 9/2). - Agencies in charge of planning industrial, agricultural or housing public projects as well as those laying out urban or countryside planning projects including infrastructure works shall undertake to protect archaeological, heritage and historical sites as well as seek the written consent of the Antiquity Authority prior to the preparation of such projects or at the time of their alteration (Article 9/3). - When the implementation of a project of crucial significance to a development plan affects an archaeological site, the Archaeological Authority will take charge of conducting excavations at the expense of the entity responsible for project implementation. The duration of the excavation works shall be determined by the need to conduct detailed scientific excavations, while taking into consideration the timeframe of the project overall. Provisions shall be made to account for the cost of excavation works within the project's budget (Article 9/4). - Building permits shall not be issued for areas incorporating archaeological sites and or for areas that lie within a kilometre distance of such sites without the written consent of the Antiquity Authority. Consent shall be given within a thirty (30) day period (Article 9/5).
Nomination of sites on the WH list	- The Constitution of Iraq (preamble), as well as the Antiquity and Heritage Law (no. 5 of 2002, Article 1/2) refer clearly to the contribution of Iraqi culture to human civilization and to the importance of informing the international community about the unique role the culture of Iraq played in the development of human civilization.
Ratification of other international conventions that might have an impact on the protection, conservation and management of WH properties	There is no direct reference in the text of the law to the conventions and international tools that were ratified by Iraq (or which ought to be ratified) and which contribute to adhering to international standards in the protection, conservation and management of the cultural heritage (in our case here). We list the conventions below: - Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention. The Hague, 14 May 1954 and its 2 protocols (Protocol to the Convention for the Protection of Cultural Property in the Event of Armed Conflict. The Hague, 14 May 1954; Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict. The

	Hague, 26 March 1999); Iraq ratified the first protocol only in 21/12/1967. - Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. Paris, 14 November 1970; Iraq accepted the Convention in 12/2/1973. - Convention concerning the Protection of the World Cultural and Natural Heritage. Paris, 16 November 1972; Iraq accepted the convention in 5/3/1974. - Convention on the Protection of the Underwater Cultural Heritage. Paris, 2 November 2001; Iraq did not ratify this convention. - Convention on the Protection and Promotion of the Diversity of Cultural Expressions. 20 October 2005. Iraq acceded to the Convention in 22/7/2013. - Convention for the Safeguarding of the Intangible Cultural Heritage. 17 Oct 2003. Ratified by Iraq in 6/1/2010.
Appropriate legal, scientific, technical, admin and financial measures for the identification, conservation, presentation and rehabilitation of heritage	- The objectives of the Antiquity and Heritage Law (no. 55 of 2002) shall be achieved through the designation of sites, scientific excavations, the maintenance of antiquities, heritage and historic sites, the establishment of museums to provide access to antiquities and heritage, the production of models and heritage materials, the undertaking of studies, research and the organization of conferences and talks that showcase the antiquities of Iraq and its cultural heritage, the featuring of Iraqi Antiquity and heritage materials in foreign museums, by forming archaeologists and heritage specialists and by developing their capabilities through training courses, missions abroad and fellowships, and the establishing of survey teams in charge of the national survey and inventory of antiquities, heritage and buildings in Iraq (Article 2). - The Law establishing the Ministry of Tourism and Antiquities (no. 13 of 2012) further emphasizes the objectives of the Antiquity and Heritage Law listed above. According to Article 4, the Ministry will undertake the following activities in fulfilment of its role and objectives: - Designating archaeological sites, maintaining and protecting them, undertaking archaeological excavations and establishing contemporary museums to make the cultural and historical Iraqi heritage known; - Repatriating stolen Iraqi Antiquities in coordination with the relevant governmental bodies; - Establishing plans and policies that are sympathetic to the social and cultural situation of the country in the service of areas of tourism attraction and in favour of protecting antiquities and heritage.

Prohibition of damaging activities that might affect the value or integrity/or authenticity of a WH property	- According to Article 15 of the Antiquity and Heritage Law (no. 55 of 2002), the following activities are forbidden: 15/1. Trespassing on archaeological, cultural heritage, and historical sites including hills and flat lands where archaeological objects were found, as well as on sites whose names and designations were not yet published in the Official Gazette; 15/2. Farming, residing, erecting habitats or other constructions on archaeological and cultural heritage sites, and their protection zones, or altering them; 15/3. Using archaeological sites as dumping or deposition sites for construction debris or refuse or erecting buildings or burials or establishing quarries within; 15/4. Uprooting trees and vegetation and removing structures from archaeological sites or undertaking any works that would result in changing the features of the archaeological sites. 15/5. Establishing industries that pollute the environment or that pose a threat to public health in areas that are less than three (3) kilometres away from archaeological sites and cultural heritage buildings in all directions; 15/6. Tearing down an archaeological or a cultural heritage building, disposing of its construction elements, or using it in such a way that would entail damaging it, harming it or altering its attributes. - Alternatively, the Law for the Protection and Enhancement of the Environment (no. 27 of 2009), which aims as well at protecting the cultural heritage (since it is recognized as constituting a component of the environment), establishes in Article 2/17 as well as in Article 10 the mechanism for conducting environmental impact assessments as a pre-requisite for undertaking projects (probably large scale projects). Environmental Impact Assessment studies should identify the impact of any project on the environment, including its impact on the physical cultural heritage within a specific project area.
Prohibition of the illicit traffic of antiquities	- Article 20/1-4 in the Antiquity and Heritage Law (no. 55 of 2002) clearly addresses the subject of the illicit traffic of antiquities.

	- According to Article 22/3 of the Antiquity and Heritage Law (no. 55 of 2002), selling or gifting articles of antiquity or cultural heritage or taking them out of Iraq is prohibited except under the conditions that are stipulated in the law. - In addition to references in the Law of Antiquities and Heritage (no. 5 of 2002), the Law establishing the Ministry of Tourism and Antiquities (no. 13 of 2012) clearly mentions the need to work towards the repatriation of stolen Iraqi Antiquities in coordination with the concerned governmental entities (Article 4/3). - It is also worth mentioning here again that Iraq accepted in 12/2/1973 the Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. Paris, 14 November 1970.
Protection of cultural heritage in times of war/conflict. Respecting the provisions of International Conventions to which Iraq is a signatory.	No reference in the Law to the Hague Convention of 1954 ratified by Iraq in its first protocol in 21/12/1967.
Boundaries for effective protection and buffer zones	
Ensure adequately delineated boundaries and buffer zones. Boundaries should be drawn to ensure the full expression of the OUV and the integrity and/or authenticity of the WH property (OGWHC, Sec. 99) The boundaries should include sufficient areas immediately adjacent to the area of OUV in order to protect the property's heritage values from direct	- According to Article 9/1 of the Antiquities and Heritage Law (no. 55 of 2002), when state agencies and social sector agencies seize property located inside or outside the boundaries of the base maps of urban areas, or when they partition or divide such property, they shall refrain from exploiting archaeological sites and buildings or from making distributions (or allocations) of those sites. The relevant state agencies shall put in place appropriate buffer zones for such sites, in coordination with the Antiquity Authority. - Building permits shall not be issued for areas incorporating archaeological sites and or for areas that lie within a kilometre distance of such sites without the written consent of the Antiquity Authority. The consent shall be given within a thirty (30) day period (Article 9/5). - According to Article 15 of the Antiquity and Heritage Law (no. 55 of 2002), the following activities (which might affect the buffer zones of archaeological sites) are forbidden:

effect of human encroachments and impacts of resource use outside of the nominated area. (OGWHC, Sec. 101) A buffer zone surrounding the nominated property that has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection. (OGWHC, Sec. 104)	15/2. Farming, residing, erecting habitats or other constructions on archaeological and cultural heritage sites, and their protection zones, or altering them; 15/5. Establishing industries that pollute the environment or that pose a threat to public health in areas that are less than three (3) kilometres away from archaeological sites and cultural heritage buildings in all directions; - There is no mechanism in the Antiquity Law to determine the principles for identifying site boundaries and their buffer zones. This is left totally to the discretion of the Competent Authority (according to the Operational Guidelines of the WHC, boundaries should be drawn to include all those areas and attributes which are a direct tangible expression of the OUV of the property, as well as those areas which in the light of future research possibilities offer a potential to contribute to and enhance the OUV).
The buffer zone should be determined in each case through appropriate mechanisms. Details on the size, characteristics and authorized uses of a buffer zone, as well as a map indicating the precise boundaries of the property and its buffer zone (dOGWHC, Sec. 104)	The mechanisms used in determining sanctuary areas (or buffer zones) are unclear so are the guidelines governing those areas or their particular attributes. The extents of those zones might however figure on master planning documents of the planning authorities.

Management systems	
Conduct protection and management to ensure that the OUV including conditions of integrity and/or authenticity are sustained and enhanced (OGWHC, Sec. 96)	The principle of developing Management Plans for sites with the aim to protect and manage their significance and values is not referenced in any existing laws.
Regular review of general state of conservation of the property and the OUV	No reference.
Develop operating methods/procedures for counteracting the risks and dangers that threaten heritage	No reference to the need to develop specific strategies, plans or procedures to protect the sites and associated museums and documents and the upkeep thereof during wartime or during times of crisis.
Enhance the role of communities in the implementation of the WH property (OGWHC, Sec. 119)	No reference.
A management system is there to ensure the effective protection of the nominated property for present and future generations (OGWHC, Sec. 109)	No reference or mention of the need to develop management plans for archaeological properties.
The monitoring and assessment of the impacts of trends, changes, and proposed interventions. Risk preparedness as an element in	No reference to any risk assessment to be conducted on antiquities sites.

their World Heritage site management plans and training strategies (OGWHC, Sec. 118)	
The involvement of partners and stakeholders (OGWHC, Sec. 111)	Reference to coordination with the relevant government bodies for drawing boundaries and buffer zones.
The allocation of necessary resources (OGWHC, Sec. 111)	No specific reference to the need to provide major antiquities sites with the necessary resources to ensure their adequate management.
Measures concerning visitor management and tourism development	- According to Law no. 3 of 2012 establishing the Ministry of Tourism and Antiquities, the Ministry shall develop plans and policies that are sympathetic to the social and urban conditions of the land in service of areas of tourism potential as well as for the protection of antiquities and heritage (Article 4/5). - In addition, Article 4/7 mentions the activity relating to the supervision of tourism services at antiquities and heritage sites in such a way that they provide resources to the treasury of the Ministry as well as that they provide for the protection of these sites from the impact of visitation on the assets themselves.
Sustainable use	
Developing the economic potential of the WH property	- Law no. 3 of 2012 establishing the Ministry of Tourism and Antiquities clearly mentions one of the objectives of the Ministry as consisting of developing archaeological areas as important assets of the national economy (Article 3/3).
Presentation of heritage	The presentation of heritage seems to be limited to the realm of local or national museums, as well as museums abroad. The principle of site interpretation and presentation is not referred to in the Antiquity and Heritage Law (no. 55 of 2002).
Increase public awareness, involvement and support for heritage through communications and advocacy	Reference to public awareness is limited to Article 1/2 of the Antiquity and Heritage Law (no. 5 of 2002), consisting of the exposure of antiquities and heritage, as well as to informing citizens and the international community of the unique role Iraqi culture has played in the development of human culture. There is no reference to campaigning and using media and communications strategically as a means to

	increase public awareness and support for heritage.
Achieve a thorough shared understanding of the property by all stakeholders (OGWHC, Sec. 111)	No reference.
Provide information on education (primary, secondary and tertiary) and information programmes that have been undertaken or are planned to strengthen appreciation and respect by the population, to keep the public broadly informed of the dangers threatening the heritage and of activities carried out in pursuance of the Convention	No reference.
Promotion of Cultural Heritage	
The promotion of culture and cultural identity	- The Iraqi Constitution (Article 35) makes specific reference to the subject of promotion, attributing responsibilities to the State for promoting “cultural activities and institutions in a manner that befits the civilizational and cultural history of Iraq”, seeking “to support indigenous Iraqi cultural orientations.” - There is however no reference to government strategies and mechanisms that use culture (including the WH property) as major brands in the promotion of Iraqi identity.

The review of the legal framework affecting cultural heritage in general and the site of Babylon in particular has shown that there is a good basis for the protection, conservation and management of the property at present. Two main issues need to be addressed however in order to achieve a more optimal and up-to-date legal framework that is essential for the sustainability of the site in question:

1. Legal notions, principles, as well as tools and instruments are not unified in a single basic text governing the protection, conservation, management and sustainability of archaeological sites, instead, they are spread out across various legislations in the cultural as well as in the environmental domains;
2. Certain contemporary notions/tools/mechanisms of cultural heritage management are absent from the legal framework, it is important to include these in any future revision of the Antiquity and Heritage Law so as to make sure that the law is up-to-date and that it corresponds to the demands of the day in terms of managing cultural heritage. These notions and tools have been reported as 'Not referenced' in the table above and are summarized as follows:
 - a) The need to prepare management plans for major sites in order to better define requirements for enhancing these sites and looking after them for the future;
 - b) The need to draw risk preparedness plans together with clear operating procedures to deal with unforeseen situations and risks;
 - c) The need to monitor and assess the impacts of trends, changes, and proposed interventions. Risk preparedness to be an inherent element in management plans and training strategies for WH properties;
 - d) The need for clear financial mechanisms for the implementation of management plans including plans for interpreting and presenting cultural sites;
 - e) The need for defining a process involving the preparation of archaeological impact assessments within the framework of Environmental Impact Assessment plans;
 - f) The need for a clearer mechanism for designating and managing change within buffer zones;
 - g) The need for regular monitoring regimes targeting the state of conservation of archaeological sites;
 - h) The importance of enhancing the role of communities in the implementation of site management, particularly WH properties, and the establishment of a common vision for the future of these sites;
 - i) The need to involve the SBAH/Antiquity and Heritage Directorates (AHDs) in the definition and alteration of urban and regional master plans to ensure that heritage is a significant component of the vision for the future;
 - j) The importance of making sure that archaeological sites play a major role in the development vision for the area and the development of the economic potential of sites through strategic planning and the involvement of the stakeholders;
 - k) The need to promote the significance and values of sites and introduce site awareness into the formal and informal education system;
 - l) The development of clear and systematic communications strategies for promoting the heritage of these sites.

It is noteworthy that a number of amendments to the current Law for Antiquities and Heritage have been prepared by the SBAH and presented to the Iraqi Parliament for ratification. These amendments could be expanded to take into account the gaps identified above in the current Antiquity and Heritage Legislation.

Planning Framework

The process of urban and territorial planning is organized in the framework of the Planning Law as well as the Law Organizing Governorates.

Urban and Regional Planning is undertaken at the governorate-level via the Ministry of Municipalities and Public Works (MoMPW), and master plans are revised on a yearly basis and submitted to the concerned Antiquities and Heritage Directorate (AHD) for approval.

In the case where a master plan needs to be developed, a committee is created with representatives from the various directorates in the governorate, including the AHD. The committee then meets and goes over the proposed master plan presented to it by the municipality and then tries to integrate its concerns within the design of the master plan. After the committee concludes its work, the master plan is published in the Official Gazette for a period of 6 months, thus allowing any government entity to voice its concern with regards to any infringements the master plan might exert and or be deemed inappropriate. In such cases, the Master Plan is returned for revision.

The AHD's position within such committees has mostly been one concerned with the protection of heritage sites to the maximum possible extent; this is done by limiting any interventions within the area of the sites as well as their buffer zones. However, the archaeologists representing SBAH in master planning committees do not benefit from the strategic support of trained urban planners with experience in planning historic environments.

Babylon's Current Legal Status

Babylon is registered in the Official Gazette of Iraq, No. 1465, 17/10/1935 as an archaeological site. It is protected under Article 7 of the Iraqi Law of Antiquities and Heritage No. 55 of 2002. The Law is the legal instrument which protects the cultural values of the property. It defines antiquities and heritage as national wealth, placing it under the authority of the SBAH. As stated, the SBAH holds the mandate to protect, conserve and study antiquities, and designate archaeological sites. By law, designated archaeological sites should include buffer zones.

Babylon, like all Iraqi government land, is, in principle, the property of the Ministry of Finance except for the religious sites, which are overseen by the Directorate of Endowments (Awqaf). This is specific to the shrine of Amran Bin Ali which lies within the site of Babylon.

The Law of Antiquities and Heritage provides for penalties (fines and incarceration) in case of trespassing on archaeological sites either by agricultural or construction activities. By law, any development activity (residential, agricultural, commercial, industrial, etc.) is forbidden inside the legal boundaries of registered archaeological sites and their associated buffer zones.

The Constitution of the Republic of Iraq was passed in 2005, pledging state backing for cultural institutions and placing select sites or 'national

treasures' such as Babylon under federal jurisdiction. Article 113 of the Constitution states that "Antiquities, archaeological sites, cultural buildings, manuscripts, and coins shall be considered national treasures under the jurisdiction of the federal authorities, and shall be managed in cooperation with the regions and governorates, and this shall be regulated by law." This clause implies a cohesive regional and federal management strategy for sites such as Babylon, while giving federal agencies the overall authority and, thus, generally operating under Law 55.

The Iraqi Constitution stipulates that a permit must be requested from the SBAH for any public or private development (residential, agricultural, commercial, industrial, etc.) within the site boundary and buffer zone. The governorate level controls permitting and establishes requirements for development projects, including the height and size of buildings, within the buffer zone. The SBAH can also deny permits if the planned activity is deemed unsuitable in the vicinity of an archaeological site.

Babylon, like all Iraq government land, is technically the property of the Ministry of Finance except for the religious sites, which are overseen by the three religious endowments. All federal laws concerning Iraq antiquities and heritage should consequently be upheld at Babylon and within its buffer zones. However, the Governorate authorities have tended to consider that development decisions for the site fall within their purview. Theoretically, Shi'a Endowment property of a historic value also falls under SBAH purview, but in practice the SBAH holds no authority over the shrine of Amran ibn-Ali at Babylon.

There is a gap between existing laws and reality manifested in the expansion of unlicensed development within and immediately around the site. Years of occupation and political instability, poor communication with village residents and a lack of local government support/engagement to contain development has led to growth in fragile areas. New construction particularly at Sinjar and al-Jimjmah villages have continued post-2003 virtually unmonitored. Additionally, agricultural policies related to archaeological sites have failed to consider historical precedence, farmers' needs, and the possibility of engaging them in the site's protection.

The management plan compilation has provided an opportunity for closer cooperation between the SBAH, the Governorate, Shi'a Endowment and local residents and each stakeholder to field concerns and begin to formulate common goals. Everyone agrees that Babylon is a source of pride, a great legacy that should be placed at its best advantage and shared with the world. If the values for cultural heritage, revived tourism and national pride are reaffirmed through cooperative effort, Babylon's future is secure. Without cooperation, the site is at gravest risk from the very stakeholders who were meant to protect and benefit from it.

Boundary and Buffer Zones

WMF commissioned the Lawyer's Committee for Cultural Heritage Preservation (LCCHP) to undertake a study of Iraqi laws governing cultural heritage. The following text summarizes their 2012 findings as well as SBAH decisions regarding the proposed boundary and buffer zones for Babylon.

Prior to the site management plans, Babylon had no official boundaries. The SOAH, the SBAH's predecessor, offered various propositions that generally followed the outer walls of the Neo-Babylonian city excavated by Robert Koldewey without reference to suburbs or later historic features.

A previous WHS nomination indicated no boundaries, only geographical coordinates for one position at the site.² The nomination included a brief reference to a 100-meter buffer zone around the outer city walls that the SOAH mentioned as a priority for their land acquisition efforts. Incomplete boundary and buffer zone information were two of the criticisms cited in the deferred 1982 nomination application.³

The 1990 WHS nomination suffered a similar fate partly because of inadequate documentation that again omitted a detailed perimeter.⁴ This nomination presented Babylon as comprising three parts: the Outer City, the Inner City, and West City. The application stated the management plan aimed to remove "all modern buildings out of the city walls."⁵ There was no reference to a buffer zone.

Lacking an official boundary, the SOAH could do little to stop encroachments, aside from the relocation of the Baghdad-al-Basra highway and parallel railway line east of the site. The Revival of Babylon Project was understood more as Saddam Hussein's personal concern than an opportunity to define and protect the site.⁶

On July 30, 2012, Acting SBAH Chairman and Director General of the Department of Investigations and Excavation (currently Deputy Minister of Antiquities), Qais Hussein Rasheed issued a letter pertaining to Babylon's buffer zone.⁷ Babylon and Ninevah were to be considered exceptions to the proposed 300-metre buffer zone for archaeological sites set forth by SBAH. In light of existing encroachments, the Babil Inspector recommended a 100-metre buffer zone.⁸ The memo essentially suggested that the larger and more important the site the smaller the buffer zone required.

II.5 Land Ownership and Use

² State Organization of Antiquities and Heritage, December 17, 1982. Proposition d'Inscription sur la Liste du Patrimoine Mondial Présentée par l'Irak (unpublished), annex.

³ ICOMOS, June 1983. Recommendation on World Heritage List Inscription (unpublished); UNESCO, December 1983. Report of the Rapporteur (unpublished).

⁴ State Organization of Antiquities and Heritage, 1990. World Heritage List Nomination Form for Babylon (unpublished).

⁵ Ibid.

⁶ WMF interview with Faeza Hussein, 2012.

⁷ Qais Hussein Rasheed, letter to SBAH inspectorates, July 31, 2012 (no. 3/8012).

⁸ Ibid., in reference to Babil Antiquities Inspector, letter to SBAH Department of Investigations and Excavation, March 5, 2012 (no. 688).

Babylon's function as an archaeological site is relatively recent, and arguably began with Robert Koldewey's excavations, which set tracts of the site aside for study and prevented bricks from being removed and recycled for local construction. The area around Babylon and parts within it had previously supported farming communities for many centuries.

Deed and Title History

The Ottoman Land Code of 1858 introduced a modified land classification system to better collect taxes and diminish the land barons' power. Most land was *raqaba* or absolute government ownership.⁹ A category of *raqaba* was called *miri* land, state-owned land where the right to cultivate (*tasarruf*) was granted to an individual. The holder of *tasarruf* was essentially a tenant, but *miri* lands were usually inheritable and the compulsory registration of ownership gave them *tabu*, a kind of title.¹⁰

The 1858 Code provided for issuance of deeds or written contracts, formalizing individuals' rights to occupy/farm a land parcel for the first time. The Code also made formerly unoccupied lands available for sale (although *raqaba* still held). These two innovations resulted in more land being farmed and more taxes collected. To build cooperation with tribal sheikhs, Ottoman governors permitted them to register tribal lands as their personal property (while still recognizing *raqaba*). The undesired result was a new class of enriched rent-seeking landlords who leased *raqaba* land to peasants to cultivate.

Under the British, the *Lazmah* Law of 1931 (Law 51) was introduced. *Lazmah* was the customary tenure by which tribes collectively owned their land. This law provided the state some say in property transfer in order to keep most *raqaba* land in tribal hands. Individuals who possessed the *tasarruf* for a property for more than fifteen years had to register for a *lazmah* title. The difference between this and a *tabu* title was that a *lazmah* title required approval by the government registry.

When Iraq's first independent government took charge, the large estates created by the reforms of 1858 were subdivided under the Agrarian Reform Law of 1958, and the Agricultural Land Consolidation Law of 1976 (Law 53).¹¹ This affected most of the land at the south end of Babylon where a large parcel was divided into dozens of smaller plots and redistributed.

Today most of the more than 500 privately owned plots within Babylon's boundaries remain under the *miri* property system, but since Law 53

⁹ United States Agency for International Development, Iraq Economic Governance II Program, *Diagnostic Report-Real Property Law and Registration* (Baghdad, Bering Point, Inc. 2004), 8-11.

¹⁰ "Land Code of 1858," *Gale Encyclopaedia of the Mideast and North Africa*.

¹¹ *Ibid.*, 11.

came into effect concepts of *tabu* and *lazmah* changed.^{12 13} Law 53 divided plots under these two categories into percentages of government and private ownership. The *tasarruf* no longer meant an individual only had rights to cultivate; now the owner could freely mortgage and dispose of land as desired provided the government got its cut. The *tasarruf*, however, retained traditional grazing, irrigation and other rules.

Sales of *miri* land require that a percentage of the price be paid to the Ministry of Finance, who is a partial owner. *Miri* lands at Babylon generally fall under three categories:¹⁴

1. *Miri serf (al-Arady al Amireya al-Serfa)*, land completely owned by the Iraqi Government and all rights reserved for the state. This land can be used directly or indirectly at the state's discretion.
2. *Miri mumnuha bil-tabu (al-Arady al Amyreya al-mofawada b' el-tabu)*, Iraqi Government land with private citizen co-owner rights to manage for agricultural purposes. Historically, rules of usage stated the land reverted to complete state control if not used for at least three years.¹⁵ In the event of a sale:
 - a) If the total area is less than 5 donums, 66 percent goes to the private citizen and 33 percent to the Iraqi Government.¹⁶
 - b) If the total area is more than 5 donums, 50 percent goes to the private citizen and 50 percent to the Iraqi Government.
3. *Miri mumnuha bil-lazma*, land with *lazmah* titles, collectively owned by tribes, for agricultural purposes. The definition is common with bil-tabu, but in this case tradition gave the state the right to veto the transfer of bil-lazma titles if this tended to disturb the peace. Today in the event of a sale, 25 percent goes to the private citizen and 75 percent to the Iraqi Government. In the event of inheritance a tax is required, but to avoid it most heirs fail to register their properties leaving deed and title records inaccurate/outdated.

Other types of land ownership complicate tenure at Babylon: two types of Waqf-related land donations known as *al-Ard al-Mukufa*:

1. *True Waqf (al-Ard al-Mukufa Waqfan Sahihan)*, a charitable land donation to the Waqf administration designating the state agency as manager of this land allowing for the benefit of religious institutions through commercial and non-commercial uses if they provide advantages to the poor.¹⁷
2. *Untrue Waqf (al-Ard al-Mukufa Waqfan Ghair Sahihan)*, a property donation by a person or entity who inhabits, but does not truly own, the land. Waqf manages this land and allows religious institutions to benefit through commercial and non-commercial uses if they provide advantages to the poor. The donation is considered 'false' as the donor does not possess legal rights over the property.

Other types of land found at Babylon:

¹² Joseph Sassoon, *Economic Policy in Iraq, 1932-1950* (London: Frank Cass & Co. Ltd.) 1987, 156.

¹³ United States Agency for International Development, Iraq Economic Governance II Program, 17.

¹⁴ Ibid., 9; WMF interviews with Fatten Hjiwel, 2010.

¹⁵ Sassoon, 156. This right was rarely activated.

¹⁶ *Donum*, an Ottoman era land measure, equivalent to 1000m².

¹⁷ WMF interview with Salah Mahde, 2012 and Sassoon, 156.

1. *Hak Tasarruf*, land wholly owned by the Iraqi Government and all rights reserved for the state, but with private citizen rights to manage it for public benefit.
2. *Al-Arady Matruka*, Iraqi Government land reserved by law for public benefit tied to a specific community or tribal affiliation.
3. *Mulk (Al-Ard al-Mamluka)*, the simplest ownership and increasingly more common is full private ownership with no government investment.

As part of the 2015 Babylon Site Management Plan, the SBAH conducted a survey of property ownership. Due to the lack of accurate property records it was only partially updated, the results can be seen on the map, 'Existing: Property Ownership and Plots.' Initial data suggests nearly half of all land inside the boundaries remains under *miri* land contracts or increasingly *mulk* titles. The rest under a collection of absolute government ownership types, foremost being the former presidential diwan of Saddam Hussein expanded during the late 1980s to include all of Old Qwadesh.

With al-Hillah's growth as a provincial economic hub (1970s-1990s) agricultural land around Babylon has come under increased pressure. Improved roads encouraged commercial developments and the villages evolved into commuting suburbs. Illegal residential and commercial expansions continued as Saddam Hussein's regime declined, and hyper-accelerated with the collapse of the rule of law in 2003. *Tasarruf* land intended only for farming was transformed to serve residential and commercial needs, a trend that continues today with detrimental effects for Babylon and its surrounding landscape.

The old laws, restricting a tenant's land use and allowing only farming, are no longer realistic, as families grow and farming income is insufficient, nor are they enforced. New building regulations are needed but only recently has the extent of unlicensed development and its threat to Babylon been recognized and discussed with various stakeholders, as part of the process of compiling the site management plan.

Agriculture

Assyrian and Babylonian scribes revered the date palm as the 'god-king', the 'tree of abundance', and the 'tree of riches' and the trees were perfectly suited to Babylon's arid environment and intensive sunlight.¹⁸ Another Assyrian text refers to the goddess Ishtar of Babylon as 'the beautiful one, the queen of the Babylonians . . . a palm of carnelian.'¹⁹

Farming activity at Babylon has historically ebbed and flowed depending on the availability of water. Unfertile land (*mawat*) was left fallow, including Babylon's archaeological tells.

¹⁸ Daniel Potts, *A Feast of Dates* (Abu Dhabi: Trident Press, 2002), 9. *The Debate Between the Tamarisk and the Date Palm* was a staple of Mesopotamian literature.

¹⁹ Potts, 18.

Irrigation improvements and a series of agrarian reform laws changed Babylon's landscape. Construction of the Hindiya Barrage upriver (1911-1913), at Saddat al-Hindiya, where the Euphrates' two branches diverge, and dredging and improved levees replenished the Shatt al-Hillah, affording farmers a steadier water supply.²⁰ The area was subsequently repopulated and cultivated.

Photographs from the mid-twentieth century show Babylon surrounded by a lush landscape, a far different view than Koldewey's a half-century earlier. Large sections of the site along the Babil River's east bank were sown with crops, and date palm groves expanded further inland from the Shatt al-Hillah. On the river's west bank around the villages of Sinjar and Annanah, a dense curtain of date groves formed a natural barrier to development and an aesthetic backdrop to the archaeological core, where palms surrounded al-Jimjmah and Old Qwaresh as noted by Koldewey. Of note are the less formalized palm groves that grew where excavation workers deposited date stones while eating their lunches.²¹

These references support the notion that the presence of date palms at Babylon had a significant impact on ancient landscapes and livelihoods. The use of date palms to create a shaded microclimate supporting fruits, vegetable and other fodder was critical to diverse cultivation in harsh climates. This practice of storied cultivation continues in and around the site today. Aside from date, citrus fruits and fig harvesting, families often plant fodder for livestock and limited cash crops to furnish some household needs, but income from the land can no longer solely support a family.

For over twenty years, the SBAH has imposed limits on irrigation water use and well size (maximum width 5cm and depth 5m) at Babylon despite the absence of official laws restricting these practices within archaeological sites.²² They also forbid the planting of new date palms and the replacement of dead palms with seedlings. Salinization has created a salty soil crust (no longer washed away by regular irrigation or flooding) and diminished the land's productivity. High salinity has obliged some farmers to switch to more resilient crops such as okra and string beans. Many continue to disregard SBAH regulations and irrigate lands at will with water pumped from the Babil River.

Surrounding Communities

Aside from al-Hillah, the origins of the communities within and surrounding Babylon are difficult to ascertain. Local residents often maintain that their villages date to the Ottoman period, due to the fact that *miri* land deeds date to this period. Muayad Said Damerji, former director of the Revival of Babylon Project, suggests that some villages were settled in antiquity: Bernoun or Thul-Noon, Qwaresh or Koresh (Cyrus), and

²⁰ WMF interview with Zaki Abbas, 21 May, 2011. Mr. Abbas is a retired engineer with the Ministry of Irrigation who worked on the Hindiya Barrage and Dora Regulator, the dam south of al-Hillah. Money, "The Hindiya Barrage, Mesopotamia," 217-222.

²¹ Damerji, *Babylon*, 2010, 17.

²² WMF interview with Sahar Mohamed Farhood, held at his farm in Babylon, 10 May, 2011. Mr. Farhood owns 6 donums inside the archaeological site boundary near Marduk Gate.

Annanah or Inana.²³ Many villagers claim that their community is ‘original’ to the area.²⁴

All of the communities in and around Babylon are rapidly developing from compact dense settlements to sprawling suburbia despite laws restricting constructions inside Babylon.

Al-Hillah

Population: 500,000

Babylon lies within the municipal boundaries of al-Hillah, the capital of Babil Province and the major city in the area. Situated along the Shatt al-Hillah to Babylon’s south, Koldewey suspected al-Hillah probably attracted its first inhabitants from Babylon in the eleventh century.²⁵ Other references suggest the settlement began far earlier when Abbasid-era tribes from the north first moved first to the nearby village of Nil and later members of its clan to the area “between the two mountains” (the ruins of Babylon and Borsippa).²⁶ The origins of the city lie in reuse of Babylonian building material, mainly the abundance of fired mud brick found on site. Several buildings in al-Hillah are reportedly made from them. In the past al-Hillah was an important port on the Euphrates river network and the traditional pilgrimage and trade route between Baghdad and Najaf and Kufa. Its reputation as a cultural and scholarly center of the country derives from its place in early Shi’a history.

Today agriculture is the most important economic sector accounting for 44% of the employment in Babil Province, al-Hillah being the commercial center for this activity. The main crops are grains supported by irrigation from the Euphrates. The provincial government is keen to expand the local economy and tourism is seen as a potential resource for jobs.²⁷ Al-Hillah features not only its proximity to Babylon and other provincial archaeological and heritage sites, but access to its own collection of Islamic medieval sites.

Qwaresh

Population: approximately 2,000

Old Qwaresh was a densely-built village of about 200 households wedged between the Shatt al-Hillah and Babylon’s northern and southern palaces. It replaced a settlement several hundred meters north on the Shatt al-Hillah that was abandoned for unknown reasons.²⁸ Although

²³ Damerji, *Babylon*, 2010, 16-17.

²⁴ WMF interviews with community members, 2012.

²⁵ Koldewey, *The Excavations at Babylon* (1914), 212.

²⁶ Sheikh Yusuf Karkosh, *The Hillah History* 2 Vols. (Najaf: Al-Haidariya Press, 1965).

²⁷ UN Inter-Agency Information and Analysis Unit, ‘Babil Governorate Profile,’ research dated February 2011, <http://www.iauiraq.org/search.asp?search=Hillah>. For further information on al-Hillah and Babil Province’s potential for tourism development see *Welcome to Babil Province, Tourist Guide* (Al-Hillah: Provincial Reconstruction Development Committee, 2010) and ProCare Services de Consultations, *Babel Tourism Development Plan*, part 3 of 4 Final Report, (Amman: UNESCO, 2013).

²⁸ R. Mignan, *Travels in Chaldaea Including a Journey from Bussorah to Bagdad, Hillah, and Babylon, performed on foot. With Observations on the Sites and Remains of Babel, Seleucia and Ctesiphon*, 1829, 168-169. Mignan, quoting a German traveler named Rauwolff, identifies the ruins as those of Elugo which he ascertains incorrectly to be the village of Nil located some 10 kilometers further east. No sign of the village ruins remains. However, the property

already well established, the village grew in response to the need for workers on the 1899-1917 German Oriental Society excavations and continued to supply labour for excavations at Babylon. The German mission was based here and Walter Andrae's watercolours and anecdotes regarding life at Babylon are mostly drawn from Qwaresh.

The village was destroyed in the late 1980s as work began on the Revival of Babylon Project. The area where the village once stood lies beneath the mound built to host Saddam Hussein's former palace; but only a crumbled brick kiln and date palms. Residents, mainly of the Dulaim (Sheikh Sadek Mehdi Abbas) and Mamur tribes, were compensated through relocation to several nearby communities. Families were usually given a cash settlement plus 200m² of land.²⁹ Many moved nearby to an area beside another brick kiln on the new Baghdad-al-Basra highway. 'New Qwaresh' consists of approximately 120 houses. It has no school, poor infrastructure, and little access to public transportation.³⁰ The brick kiln with its tall smokestack built in the 1960s is the village's prominent feature. The kiln operation was shut down in 2012 because of back taxes and legal pressures by SBAH which will soon be demolished.

Al-Jimjmah

Population: 2,500 in the north and 2,800 in the south section

Comprised of about 500 houses, mostly families belonging to the Rubaeah (Sheikh Saadun Ali Abbas), Khafaja (Sheikh Ryad Khalil Ismail), al-Salaami (Sheikh Murad Abbas), and Bowei (Sheikh Kadum) tribes, al-Jimjmah is located southwest of Babylon's core with its main street running parallel to the ancient inner city walls. The village lies along the access road to the Shrine of Amran ibn-Ali, several hundred meters north, a road that until the nineteenth century was the main passage between al-Hillah and Baghdad.³¹

Reportedly named after the Shrine of the Skull (*jumjumah* is Arabic for 'skull'), al-Jimjmah residents supplied labour for Hormuzd Rassam's late nineteenth century excavations. Some inhabitants trafficked in antiquities, furnishing Baghdad antiquities dealers with cuneiform tablets and cylinders for the European market.³²

Like all local communities, al-Jimjmah had an agrarian economy, but in recent decades it grew dependent on al-Hillah and its government employment opportunities. Several residents own plots inside Babylon where farming is forbidden, and still graze livestock on these properties. Commercial activity consists of services for the community and workshops, including carpentry. Many residents own cars, and an efficient microbus service connects to al-Hillah from a village terminus.

and plot boundaries still carry its footprint.

²⁹ WMF interview with Meki Farhood, 2011.

³⁰ New Qwaresh inhabitants rely on minibuses going to and from Bernoun.

³¹ WMF interview with Ahmed Kamel, 2013.

³² Reade, "Disappearance and Rediscovery," 2008 and Rassam's Babylonian collection: the excavations and the archives'.

Sinjar and Zwair

Population: 5,300

Located within the site boundaries west of the Shatt al-Hillah, Sinjar's residents comprise both Shi'a and Sunni Muslims with mosques for both, the latter a small minority in Babil Province. Despite recent sectarian violence, Sinjar remained relatively peaceful and neighbours continue to live and practice their beliefs side by side.³³

Sinjar and the smaller Zwair to its south are better off economically than the other villages around Babylon. Employment is primarily daily wage earning and government jobs in al-Hillah, easily reached via the busy al-Hillah-Karbala Road. Some residents tend date palm groves, but few are occupied with farming. Sinjar and Zwair developed rapidly in the past decade. New suburbanized housing is spreading from the dense village cores mainly westward, and north along the canal road that follows Babylon's western walls.

Unlicensed housing now intersperses the date palm groves between Sinjar and the Shatt al-Hillah, and in the 1990s and 2000s obliterated the last visible vestiges of Babylon's outer city walls. At Zwair houses are under construction on the riverbank facing the central archaeological area. Several large fishponds were also dug in the area but are now abandoned, a few inside the irrigation ministry's flood zone (demarcated by a parallel access road).

Nearby along the river, settlements of internally displaced people (who fled violence in other parts of the country) live in rustic housing lacking services

Annanah

Population: 8,000

Located on the west bank of the Shatt al-Hillah beyond the Neo-Babylonian walls, Annanah appears on the map of Claudius Rich (1811) as a rectangle with fortifications set back from the river amongst date palms.³⁴ Until the 1980s it was a rectangular settlement bisected by a dead-end road densely lined with housing.

Like Sinjar, employment for most Annanah residents involves commuting to al-Hillah, but as a larger village it boasts several retail shops and a restaurant. Many new people have settled along the Shatt al-Hillah and built livestock barns and pens on rented plots.³⁵ These new immigrants have restored a rural feel to suburban Annanah, but unregulated livestock grazing and solid waste disposal practices endanger the landscape.

³³ Neighbouring groups consist mainly of the Dulaim (Sheikh Mohi Azziz), Ginabat Albu-Nesar (Sheikh Qaad Najim), Albu-Maith (Sheikh Khalil Ismail), Shamrah (Sheikh Sherif Hasoon Hamadi), Khafaja (Sheikh Kudher Jasim Ghazal), Alyasar (Sheikh Mizhar Khulkhar), and Almaamrah (Sheikh Duraid Mehdi Kadum) tribes.

³⁴ Rich, "Memoir on the Ruins of Babylon," 1815.

³⁵ The following groups are found in this area: the Albu-Hassan (Sheikh Hmood Hamza Madhi), Muamra (Sheikh Rahman Hamid), Khafaja (Sheikh Ismail Edan Ismail), al-Saaidat (Sheikh Salah Hassan Elewi), al-Ajel (Sheikh Fadhil Alwan Abbas), al-Shwafia (Sheikh Qahtan Hassan Nimrud); and al-Kaabi (Sheikh Hussein Mehaws Lefta).

Bernoun

Population: 8,000

To the north of Babylon, inland from the east bank of the Shatt al-Hillah, the fast-growing village of Bernoun lies at the end of a road some distance from the main Baghdad-al-Basra highway. The dead-end road runs between the Summer Palace and the village center. Once lined with fields, the route has developed swiftly since 2003, and is now flanked by fenced villas, shops, commercial construction businesses and their suppliers.

Despite rumours of relocating the village during the Revival of Babylon project, Bernoun was left untouched and a moratorium placed on land sales to outsiders limited the village's growth. Bernoun's population nonetheless increased, owing mostly to migrants from other parts of Iraq with relatives in the main local tribes, primarily branches of the Dulaim tribe.³⁶ During the recent Iraq War some families of the tribe rallied against insurgent activity in the area and tribal leaders were forced to flee Iraq after threats against their lives.

In 2012 Babil Governorate officials changed district boundaries around the village moving it from Mahawil District to inside the Hillah municipality. Now all of the surrounding communities are inside the municipality except Annanah. Residents of Bernoun, disgruntled by the lack of public services under the old administrative boundaries, feel the move will only make things worse.

Internally displaced people, the Maydan, Arabs of the southern marshlands near al-Basrah, have resettled south of Bernoun on the Shatt al-Hillah where they tend 200 head of livestock, mainly water buffalo.³⁷ On the banks of the Shatt al-Hillah families have built traditional marshland houses, communal dwellings made of intricately woven reeds. These families are poor and their children have no access to education.

Military Remains and other Recent Landscape Alterations

Until very recently, Babylon was littered with the traces of Iraqi, American and Polish military activities of the previous fifteen years. The military presence caused damage, as detailed in several accounts and summarized in a UNESCO report.³⁸ Long defensive trenches were cut through

³⁶ WMF interview with Sheikh Haider Jabbar Obeis, 2012. Branches of the Dulaim tribe are primarily found here: Albu-Berhi (Sheikh Jafar Sahib Hussein); Albu-Khalil (Sheikh Abid Zaid Habib); Albu-Salem (Sheikh Mohamed Jasim Mohamed); Albu-Dawood (Sheikh Haider Jabbar Obeis); Albu Huraifat (Sheikh Sattar Kadum Abid Abdalla), and Albu Muhamde (Sheikh Haider Mohsen Abood). Other Bernoun tribes are the Shamar (Sheikh Hassan Ali al-Jbbur); Ginabat (Sheikh Jabbar al-Firas); Muamra (Sheikh Hassan Mohamed Hassani); Rubaeah (Sheikh Musa Khudier Abbas); al-Tuwaleb (Sheikh Hassan Karim Hamza al-Haddat); and al-Kadas al-Zubaid (Sheikh Hamid Sadek Anbar).

³⁷ In the early 1990s Saddam Hussein ordered the marshlands drained as punishment for a local rebellion, knowing the wetlands were a source of food and livelihood.

³⁸ J. E. Curtis, *Report on Meeting at Babylon 11th-13th December 2004*, (London: British Museum, 2005); J. E. Curtis, *Inspection of Babylon on Behalf of UNESCO 25th to 29th February 2009*, http://www.britishmuseum.org/pdf/Babylon%20UNESCO%20Report_.pdf /; Poland Ministry of Culture, *Report on the Current Condition of the Babylon Archaeological Site (The Military Camp Alpha Site)*, (Warsaw: Ministry of Culture of the Republic of Poland: Bureau of Defense Matters, 2009); E. C. Stone, *Assessment of Damage to Babylon based on Digital Globe Satellite Imagery*. Prepared at the request of UNESCO for the ICC Babylon Subcommittee, 2008; UNESCO, International Coordination

archaeological deposits; archaeological material was used to fill sandbags and HESCO Concertainers; heavy vehicles driven on ancient pavements and some monuments vandalized. Iraqi forces equipped the top of the inner city wall and Summer Palace with one-meter deep firing dugouts. Enlarging an area to serve as a helipad involved the use of chemically treated and compacted gravel to keep down dust. Camp Alpha was handed over to Polish forces in September 2003, and back to the Iraqi government at the end of 2004. Some Camp Alpha trash heaps remain, along with other abandoned materials.

A SBAH team under the direction of Maryam Umran Musa surveyed the military remains in 2006, using the reports by John Curtis for UNESCO (2005) and John Russell for the US State Department (2005) as base data. Some of the items recorded in these reports were removed by departing Coalition Forces, the Iraqi Police, the Babil Governorate, the SBAH and WMF, but much is still on site.

A WMF and SBAH team survey revisited the previous assessments and updated the extant quantities of materials and visible impact caused by military presence mainly from Camp Alpha. This is illustrated in the map 'Existing Military Remains and Other Damage', but the Camp Alpha occupation is but one chapter of chronic modern misuse of the site since Koldewey's excavations. The survey of military remains informs the intervention priorities (including labour estimates and costs) for their removal (see Part III). The survey also helped evaluate the military episode as part of the site's historical narrative and influenced the proposed interpretive program and site presentation discussed in Part III.

As of September 2018, all military remains have been removed from the site.

Utilities and Infrastructure

Electrical Network

The first electrical grid specifically for Babylon was installed between 1987 and 1989 in response to a 1986 order to build ten on-site restaurants for the Babylon Festival. High-tension lines and a back-up emergency line were laid from al-Hillah past al-Jimjmah under the road to Amran ibn-Ali Shrine. The line continued onward to the planned Babylon Conference Center and former Palace of Saddam Hussein. All electrical lines were buried. Within two years of installation the new restaurant facilities were completed as were a shopping bazaar and several bathroom blocks.³⁹ A second line, part of the regulated municipal grid, enters the site from near Marduk Gate.

Committee for the Safeguarding of the Cultural Heritage of Iraq, Sub-Committee on Babylon, *Final Report on Damage Assessment at Babylon* (Paris: UNESCO, 2009), <http://www.unesco.org/fileadmin/MULTIMEDIA/FIELD/Iraq/pdf/Report%20on%20Damages%20in%20Babylon.pdf>; Russell, Report on the Damage to the Site of Babylon, 2010, 95-112; See also: J. E. Curtis, "The Site of Babylon Today," eds I. L. Finkel and M. J. Seymour, *Babylon: Myth and Reality* (London: British Museum Press, 2008), 213-220; M. U. Musa, "The Damages Sustained to the Ancient City of Babel as a Consequence of the Military Presence of Coalition Forces in 2003," P. G. Stone and J. Farchakh Bajjaly, eds., *The Destruction of Cultural Heritage in Iraq* (Woodbridge: Boydell Press, 2008), 143-150; Parapetti, "Babylon 1978-2008," 1-45.

³⁹ WMF interview with Elham Sabri, SBAH Babil Inspectorate chief electrical engineer, 2012.

Saddam Hussein's diwan, laid electrical lines for all visitors' facilities. The diwan initiated all projects that concerned the regime, and usually included an intelligence services component. Electricity for the remainder of the archaeological site was charged to the SOAH, except for the presidential viewing box in the Greek Theatre, installed by the diwan.

The SOAH installed electricity at the monuments so performances pertaining to the Babylon festivals could be presented to the public. In 1987, all had interior and exterior lighting designed as permanent, but which was stolen soon after installation. Subsequent festivals utilized temporary cables and lights that were rolled out and stored until the following year.

In 2003, during the collapse of the Hussein regime, the entire electrical system was looted, including wiring in most buildings. Ten generators went missing and the local department of electricity removed two of the three remaining transformers at the Greek Theatre. The entire electrical and air conditioning systems at Saddam Hussein's palace were looted as Iraqi security pulled out.⁴⁰

Polish military forces donated new security systems in 2004-05. These quickly fell into disrepair after their departure and many of the cameras were stolen or broken. Through a special grant provided during the occupation, the Babil PRT replaced the Nebuchadnezzar Museum electrical system in 2010 and installed new air conditioners.

At present, the site is partly monitored by CCTV with plans to complete the system in the coming years.

Potable Water Connections

When Saddam Hussein's palace and the Conference Center were built, the utilities building north of the palace hill included air conditioning and fresh water treatment plants; as per regime policies both had their own self-standing systems. In 2003 the palace's utilities building was stripped, leaving only cooling fans and a maze of pipes too difficult to be carted away. The related pump house on the river west of the palace is empty.

All surrounding communities have municipal fresh water connections except for New Qwaresh, which is serviced by a water pumping station on the Shatt al-Hillah north of Warsaw Gate. The relocation of Qwaresh in the early 1980s to its present location adjacent to Mahawil District put it at the north end of the al-Hillah Municipality and beyond the reach of the city's water network. The noisy pumping and filtration station, operated by diesel generators, also provides a second line to the abandoned tourist village and a third to the core of the site. This is separate from the water lines coming from the city that feed nearby al-Jimjah and the Babylon Conference Center.

Residences and farms away from the village centers obtain water from wells whose quality has not been tested; many complain of a salty taste.⁴¹ These wells tend to be hand dug anywhere from 5 to 10 meters deep and drilling often brings a burst of pressurized water to the surface,

⁴⁰ WMF interview with E. Sabri, 2012.

⁴¹ WMF interviews with Salah Mahde, 2011-12.

indicative of groundwater force.⁴² Households utilize the municipal network for potable water and wells for livestock and irrigation.

Other facilities at Babylon, such as the Inspectorate's offices, are connected to a municipal pipe that enters near Marduk Gate. A second municipal pipe, under the road to Amran ibn-Ali Shrine, connects to the Babylon Conference Center.

Sewerage System

The sewerage infrastructure for Babylon is underdeveloped. There are no connections to al-Hillah municipal system and disposal is ad hoc. In surrounding communities, particularly al-Jimjmah and Sinjar inside the site boundaries, sewage is disposed of via individual or group cesspools, an economical solution preferred in rural areas lacking municipal networks.

Of greater concern is the poorer form of cesspool typically used by informal or illegal residents within the site boundaries, often internally displaced people. Some have not invested in sewage disposal and, in the worse cases, use only open pits for toilets.

Inside the core of the site, the Babylon Conference Center has a closed septic tank system, regularly pumped out by governorate trucks and hauled to a disposal center.

The facilities under SBAH authority (its inspectorate complex, facilities near the Nebuchadnezzar Museum, and the tourist village) employ similar closed system septic tanks. They may either be leaking or not used enough to merit pumping. Like the rainwater drainage cisterns at Ishtar Gate, which were not cleaned since their construction in the 1980s, these cesspools have probably received no maintenance.

The effect of household waste on the archaeological remains has not fully been tested. Yet the combination of thousands of open sewerage systems surely complicates the hydrology problem at Babylon, where groundwater from the Shatt al-Hillah is moving in towards subterranean archaeological remains. In some cases, water may pass beneath populated areas before entering the core of the site.⁴³

Circulation Network

Babylon's circulation network began as a series of village footpaths some of which were replaced by national and regional roads, others incorporated into Babylon's presentation as an archaeological site. The Revival of Babylon Project in the 1980s increased the site's paved surfaces by at least tenfold. The project introduced some disruptive elements, but it also eliminated a serious threat: a national highway, which was re-routed outside the site boundaries.

⁴² WMF interview with Abu Akram, an experienced well digger from al-Jimjmah, 2010.

⁴³ Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report, Annex 1, Geotechnical Investigation of Ancient Babylon Site" (commissioned by WMF in 2012). A technical investigation involved drilling two boreholes. Analyses primarily covered soil properties and did not extend to chemical tests beyond sulphate and chloride measures, which both tested high.

The Revival of Babylon Project nonetheless lacked a comprehensive circulation plan; there are many route redundancies, inconveniently placed parking lots, abandoned roads, and some pavements laid over sensitive archaeological areas. The growth of surrounding communities was not considered. The 2008 al-Hillah Master Plan by Dar el-Handassah, which provides projections for urban growth and the road networks required to meet expected demands, contains useful data for the site management plan yet does not totally reflect the impact of ongoing construction in and around the city and on Babylon itself.⁴⁴ The Master Plan does however propose a new radial and circulatory road pattern around al-Hillah as well as a green belt along the city outskirts that complements and protects Babylon from traffic.

Existing Road and Parking Network

The Babylon turn-off of the Baghdad-al-Basrah national highway is currently the main entrance to the core archaeological area. Access starts where the Babylon bypass of the national highway veers southeast around the site near the Summer Palace. Entrance to Babylon follows the old highway directly south towards al-Hillah until Marduk Gate, where Marduk Street, a smaller perpendicular road, enters the site core.

The old highway continues south, but is now cut off north of the Hawliyah Canal. The 700 meters of road after the Marduk Street turn-off is abandoned, a two-lane highway leading nowhere. The abandoned highway resumes across the canal, where a traffic roundabout features the statue of Hammurabi. Occasional local traffic flows through the roundabout from a paved road beside the Hawliyah Canal outside of the core of the site. The current Baghdad-al-Basra national highway is 300 meters south, beyond Babylon's outer walls, where the bypass rejoins the abandoned highway.

The circulation pattern between the site's core and current Baghdad-al-Basrah highway lacks a system of arterial, distributor, and local access roads. Instead, traffic follows a series of ad-hoc roads between farmed fields that intersect the Baghdad-al-Basrah national highway bypass at various points. These allow local traffic to enter the highway, but were not designed to safely access high-speed traffic lanes.

The second entrance to the core is via the Shrine of Amran ibn-Ali road from al-Jimjmah and Road 60. During the Revival of Babylon Project the road was straightened, paved and equipped with underground utility lines. Prior to cutting the road archaeological investigations were undertaken to avoid damaging important remains, yet parts of the ancient bridge piers were removed to make way for utilities lines. The Shrine of Amran ibn-Ali road currently serves as the main entrance to the Babylon Conference Center.

In September 2018, improvement work was completed on the visitor access road between Marduk Gate and the copy of the Ishtar Gate as part of the first phase of works intended to improve access. Furthermore, a car park with a capacity of 400 was completed on the right of the main entrance, and 4 electric cars put at the disposal of visitors to reach the Ishtar Gate copy.

⁴⁴ Distributed in two forms: Iraq Ministry of Municipalities and the General Directorate of Urban Planning, "Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah", May 2007 and Dar al-Handasah, "Master Plan of the City of Hilla, Hilla City Development Strategy," July 2007. Although still unofficial, elements of the plan are being implemented by the planning department. The Babil Governorate gave WMF copies of the plan in June, 2009.

The Shatt al-Hillah separates the site's west bank from the rest of Babylon's transit system. West bank development has been somewhat limited because most traffic runs away from the river, but without a bridge, the area is cut off from the archaeological site on the east bank. Consequently, the SBAH has no direct access to the western site, and little communication with its inhabitants. This lack of supervision has contributed to the rapid growth of illegal construction around the village of Sinjar within the site boundaries. In the past couple of years, the Antiquities Police started patrolling the western site daily using the main bridge in Hillah City Center. This now allows to monitor illegal constructions and other encroachment issues.

Public and Private Transportation

As elsewhere in Iraq, inhabitants of the villages surrounding Babylon rely on government-licensed and fixed-route private car and microbus service. Microbus routes originate in al-Hillah at the Naziza Transportation Garage and run to Bernoun, al-Jimjmah, Sinjar, and Annanah villages.⁴⁵ Scheduling is based on capacity, meaning vehicles only move when they are full of passengers.

In 2003 the rail service from Baghdad that once dropped passengers at Babylon near Marduk Gate was discontinued and has not been resumed since. A full railway station for Babylon on the new rail route parallel to the Baghdad-al-Basrah highway bypass was proposed in the 2008 al-Hillah Master Plan and would greatly facilitate visitor access.⁴⁶

River Transportation

The Shatt al-Hillah is not currently used for transportation. In late 2003 a private investor proposed a private ferry service linking al-Hillah city with Babylon, specifically to a picnic ground on the west bank opposite the Saddam Hussein palace. Ferry service was inaugurated in 2009, but the plan was not fully realized and soon the boat broke down. Reviving public ferry transport to and around Babylon and nearby communities is an option to be discussed with local investors and tour operators.

II.6 Babylon and its Natural Environment

Three specialized studies (geo-hydrological, topographical, and bio-diversity) support the site management plan and furnish data on the natural environment. This section summarizes their results in addition to on-site research performed as part of the management plan preparation.

⁴⁵ WMF interview with Salman Ahmed Soulieman, 2012.

⁴⁶ Iraq Ministry of Municipalities and the General Directorate of Urban Planning, "Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah", May 2007.

Geo-Hydrological Study

A geo-hydrological study of Babylon performed by Consulting Engineering Bureau (CEB) of Baghdad University re-examined previous hydrology studies by the Directorate General of Geological and Mineral Surveys, Ministry of Industry (DGGSMI, 1979) and an al-Furat for Studies and Design of Irrigation Projects study (FCSDIP, 1989). CEB also performed its own research and field-testing towards an updated analysis of the data.

Consulting Engineering Bureau's study offers concepts for de-watering solutions while confirming and refining the results of previous studies. Consulting Engineering Bureau is a qualified Iraqi academic institution but it has limited field experience and has never worked at an archaeological site. Part III will present several de-watering options and recommends engaging further professional assistance from international consultancies such as those who handled ground water issues in Egypt at Karnak, Old Cairo, and Luxor's west bank.

Babylon is built on a flood plain of Aeolian sediments dating to the Quaternary age 50-250 meters deep.⁴⁷ This floodplain forms the central depression between the Arabian Plate and the Turkish and Iranian Plates and the Mesopotamian lowland floor plain covers approximately 54,000 square kilometers. Sediments are sandwiched between a thin clay layer mixed with organic material at the surface and with pre-Quaternary sediments below. Pre-Quaternary sediments (deposited 2.5 million years ago) were found underneath at various depths, indicating irregular surface erosion. The sediments also indicate shifting fluvial deposits and are mainly composed of fine sand layers (0.5 – 28 meters thick), interspersed with relatively thin, silt layers. The upper layers generally contain brick, pottery fragments, shells and pebbles. Beneath lies a semi-permeable layer of clay and below that a medium-grained sand and gravel layer approximately 15-25 meters thick.

Research suggests that Babylon's outer city wall influenced the sedimentation process in its vicinity, acting as an embankment protecting the inner area from floods and causing a difference in upper-layer deposits inside and outside the wall. Sediments outside the wall are composed mainly of sandy deposits, while the area within is composed mainly of silt.⁴⁸

Interestingly, Nebuchadnezzar II planned for marshes around Babylon to serve as defensive elements. Ancient hydrological systems were well-conceived, not least since bulk materials such as barley (stored next to Neo-Babylonian palaces) and cult statues were transported into the city by boat.⁴⁹

Two aquifers lie within the sedimentary strata. The first is unconfined, moving at depths of 4- 20 meters below the surface. The second, more

⁴⁷ Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report," 8. These findings are reiterated in: Olof Pederson, "Waters at Babylon," from *A History of Water: Water and Urbanization*, Series 3, Vol. 1, eds. Terje Tvedt and Terje Oestigaard, (London: I.B. Tauris, 2013).

⁴⁸ Ibid., 10. See DGGSMI, 1979 and FCSDIP, 1989. Core borehole drilling indicated that the depth of the Babylonian outer wall is about 15 meters and the bottom depth of archaeological remnants is nearly 25 meters.

⁴⁹ Ibid., 9-10.

confined aquifer, lies beneath the semi-permeable layer of clay.⁵⁰ Both move water beneath the site, generally in a southern direction, with the upper aquifer rising in some cases just 0.5 meters from the surface near the river courses, and four meters from the surface in the site's core. Recharge occurs primarily during winter months, when evaporation rates are lower and soil moisture is maintained.⁵¹

Testing showed transmissivity rates along the upper aquifer to be highest near the Shatt al-Hillah with a significant 320 meters² of water moving underground past a given square meter of earth daily.⁵² Measurements made near the Babil River showed similar transmissivity rates. In contrast, underground water movement is substantially lower towards the middle of the archaeological zone (roughly the site core).

In 1988, levees built between the Hindiya Barrage and the Dora Regulator south of al-Hillah allowed the Shatt al-Hillah to rise above its historic levels, raising Babylon's water table.⁵³ Water surges out of the Shatt al-Hillah and Babel River, rather than draining into them.

Rising groundwater and the resulting saline residue are two of the main, ongoing causes of damage to archaeological remains above and below ground at Babylon while also preventing further excavations. As the groundwater discharge moves upwards (because of evaporation rates many times higher than rainfall recharge) upper soil layers accumulate salts. The percentage of soluble salts varies from fifteen percent in the top one-half meter to 0.2 percent in the second meter of soil.⁵⁴ This is visible in the winter months as a white coating on the ground surface.

Despite minimal rainfall, now as in the past, occasional rainstorms pour large quantities of water on the site. Drainage measures implemented during the 1970s and 1980s were ill conceived and unsuccessful. Sloping surfaces often move water towards rather than away from monuments. Inappropriate drain piping, poor guttering, and leaky cisterns have hastened the decay of these structures.

Water Elements and Movement

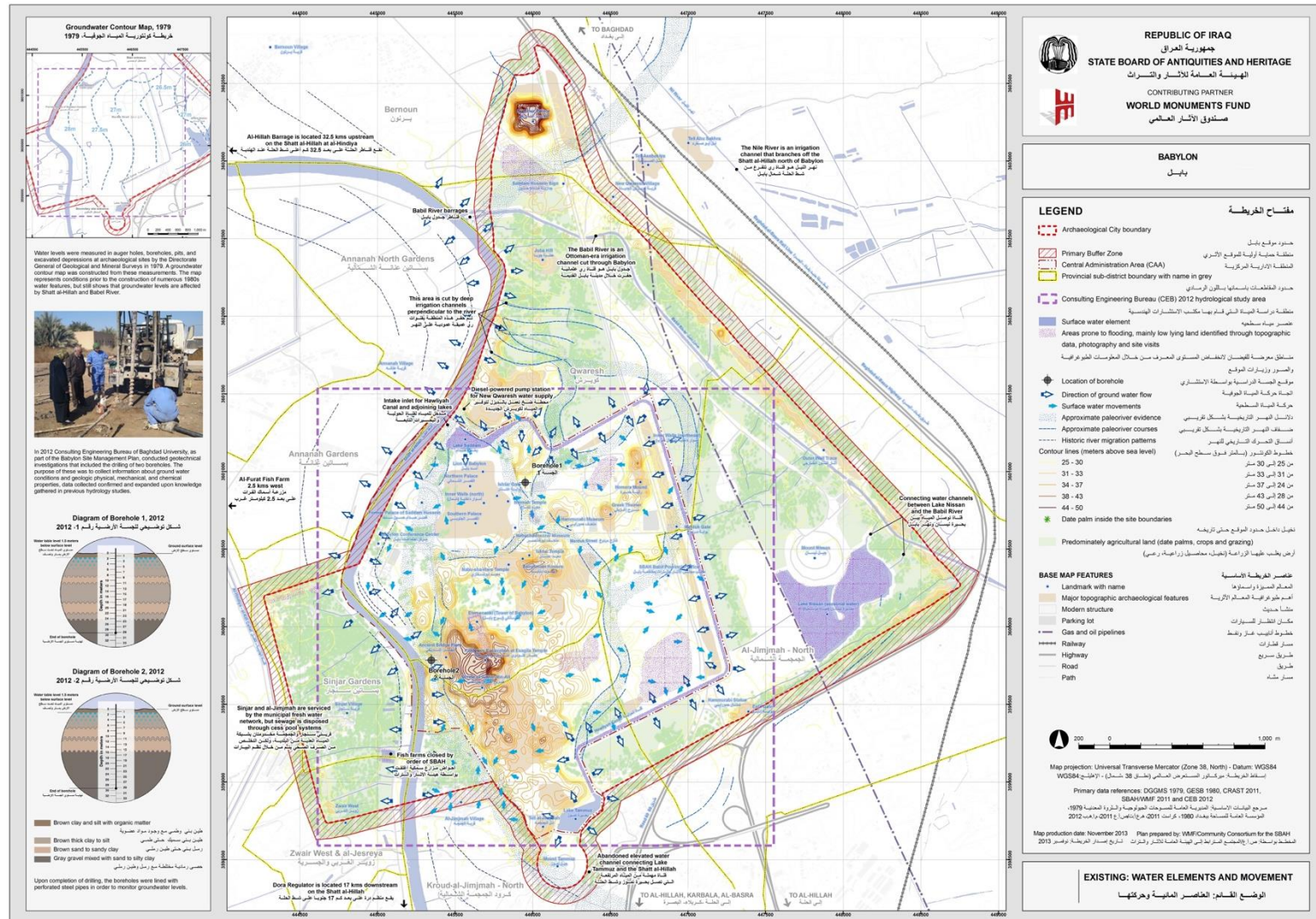
⁵⁰ Ibid., 19, and DGSSMI, 1979.

⁵¹ Ibid., 12.

⁵² Ibid., 21-22.

⁵³ WMF interview with Zaki Abbas, 2012. Now in his early seventies, Mr. Abbas was an irrigation engineer for the Ministry of Irrigation who on the Hindiya Barrage and dams near al-Hillah, specifically the Dora Regulator.

⁵⁴ Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report," 23.



Topographic Study

The Centro Ricerche Archeologiche e Scavi di Torino (CRAT) has been studying Babylon since the 1970s and enlarged its ongoing research on

the Shatt al-Hillah for the purposes of the site management plan. Combining archival information and satellite imagery, CRAFT maps historic shifts in the river's course and tracks how Babylon's urban fabric evolved in response. This work deepens our understanding of Babylon's current topography while illustrating the connection between the natural environment and the city's development.

The Shatt al-Hillah was the major branch of the Euphrates flowing through Babylon in antiquity, but the Euphrates followed multiple channels. Tracing settlement patterns of different periods reveals changes in the rivers' courses. Neat lines of settlements seen today as tells, represent the banks of now-vanished watercourses. Kish and Sippar, Babylon's predecessors as pre-eminent settlements, lie on such channels. Substantial changes in the river's course likewise occurred during the millennia of Babylon's occupation, as reflected in the changing orientation of street-plans within the city.⁵⁵ One major alteration in the river's course dates to the Achaemenid period, when the river took a sharp detour east at the northern edge of the inner city.⁵⁶

By the early twentieth century when Koldewey excavated at Babylon, the Shatt al-Hillah was greatly reduced. Photographs from those years suggest a seasonally fluctuating flow in a riverbed somewhat wider than today's. In 1911, when the excavations were still taking place, work began on barrages at Saddat al-Hindiya, which had a significant effect on watercourses downstream.

The Hindiya Barrage's six large gates control water flowing down the Hindiya branch and the Hillah Barrage's eight smaller gates control the Shatt al-Hillah branch. The two send water down canals to farmlands around the cities of Karbala, Saddat al-Hindiya, al-Hillah, and al-Kifel. The level of the Shatt al-Hillah was raised and provided better irrigation water supplies. This has since encouraged farmers to return to areas that appear to have been vacant at the time of Koldewey's excavations, the latest example of the river's impact on settlement at Babylon.⁵⁷

Bio-Diversity Study

In 2011, Nature Iraq, a Baghdad-based non-profit environmental organization, performed a biodiversity study at Babylon. Nature Iraq's report is derived from a baseline survey made at thirteen site locations where flora and fauna were counted and threats assessed.

Although not an exhaustive scientific evaluation, the survey provides a snapshot of the landscape's environmental health, confirming Babylon

⁵⁵ Carlo Lippolis et al., "Babylon's urban layout and territory from above," *Mesopotamia* XLVI (2011), 1-8, pls. I-IV. The plates show traces of ancient watercourses and street plans recovered through remote sensing and integrated with existing archaeological data. The varied paleoriver traces demonstrate the instability of the watercourse over time.

⁵⁶ Summarized in G. Bergamini, "La mission italienne, 1974-1989," B. André-Salvini ed., *Babylone* (Paris: Musée du Louvre Éditions/Hazan, 2008), 529-531. For a more detailed study of watercourses and levels in the Neo-Babylonian period see G. Bergamini, 'Levels of Babylon reconsidered,' *Mesopotamia* XII (1977), 111-152.

⁵⁷ WMF interview with Zaki Abbas, 2012. Mr. Abbas noted that people left the area when irrigation water diminished. Designed by William Willcocks, the original Barrage built 1911-1913 was replaced a few kilometers upstream (1984 -1989).

as an important area for observing wildlife for scientific, educational, and eco-tourism purposes.⁵⁸ The absence of large numbers of visitors and routine maintenance of Babylon since 2005 has allowed flora and fauna to repopulate, and in some cases flourish at, the archaeological site.

The study identifies assets for preservation that will inform the development of proposals for conservation and restoration. Identifying annual animal migration patterns and seasonal growth cycles could enhance the present study's value.

Flora

Plants native to this arid eco-system, mainly desert shrubs, have elaborate structural and physiological modifications including deep roots that reduce water loss. The most successful can grow in salty soil with groundwater depth ranging from 0.6 meters to 2.0 meters and in fact provide an indicator of groundwater proximity to the surface. Babylon also comprises several aquatic habitats with reed and cattail beds and rooted submerged vegetation. Based on satellite imagery and local accounts, these have matured and expanded in the absence of tourism and since the end of Babylon's military occupation in 2004.

Nature Iraq identified 42 plant species from 21 families, most of them common in Iraq.⁵⁹ Introduced species, mainly agricultural, have dramatically transformed the site, particularly date palm groves massed near water sources and irrigation systems. The densest are on the banks of the Shatt-al-Hillah, particularly the west side. Seen from the east bank the canopy of green crowns provides a backdrop to the site core. Palm groves support biodiversity by providing habitats for fauna and flora. In recent years the groves have been reduced due to archaeological regulations restricting irrigation and new plantings combined with accelerated construction activity.

Fauna

Animals inhabit Babylon's wetlands, arid zones, and agricultural areas. The survey counted 21 bird species and 11 species of mammal including fox, jackal, mongoose, and wild boar. Aquatic species are abundant, including fish, turtles, and 38 water-related bird species.⁶⁰ Most of the fauna is common throughout Iraq.

The Nature Iraq study identified one exceptional natural area around the artificial Lake Saddam (BAB 1).⁶¹ Thanks to its relative isolation and proximity to the Shatt al-Hillah, tall reed beds have grown since 2005 providing shelter for several species of migrating herons, cormorant, and other waterfowl including two rare, internationally threatened species of duck. The lake likewise offers year-round habitation for amphibians, fish, and mammals.

⁵⁸ Nature Iraq, "Biodiversity Baseline Study," 5.

⁵⁹ Ibid., 7.

⁶⁰ Ibid. Aquatic bird populations increase during the winter migration period.

⁶¹ Ibid., 19-23.

The Furat fish farms, two kilometers west of Babylon, (BAB 12) consist of 13 large, artificial lakes providing a habitat for thousands of gulls, teal, herons, grebes, storks, and egret. Although not part of Babylon, waterfowl from the farms interact with water bodies and open areas within the site.⁶²

Biodiversity threats

Political instability has taken its toll on the environment in recent years. Eco-systems throughout most of the country have suffered from a lack of supervision and regulation enforcement. Babylon is no exception; flora or fauna are threatened by residential construction on agricultural properties, intensified agriculture, overgrazing, road and vehicle disturbances, air pollution (from a commercial kiln operating on the site's borders), unregulated hunting/fishing practices (including the use of dynamite) on the Shatt al-Hillah and artificial water bodies, and garbage dumping by government and private entities.⁶³

Agriculture and animal husbandry threaten both the area's eco-systems and its archaeology. Free-ranging livestock (belonging to landowners within the site boundaries) tramples archaeological remains, particularly where depressions from past excavations offer shelter, notably around Amran Hill at the ancient bridge and Koldewey's excavation pit at Esagila Temple.

II.7 Stakeholder Assessment

The Ministry of Culture, Tourism and Antiquities (MoCTA) oversees the SBAH and all affairs involving antiquities and tourism. Excavation permits, permission to conduct site work and research must be obtained via the SBAH from the MoCTA. The tourism and antiquities sectors have separate administrators working under the minister.

The merging of antiquities and tourism under a single authority can effect Babylon's future development in positive ways. Centralized planning, combining cultural heritage management with commercial activities at the site could be facilitated. The MoCTA has expressed interest in establishing hotels and tourism related services at and near Babylon. Introducing development without compromising the site's integrity will be a major concern for Babylon's management as well as UNESCO's decision regarding a World Heritage nomination.

The Iraqi State Board of Antiquities and Heritage (SBAH)'s values and vision for Babylon were developed and formulated since 2011 through meetings and on-site workshops including mapping and significance-definition sessions held in Egypt, Turkey, Lebanon, and Northern Iraq. In 2001 the SBAH was formed from the vestiges of the General Directorate of Antiquities and the SOAH.⁶⁴ Today, the SBAH employs approximately

⁶² Ibid., 55-58.

⁶³ Ibid., 66-75.

⁶⁴ The General Directorate of Antiquities operated until 1977; the State Organization for Antiquities and Heritage (SOAH) from 1977-1980, and the General Directorate again

2,500 people and is organized into seven directorates each overseen by director generals with representatives of the MoCTA. The Director General of Investigations and Excavations is in charge of 15 provincial inspectorates (three more are under the General Directorate of Antiquities of the semi-autonomous Kurdish area).

The site of Babylon is within the mandate of the Babil Inspectorate, headed by a Chief and a Deputy Inspector. The inspectorate has five departmental units: administration, engineering, archaeology, heritage, and museums. The last unit includes Babylon's two site museums, which are under the Babylon Museums Manager and are jointly overseen by the Baghdad-based Director of Museums and Director General of Excavations and Investigations.

Compiling the site management plan has shed light on the demands of such large-scale projects and the shortcomings the SBAH must remedy in order to successfully implement them. While the SBAH Inspectorate employs seasoned archaeologists, it lacks staff with other essential skills. No one is experienced in tourist site management of any magnitude, in site interpretation, conservation and documentation as currently practiced, or in commercial property management, largely because there has been little call for these activities.

The future of Babylon will rely on the SBAH's ability to attract and nurture talented professionals, to offer opportunities to build their capacity and financial incentives to become long-term employees. Until recently the SBAH counted few young people among its ranks, but recently has made efforts to expand the ranks with young recruits, expanding their number of employees. Still, the age of employees remains a weakness that will influence the organization's future and the viability of this site management plan. Improved staffing, operational, and administrative procedures accompanied by cooperation with local government authorities are the greatest challenges the SBAH faces. The SBAH is Babylon's principle stakeholder as well as the organization charged with safeguarding Iraq's national heritage.

The SBAH Future of Babylon Committee was formed by the SBAH to assist in assembling the management plan and overseeing conservation efforts. The committee's five members, appointed by the former SBAH chairman, are management figures from both the local inspectorate level and Baghdad headquarters with specialties in archaeology, conservation, engineering, and architecture.

The Committee's initial purpose was to partner with WMF in assembling the 2015 management plan primarily by assigning members to head sub-committees tasked with documentation, archaeology, conservation, government, and public outreach. Attention also focused on building the committee's capacity to supervise the management plan implementation including the establishment of a new administrative system. A dedicated work group that comprehends the site management plan's values and methodology and that governs its implementation is essential.

Iraq's 18 provinces (three in the semi-autonomous Kurdish area) each have a local government. Babylon is the mandate of the **Babil**

from 1980-2001. The organization's name change principally reflected shifts in budget allotments within the Iraqi Government.

Governorate, headquartered in al-Hillah, and steered by the publicly-elected Provincial Council (PC). Council members elect a chairman from amongst their rank and a governor who serves at the council's discretion. Beneath this upper level of management lie four district and several sub-district governments each with their associated councils and appointed leaders.

The PC includes several sub-committees representing sectors important to local society; the PC's Culture and Tourism Committee is a primary contact for SBAH officials at Babylon. The Babil Governorate sees Babylon as a priority for growing the province's tourism sector, an attractive means of achieving greater economic independence from the central government's financial allocations, which are derived mostly from oil revenues.

Since Saddam Hussein's downfall, the Babil Governorate and SBAH have contested authority at Babylon. In the leadership vacuum left by the regime's collapse and the closing of Camp Alpha, the Governorate took control of the palace of Saddam Hussein, the Babylon Conference Center and the surrounding landscape, all facilities holding potential revenue streams. The SBAH's legitimate claim that this was illegal was largely ignored. The SBAH consequently sued two Babil Governors, demanding and obtaining full control over the land and facilities within the site boundaries. The Babil Governor and PC membership have changed in the past years. Relations with the current governor are an improvement over past years, and the SBAH has hosted several site visits by PC members.

The Shi'a endowment, governed directly by the Prime Minister's Office, controls Shi'a pilgrimage activity and shrines including that of Amran ibn-Ali at Babylon through its regional department. Since 2003, the Shi'a Endowment has developed visitor facilities at the Amran ibn-Ali Shrine as part of a program to increase pilgrimages. A number of new structures were built without consultation or discussion with the SBAH Babil Inspectorate.⁶⁵ Dialogue between the two organizations has improved in recent years.

Local communities and site residents were consulted in the process of compiling this management plan primarily by WMF, SBAH Babylon employees who live in the area and the Future of Babylon Committee. A series of informal conversations opened doors to local networks, allowing well-attended community gatherings to take place, with clan sheikhs and farmers owning property inside the site as the main participants. Dialogue mostly concerns land rights, employment opportunities, and the ways that Babylon's potential future as a major tourist destination and World Heritage property could benefit local communities. These gatherings marked the first time local residents were engaged in a dialogue with Babylon's authorities to build a cooperative relationship.

The tribal system forms the social and cultural backbone of Iraqi society. Outside of larger cities, where its influence is somewhat limited, this system remains integral to the lives of Iraqis. At Babylon the system of binding relations is based on a mixture of collective ancestry, geographic origin, and social conduct. Meetings were held with several sheikhs at Babylon to define means of improving relations between the SBAH and the communities.

⁶⁵ WMF interview with Sheikh Salah Ali, a caretaker at the Amran ibn-Ali Shrine, 2012.

Nature Iraq performed a socio-economic survey, facilitated by the network established at community gatherings. People living and farming within the site boundary told Nature Iraq that the SBAH rarely communicated except to accuse them of breaking rules. They were familiar and unhappy with the SBAH restrictions accompanying private land use within and adjacent to Babylon. These include construction of dwellings with several storeys, restrictions on well-digging and the prohibition of fish farms, canal dredging, and replacement of dead date palms.

They expressed confusion regarding the site boundary's location and allowable practices in the buffer zone and were concerned that privately-owned land may be lost. Villagers with extended families holding farmland inside the site consider it of the utmost value as both investment and income source. They resented the forced evictions and low compensation suffered under Saddam Hussein. A legacy of distrust has hampered attempts by the SBAH or local government to buy back land inside the boundaries. Opening the lines of communication was a first step towards building the rapport necessary for finding cooperative solutions.

Visitors have always played a role in Babylon and will continue to do so, as customers with expectations that influence quality standards and competitive services. Moreover, visitors' interaction with and appreciation for the site fulfils its purpose of embodying and conveying the universal value of cultural heritage.

Today visitors to Babylon are predominately Iraqis from the south-central region: over 13,000 Iraqis visited in 2012. Numbers increase during post-exam school holidays, when student groups traditionally spend a day at Babylon, strolling along the entry road, visiting the former palace of Saddam Hussein, and attending a catered party at the Babylon Restaurant in the Conference Center.

The entry fee system for the archaeological area ranges from 250 Iraqi dinars (IQD) for primary students to 1500IQD for adults.⁶⁶ A fixed 20 United States Dollars (USD) entry fee is charged for foreigners. All revenue from admission fees go to the Ministry of Finance who distributes budget allocations for all ministries.

Millions of religious pilgrims, mainly local and Iranian, travel through this part of Iraq each year, visiting the Shi'a shrines of Ali ibn Abi Talib, the First Shi'a Imam, in Najaf and the tombs of his sons Hussein and Abbas in Karbala. The Hillah area contains a number of secondary sites and some pilgrims find their way to the Shrine of Amran ibn Ali at Babylon. The Shi'a endowment's pilgrimage association promotes the shrine and visitor numbers are increasing. The Babil Governorate and SBAH has not yet attempted to capitalize on these visits but several villagers have erected makeshift souvenir stands like those found at other shrines.

Security concerns account for the low visitor counts at Babylon and many Iraqis assume the site is still closed to the public. However, the situation

⁶⁶ Equals approximately 1.25 USD in 2018.

is changing and the number of visitors growing. International tourism at Babylon numbered less than 300 visitors in 2012. These tended to be Baghdad-based diplomatic missions, and more recently, occasional cultural/pilgrimage tours by a French company Terre Entière and adventure holiday by Hinterland Travel out of London.

Many consider increased domestic and international tourism as Babylon's rightful purpose. Tourism is perceived as the source of revenue that will improve social and economic conditions within al-Hillah and throughout Babil Province. Yet tourism will only increase when security has improved. Mass international tourism, a cash cow in the eyes of many speculators, remains a distant and uncertain socio-economic benefit.

Al-Hillah's tourism sector has long handled sightseeing at Babylon and was well placed to capitalize on the surge of visitors accompanying the Revival of Babylon festivals (late 1980s-early 1990s). Many local agencies providing tourism-related services grew. The tourism economy waned during the First Gulf War, was damaged by sanctions and finally collapsed with the 2003 Coalition Forces invasion of Iraq and subsequent downfall of the Saddam Hussein regime.

Strategically located between Karbala and Najaf, al-Hillah's business community is again actively involved in the tourism sector. The current clientele is a growing number of Iranian Shi'a pilgrims who were previously restricted but can now visit the region's important shrines. Businesses primarily focus on travel, transport, and food services with accommodations concentrated around the Tomb of Ali ibn Abi Talib in Najaf and the tombs of his sons Hussein and Abbas in Karbala. Other visitors to the area tend to be on business trips from other parts of the region or Iraq.

Tourism service providers are generally open-minded entrepreneurs who wish to see Babylon rejuvenated and international visitors return. At meetings held during the assembly of the management plan, they formulated the challenges to attracting tourists to Babylon, including regional security, hard-to-obtain tourist visas and inadequate accommodation facilities. A limited number of accommodations are currently available in al-Hillah, driving up room rates and fostering a tourism environment where value is low compared to price.

Local youth are committed to their community and have enthusiastically expressed their wish to participate in Babylon's preservation and future. The Youth Dream Team, a group of civic volunteers, undertakes regular trash clean up along the Processional Way, set up plastic trash bins in the Nebuchadnezzar Museum courtyard, and has erected signs touting their work.

Site security guards depend on Babylon for their livelihood and maintain a constant presence on site. In the past, the antiquities police were SBAH employees, armed and in uniform patrolling SBAH-registered sites. Since 2003 SBAH-employed guards no longer carry weapons. Their function is to provide eyes for the Babil Inspectorate by patrolling the archaeological site and liaison to the Iraqi Police.

The Ministry of Interior has a division of Governorate Iraqi Police who secure the site, reporting to a district command based at Babylon. District

command, in turn, answers to a Governorate-level officer in al-Hillah. Iraqi police operate checkpoints at two points of the archaeological core and the main entry gate where fees are collected. National Iraqi Police officers, more of a paramilitary wing of the ministry, man vehicular checkpoints in the area and sometimes assist the Governorate police at Babylon's entrances too.

With the 2013 theft of artefacts from the Nebuchadnezzar Museum storage, Governorate Iraqi Police increased their presence inside the site. The former souvenir shop in the museum courtyard was converted to a police post. The Carabinieri also donated equipment, including portable housing units (CHUs) at several Babylon stations. The Iraqi Police recently renovated the utilities building of the former palace of Saddam Hussein as their district headquarters.

In 2007, the Ministry of Interior in coordination with SBAH set up and provided special training for a specialized Antiquities and Heritage police corp. Several members participated in courses in Amman, Jordan sponsored by the Italian Cultural Heritage Protection Squad (Comando Carabinieri per la Tutela del Patrimonio Culturale). In Babylon, the Antiquity Police maintain a permanent headquarters and patrols both in and outside of the property.

The United Nation's Educational, Scientific and Cultural Organization (**UNESCO**) promotes intercultural dialogue and the cooperative protection of cultural and natural heritage by recognizing resources of universal value under their World Heritage program, administered by the World Heritage Center. The UNESCO General Assembly regularly elects 21 state parties who operate as the World Heritage Committee. Iraq has had representation on this committee since 2010. UNESCO's Iraq office oversees the coordination and convening of the International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq (ICC) and the former sub-committee (2005-2010) concerning Babylon. UNESCO has taken an interest in Babylon since it was admitted to Iraq's tentative list of sites to be nominated for inscription on the World Heritage list. In 1982 when the SOAH first presented Babylon for World Heritage status consideration, a decision was deferred. Two subsequent requests (1985 and 1991) failed mainly due to the extensive alterations of the Revival of Babylon project and the absence of a sound site management strategy. Associated with UNESCO, the World Heritage Center is responsible for the review, processing, and recommendation of all applications. The World Heritage Center reviews tentative list nominations, including Babylon's updated nomination submitted in 2018.

A private, non-profit organization founded in 1965, the World Monument Fund (**WMF**) has worked in over 90 countries to preserve global heritage. Since 2008, WMF has managed the Future of Babylon project with the SBAH. The collaboration is aimed at developing a site management plan for Babylon while stabilizing and preventively preserving priority sites within its archaeological core. Beginning in June 2009, WMF personnel have visited Babylon and Baghdad regularly, conducting thirty, two to three week-long missions to date. In addition to the site management plan, works in progress include conservation on key structures and related site clean-ups, condition assessments and documentation for excavated areas of the site. The process of compiling the site management plan has meanwhile provided a realistic assessment, for both WMF and its SBAH partners of how Babylon can be managed, and the expertise, effort, and cooperation required to do so successfully.

The Deutsches Archäologisches Institut (**DAI**), or German Archaeological Institute, is a federal agency within the German Ministry of Foreign Affairs. DAI primarily performs domestic and international archaeological research. DAI runs archaeological missions in various sites in Iraq. Its staff members serve on various UNESCO organized oversight committees, hosting conferences, conducting training and capacity building programs for SBAH scholars, including some from Babylon.⁶⁷ Furthermore, the archives of the extensive excavations conducted at Babylon during the late nineteenth and early twentieth centuries by the Deutsche Orient-Gesellschaft (DOG) or German Oriental Society are now under the authority of the DAI, although they remain within the Society and are housed at the Vorderasiatisches Museum in Berlin.

Founded in 1963, the Torino-based Centro Ricerche Archeologiche e Scavi di Torino (**CRAST**) is dedicated to archaeological research, the managing and preservation of cultural heritage, and the presentation of associated research to the public. On behalf of the Italian Ministry of Foreign Affairs, it initiates cooperation agreements involving cultural projects in Mediterranean, Near and Middle East countries including Iraq. CRAST's involvement at Babylon began in 1974 (under the Italian-Iraqi Institute of Archaeological Sciences and the Iraqi Center for the Restoration of Monuments) when a new topographic survey of the archaeological area and preliminary studies of the paleo-hydrology of ancient Babylon began. The recently updated results from this study have greatly informed this site management plan. Between 1987 and 1989 CRAST conducted excavations at the south side of the Inner City Walls.

The British Museum holds some of the largest and most important collections of cuneiform texts from Babylonia and Babylon. Former museum staff member, John Curtis, led an international effort to assess the damage and losses resulting from the looting of the national museum in Baghdad and occupation of Babylon. This evaluation led to the 2009 *Final Report on Damage Assessment in Babylon*, published by UNESCO and co-authored by Dr. Curtis and Dr. van Ess of the DAI. In 2008–2009 the British Museum mounted the exhibition “Babylon: Myth and Reality,” which situated Babylon in its historical and contemporary context, juxtaposing the archaeological remains of the Neo-Babylonian period with examples of the city's later representation in art and culture. Michael Seymour, co-author of the exhibition catalogue, now with the Metropolitan Museum of Art in New York, contributed to the site management plan.

The Babylon Archaeological Project, begun in October 2003 by the Coalition Provisional Authority (CPA), South-Central Region, was established as a joint Polish-Iraqi initiative. Overseen by Rafal Kolinski of Warsaw University, BAP was responsible for monitoring and recording the areas occupied by Coalition Forces within Babylon.⁶⁸ The Polish Military Contingent in Iraq was directly responsible for substantial repair work to modern facilities within the archaeological site that endured vandalism and theft prior to the arrival of Coalition Forces.⁶⁹ Over 600,000USD was spent in Babil Province, the majority at Babylon through the Commander's Emergency Response Program of the CPA. The

⁶⁷ Margarete van Ess, Scientific Director of DAI's Orient Department, was co-chair of the ICC sub-committee on Babylon and co-editor of *Final Report on Damage Assessment in Babylon* (UNESCO, 2009).

⁶⁸ International Audit Commission, “Report on Babylon Current Condition”, (December 2004).

⁶⁹ Tomasz Burda, “Specification of Projects Realized by Specialists in Archaeology and Protection of Cultural Heritage in Polish Military Contingent in Iraq”, (February 2005).

projects implemented were primarily the rehabilitation of modern facilities, including overhaul of the Nebuchadnezzar and Hammurabi museum buildings, installation of security systems covering archaeological areas, visitor improvements and restoration work at shrine of Amran ibn-Ali. Iraqi police stationed at the site were also provided new equipment and training under a separate program. The CPA, under Polish forces, officially turned the site back over to the SBAH in January 2005.⁷⁰

II.8 Factors Affecting the Property

Key Threats

Threats	Level
Infrastructure Development	Medium
Modification of hydrological Systems	Medium
Agriculture Expansion	Medium
Mining/oil	Very low
Water Pollution	Very low
Solid Waste	Low
Climate Change	Low
Desertification	Very low
Fishing	Very low
Hunting	N/A
Grazing/animal husbandry	Low
Invasive and Exotic Species	Very low
Military/security activities	Medium
Natural Catastrophes	Very low
Tourism and Visitor Pressure	Medium
Lack of regular maintenance/conservation interventions	High
Improper conservation interventions	High
Water and/or wind erosion	Very high
Invasive vegetation growth	Medium

⁷⁰ Rafal Kolinski, "10 Weeks in Babylon", British School of Archaeology in Iraq Newsletter, 13 (May 2004).

Uncontrolled access/trespassing	Medium
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Recent Achievements to Address Threats

In all ancient cities of Mesopotamia, earthen buildings have been strongly affected by the passing of time. Natural erosion due to wind and water is one factor. Another is the reuse of backed bricks as building material by surrounding communities. In more recent times, techniques used by early excavators and archaeologists disrupted the remains of buildings and the urban fabric. Some factors are specific to Babylon. The high water table has made lower archaeological levels inaccessible, and is another factor eroding the upper levels. Furthermore, heavy-handed and largely improper interventions were carried out on several main buildings during the second half of the twentieth century causing structural weaknesses in some monuments. Finally, the recent political conditions in Iraq (change of political regime, civil war, war against ISIL, and difficult stabilization of a new government) have presented a challenge to the antiquity authorities in their work at Babylon. Currently, natural factors, specifically the erosion caused by wind and rain, impact the site conservation more than any man-made factors such as development pressures or even damages caused by 2003 war. This is the case both for exposed archaeological buildings and unexcavated areas.

World Monuments Fund (WMF) began work in 2005 with an off-site SBAH training program, and by sponsoring Stony Brook University of New York to assemble a GIS database for Babylon. The work involved digitizing existing maps and documentation to layer over satellite imagery. The land use map, compiled by Stony Brook, became the foundation for superimposing further data gathered from site surveys connected to the site management plan.

Since 2009, in partnership with WMF, the Future of Babylon project began cleaning the site from intrusive remains, including those left by the military and those ensuing from the looting and damages inflicted upon Saddam-era buildings. The main goal of the collaboration has been to produce a site management plan for Babylon that the SBAH can efficiently implement and maintain. This process has led to reconsidering approaches to the value and conservation of the site and allowed to decide how to deal with twentieth-century reconstructions of archaeological monuments, together with modern buildings and landscape alterations. A recent cleaning campaign, organized by the Babil Governorate, mobilized volunteers to remove the last remains from the 2003-2006 military occupation.

The SBAH has strived to follow UNESCO's recommendations, and to establish the site's integrity by agreeing to and legally enforcing site boundaries under their jurisdiction. Against the SBAH's wishes, the Iraqi Ministry of Oil installed an oil pipeline with permission of the Babil Governorate in 2012. The 50-cm oil pipeline was buried in a two-meter-deep trench running 2.5 kilometers through the eastern half of Babylon (parallel to two previous pipelines laid in 1970s and 1980s). UNESCO Director General addresses a letter to the Iraqi Primer Minister to express concern about the impact of the pipeline on the conservation of a site placed by Iraq on its Tentative List for

World Heritage nomination and already subjected to heavy damage. A letter from the Ministry of Oil stipulates the displacement of the oil pipeline crossing Babylon as soon as a new land will be provided by the Governorate. Other measures have been implemented: guards are placed to control the section of the pipeline near the site, and, in case of emergency, two valves close the flux of oil at the exit/entry points of the pipeline at the site.

Later in the year, the Ministry of Water pledged their support to the SBAH for monitoring the water table at Babylon while the Babil Governor requested the establishment of a small department inside of the site of Babylon to undertake, and subsequently monitor, the cleaning of the site.

Furthermore, SBAH was able to impose to the Religious Endowments provisions for the renovation of Amran bin Ali shrine so as to ensure that no extension would be built outside the historic enclosure walls, and the Ottoman design would be maintained.

There are residential encroachments inside the archaeological site, but they only affect the unexcavated areas. Specifically, the village of Sinjar includes about two-hundred houses inside the properties' boundaries. These buildings do not have foundations and are not a threat to the archaeological layer. Encroachments are now being monitored by daily patrols from the Antiquity Police and longer-term solutions (such as displacement of the settlement against compensations) are being discussed with the stakeholders. Furthermore, the Ministry of Culture, Tourism and Antiquities requested that the Babil Governorate is not delivering permissions for land use and construction within the site buffer zone. The new Hilla Master Plan takes into account the site boundaries and buffer zone and makes provisions to relocate the unregulated settlements/housing.

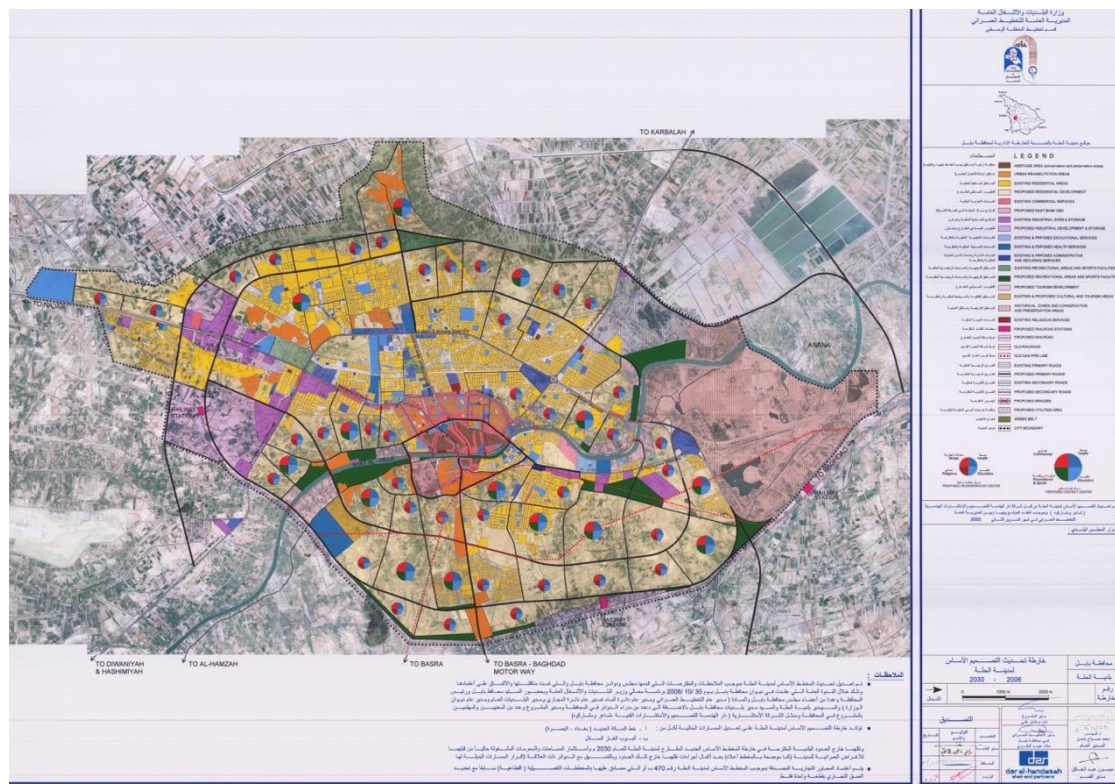
Date palm agriculture is practiced on large expanses of the site by villagers from Sinjar and other nearby settlements. Palm groves have been a feature of Babylon's landscape, and there is no plan to stop this activity as long as it does not encroach on excavated areas. Regional and city-level development plans (for the Governorate of Babil and the municipality of Hillah) were developed in collaboration with the SBAH and related governmental bodies. The plans take into account the boundaries and buffer zone of the nominated property to protect it from different pressures according to its values in the framework of a nomination for inscription on the World Heritage list.

At the site's core, the Babil Governorate until recently operated independently a tourism resort and conference center as a legacy of the previous regime. In the context of the Babylon management plan implementation, SBAH has signed a cooperation agreement with the Babil Governorate. Part of the facilities will be turned into a museum, an institute for the conservation of antiquities and visitor facilities.

The wide-range consultations SBAH has performed with local stakeholders in the context of the site management plan and World Heritage nomination preparation have effectively raised awareness. They have led to the abandonment of such projects as the construction of a hotel on Mount Tammuz, commercial development and an amusement park inside the boundaries of the site, together with the construction of a telepherique transport system linking al-Hillah with the heart of the archaeological site. An agreement has been reached

to turn the former presidential palace on Mount Saddam into an archaeological museum.

Babil Governorate Master Plan



Part III. MANAGEMENT

III.1 Vision, Management Goals and Objectives

Visions Statement for the Property

On the basis of consultations with the managing authorities and stakeholders in the property, the authors of this Management Plan have drafted the following long-term vision for the property:

Babylon is an archaeological and symbolic site that stands as a unique testimony of one of the most influential empires of the ancient world and that has exceptionally wide ranging and long-lasting cultural associations of value for humanity as a whole. Babylon is also an icon of Iraqi identity. The archeology of the site is studied, protected and conserved to the highest international standards for the benefit of the Iraqi and international public. It contributes to local development through sustainable cultural tourism and to the global enhancement of historical knowledge. Babylon's value is appreciated and respected by communities living on or near the site, the Iraqi people as a whole and visitors.

Overall Management Goals and Objectives

The overall management goal is to protect the integrity and authenticity of the property's physical attributes – and hence their global value – over the long-term.

In order to attain this goal, the management plan has been developed along the following strategic objectives:

1. Protect the property from the main threats susceptible to impact their integrity, authenticity, and key attributes. Such threats include, in particular, development and environmental pressures, neglect and unsustainable use.
2. Communicate and advocate the importance and values of the property to the Iraqi and international public including local communities, civil society, institutions and decision-makers, scientists and visitors.
3. Facilitate the involvement of all key stakeholders, including local communities, in the planning, management and monitoring of the property from cultural, environmental, social and economic perspectives.
4. Coordinate with the international community on the management of the property in terms of funding, joint programming, monitoring, conservation and development.
5. Ensure that legal and administrative mechanisms, together with human and financial resources, are in place to achieve the above objectives.

Specific Management Goal and Objectives

The management plan adopts the following key objectives:

1. Ensure that the protection of the site is integrated in local and regional development plans.
2. Ensure that personnel in charge of the implementation is given the opportunity to receive adequate training and capacity building in order to properly carry out their responsibilities.
3. Ensure the long-term preservation of the site and of its values, limiting negative impacts.
4. Encourage the population to be a partner in protecting the site and the surrounding environment and allowing them to benefit from visitation and tourism activities.
5. Provide a quality visiting and educational experience according to international standards.

III.2 Management and Protection Structure

The SBAH, under the MoCTA, is the main authority directly responsible for the property. A part of the SBAH management structure, the Babil Governorate is also responsible for ensuring the conservation, management and monitoring of the site.

The Chairman of the SBAH is the direct supervisor of the Property Management Team for Babylon and has the authority to change members if needed.

The property manager is directly responsible for managing the property on behalf of the SBAH in coordination with local stakeholders and concerned international organizations and foreign teams. The property manager is linked to the World Heritage Section of the SBAH through periodic reports on all activities and technical works in the property . The manager has two deputies.

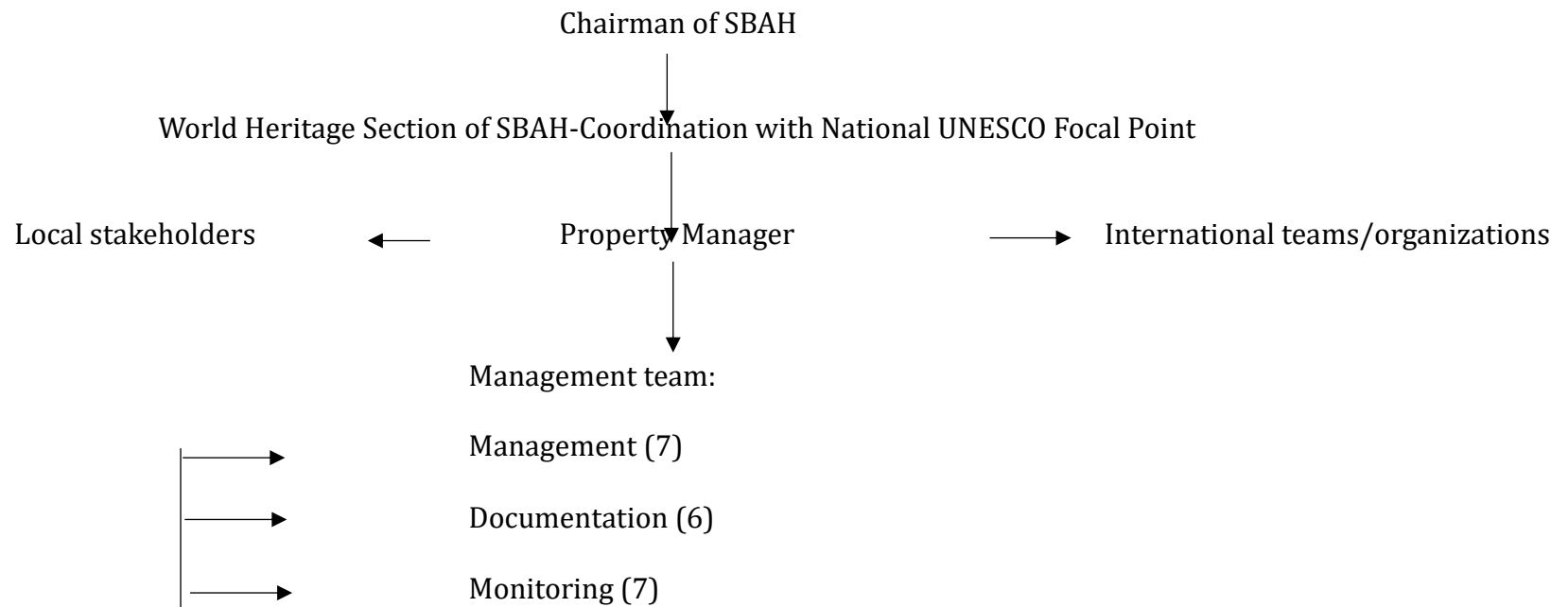
The Property Management Team for Babylon includes seven units which are the local extensions of national-level departments within the SBAH. These are:

1. Restoration and Conservation unit
2. Investigations and Excavations unit
3. Museum unit
4. Heritage unit (only at the governorate level and for heritage buildings as defined by Law n°55)
5. Legal, Administration, Financing and Storage unit

6. Media unit
7. Documentation unit

The property management team consists of 20 members, all of whom are from the geographical area of the province of Babylon. Unit heads report to the SBAH as well as the Babil Directorate of Antiquities and Heritage who reports to the Chairman of the SBAH.

The Governorate of Babil appoints three members of the Property Management Team to participate with the SBAH regarding the management of Babylon. These are: a representative of the Governor of Babylon, a representative of the Governing Council, and the Director of the tourist complex in Babylon.



Staff expertise and challenges

The Babylon property manager has a BA in Archaeology. However, due to the specific circumstances of Iraq over the past decades, it is an admitted fact that the conservation expertise of the professional staff in the various AHDs does not level up at present to the required standards

for World Heritage properties.

SBAH employees are generally graduates of Archaeology departments and civil within Iraqi universities. Other SBAH employees specialize in engineering and other fields. These skills have been supported with regular training courses inside or outside Iraq.

SBAH organizes training courses in archaeological survey, conservation of heritage and archaeological buildings, computer and information technology as well as preservation, excavation, museum studies and conservation of archaeological artifacts. Furthermore, SBAH collaborates with foreign museums, institutes, universities and international organizations. Many of these organizations send SBAH employees to acquire expertise in the different fields of archaeology. In addition, foreign archaeological missions generally provide on-site training for Iraqi archaeological experts during periods of survey, excavation and conservation. This is the case with WMF and the German mission to Uruk at the site of Babylon.

An example is in 2005, WMF held an off-site SBAH training program by sponsoring Stony Brook University of New York to assemble a GIS database for Babylon. The work involved digitizing existing maps and documentation to layer over satellite imagery. The land use map, compiled by Stony Brook, became the foundation for superimposing further data gathered from site surveys connected to the site management plan.

WMF also carried out workshops on Babylon management planning at archaeological sites in Turkey, Lebanon, Iraq (Erbil). Targeted training for GIS work was held in California, USA and Amman, Jordan.

These recruits have started being dispatched to the sites, but they require a systematic capacity building program to qualify them in a range of specialties that are essential for site management, inter alia, monitoring, maintenance, documentation, and visitor management.

The SBAH is planning to develop a systematic and scientifically based program of capacity building for all its staff, particularly the Babylon Management Team. The regional Athar program of ICCROM is a potential platform to tap into in order to help build capacities that are necessary for managing the site once the requirements of training and capacity building are evaluated and specified.

Site Vigilance

Site vigilance consists of the monitoring activities of the 100 SBAH civilian guards who work in shifts around the clock to protect the site. Most groups are also escorted by SBAH guides in a systematic manner.

Furthermore, The Antiquities and Heritage police unit, created in 2007 under the Ministry of Interior in coordination with the SBAH, maintain a permanent headquarters in Babylon and patrols both in and outside of the property. 35 policemen are devoted to site surveillance. The

Governorate Police also maintains check points on all access roads.

The site is only partly fenced with unfenced areas protected by the river and the canal running to the east of the site and there is no plan to add more fences. CCTV cameras have been installed from the main gate and new one will be added to cover all monuments.

Challenges

- Absence of a health and safety risk assessment to make sure that no harm incurs on visitors during their visit to the site.
- No available site log where infringements on the integrity of the site are recorded and later on addressed as part of an overall strategy to protect the site and its infrastructures.

III.3 World Heritage Compliance Monitoring and Reporting System

Iraq as a State Party to the World Heritage Convention has an obligation to regularly prepare reports about the state of conservation and the various protection measures put in place at World Heritage sites in the country. These reports allow the World Heritage Committee to assess the conditions at the sites and, eventually, to decide on the necessity of adopting specific measures to resolve recurrent problems. One of such measures could be the inscription of a property on the List of World Heritage in Danger. Reporting also provides a mechanism for regional co-operation and exchange of information and experiences between States Parties to the World Heritage Convention. Periodic reporting happens every six years.

The World Heritage Section at SBAH is mandated to prepare such periodic reports along the indicative format provided by the World Heritage Committee and on the basis of regular reports and ad hoc information received from AHDs, and of regular site visits.

In the prospect of the inscription of the property on the WH List, the Babil AHD will systematically request from the World Heritage Section of SBAH to review and validate any planning documents, regular or exceptional, related to the Babylon site to check their compliance with WH standards. Only after this check is performed will documents be communicated to the Investigation Department, any other upper-level department at SBAH, any local authority, and/or site managers.

Furthermore, any development intervention proposed by national or local authorities and of relevance to the site and its environment will have to be submitted for review and approval to the WH Section.

On a monthly schedule, the site manager will monitor implementation of implementation plan, and report back simultaneously to Babil AHD

and the WH Section. The WH Section will review the monthly reports to monitor compliance with WH standards.

The WH Section will compile reports from the Babylon Site Management Team, and prepare a yearly report on the state of conservation of the property to share with MoCTA and the Iraqi National Commission for Education, Science and Culture (NatCom).

Results of previous reporting exercises

The SBAH has been regularly monitoring the site through its local Antiquity and Heritage Directorate (AHD).

The results of previous monitoring reports have been analyzed and relied on to prepare extensive studies to find suitable treatments and execute solutions.

Earlier baseline reports on the state of conservation of the property include:

- Geo-Hydrological Study prepared by Consulting Engineers Bureau of Baghdad University, 2012.
This study analyzes the historic and current water table issues affecting Babylon.
- Paleo-hydrology Study prepared by CRAFT, 2011.
This study analyzes the historic and current topography and water features of Babylon.
- Bio-Diversity Study prepared by Nature Iraq, 2011.
The study analyzes the current bio-diversity of the site, environmental challenges and opportunities.
- Master Plan of the City of Hillah, Hillah City Development Strategy prepared by Dar al-Handasah, 2007.
Addresses management of Babylon from the governorate perspective.
- Various report by John Curtis for UNESCO, 2005-2009.
These reports constitute both mission reports and inspection results.
- Report on the damage to Babylon, John Russell for the U.S. Department of State, 2010 and Elizabeth Stone for UNESCO, 2008.
Assesses military damage to the site.
- Condition assessment reports prepared by Mahmoud Bendakir between 2010-2011.
Initial condition assessment on various monuments at Babylon including the Ishtar Gate.

- Mission reports by Thierry Grandin, 2012-2018.
These reports track specific conservation work undertaken by WMF.

III.4 Resource Mobilization

Effective implementation of the Management Plan is contingent on the adequate allocate of human and financial resources. The SBAH, in close coordination with MoCTA and Babil Provincial Council, will develop a resource mobilization strategy at the end of 2018 to ensure adequate funding for the protection, conservation and development of property on the basis of the management plan.

The Iraqi government has fully committed to provide enough funding and effective administration of the property. Since 2008, money allocated for regional development became partly decentralized. In this respect, there are two sources for funding (federal and provincial) which are available for protecting, conserving, managing and developing cultural heritage sites.

Local funding is available when the AHD submits projects to the Babil Governorate, through the Provincial Council, for the annually proposed site activities. It is voted on and sent to the Executive Office for approval. Then, it is sent to the Governmental Contracts Department within the governorate office for the implementation. Regarding cultural heritage projects, the SBAH will supervise them exclusively.

As for central federal funding, MoCTA pays monthly salaries of all SBAH employees in the province, as well as covering the expenses of some services such as transport, stationery, etc. in addition to the ministry's proposal to finance select emergency projects in some governorates in accordance with the Ministry's support of the sufficient budgets for these projects by the central government.

International funding is sometimes available on an ongoing basis, such as through WMF and the Italian Institute of Archaeologists.

In general, current funding levels are adequate, but more funding might be needed to comply with World Heritage requirements for property.

Budget estimates to meet immediate needs are:

Maintenance and conservation (inclusive of costs with engineering firms)	425,000 \$
Interventions concerning water table	44,000 \$

Education and awareness	52,000 \$
Documentation and cartography	20,000 \$
TOTAL	541000 USD

To date, the Prime Ministry has granted 600 USD to SBAH for 2018-19 and expressed that further requests will be considered favourably.

III.5 Intervention Areas

Community Incentives

Those living within the boundary and buffer zones should not perceive their proximity to Babylon as a complete disadvantage; establishing incentives that improve their quality of life will help combat illegal exemptions and promote compliance with regulations that preserve the site.⁷¹ Community meetings held by the SBAH and WMF and the socio-economic survey conducted by Nature Iraq for the management plan have helped identify potential incentives.

The SBAH will cooperate with concerned authorities to determine viable incentives and develop methods for their implementation, projects that will require financial or legal support from state authorities, and partnerships and strategies involving local and national government. Advancing an integrated approach to managing Babylon through proposals like these depends on the SBAH's partnering with the Babil Governorate and other ministries to protect the site.

In terms of thematic content, incentive programming needs to be comprehensive in order to come to grips with the complexity of the life processes and the built environment of local communities that they are meant to address and influence.⁷² The sectors of education, health, infrastructure, and employment should be examined. While specific incentive projects require development, the following topics should be considered:

⁷¹ Defining tax-relief incentives for compliance to building regulations inside the boundary and buffer zones, but the absence of property tax collection in Iraq limits options to create incentives common in other countries.

⁷² Jurjen van Der Tas and Stefano Bianca, *An Integrated Approach to Urban Rehabilitation* (Geneva: Aga Khan Trust for Culture, 2007), 7.

- Infrastructure is deficient in the communities around Babylon, the provisions of water and sanitation are basic necessities. Upgrades are a government responsibility and the implementation of these improvements, such as integrating ad hoc sewage systems into the municipal network, need to be tightly regulated because of their impact on Babylon in future.
- Solid waste disposal is a problem, and particularly acute in Bernoun. Communities are disposing of their garbage near the boundaries so the SBAH has a role in brokering between residents and the Governorate to improve services not to mention raising awareness about the problems associated with illegal dumping.
- Creating jobs is not the SBAH's responsibility, but it can offer local residents preferential treatment regarding opportunities at Babylon to sell souvenirs, concessions, guide visitors and others as possible.
- Local residents have a limited understanding of how to develop tourism-related businesses and services. There are many international agencies specializing in micro-finance and micro-enterprise programs for local entrepreneurs in training and the production of crafts and food specialities, often through community cooperatives. The SBAH can assist offering low-rent spaces on site for sales.⁷³

Site Boundary

In 2010 as part of the Future of Babylon project, the property boundaries has been studied in detail, Following the remaining traces of the cite outer wall. As well as defining boundaries by geographical information system and GBS. The new boundary ensured all the values in the property and also the unexcavated area which is an important values in future after being studied and preparing the necessary surveys. It has been cooperating with the local management and al-Hillah municipality in the province to ensure the modern urban design plan including respect and protect the property boundaries, which already have been taken into account. The new urban design has been endorsed by all local stakeholders as well as the central government.

Zoning Land Uses inside the Site Boundary and Primary Buffer Zone

The property containing traditional agriculture uses and communities comprised of a number private and public properties, and ecosystems hosting a multitude of flora and fauna. The management plan zoning scheme for land inside the boundary and Primary Buffer Zone, reflects this diversity, while recognizing that that the entire site is inherently archaeological (Zone 2 in the Hillah Master Plan). Proposed zoning designations

⁷³ Defining tax-relief incentives for compliance to building regulations inside the boundary and buffer zones could also be explored however, the absence of property tax collection in Iraq limits options to create incentives common in other countries.

offer a multi-faceted approach to managing land use, while taking future use and tourism potential into consideration. The zoning at Babylon for land inside the boundaries and Primary Buffer Zone are as follows:

Archaeological

The bulk of the site's future usage is zoned as archaeological, under full control of the SBAH, reserving these areas exclusively for visitors and scientific study. These areas often contain aboveground remains that should be preserved. Existing structures (mainly modern farmhouses) on these lands can be rehabilitated but not expanded, and in the cases of sensitive archaeological areas these properties can be inhabited and utilized for farming until the property is acquired by the SBAH.

Agricultural

This designation covers farming and pastoral pursuits and related low-density residential settlement, whether privately held or rented from a governmental agency (i.e. on land not owned or managed by the SBAH).⁷⁴ The management plan encourages agriculture on these lands within the limits of the site boundary regulations below.

Residential

Residential land use is zoned for the denser communities of Sinjar and al-Jimjmah and the suburbanized areas around Mount Tammuz. Living standards in these communities vary and often include small-scale commercial enterprises. The management plan recommends that housing following the site boundary regulations and that the commercial usage of those structures form no more than described in boundary and buffer zones regulations.

Residential and commercial mixed use

Areas along the main thoroughfares of Sinjar and al-Jimjmah have been targeted for improvements to take advantage of the economic benefits tourism can provide for the villages. Designations for this land use allow residential development within regulations, but encourage the establishment of small-scale guesthouses, travel agencies, shops, and cafés. In each community, tourism-related development must be controlled and maintained within regulation standards listed below.

Commercial

Several commercial land use areas within Babylon contain visitor facilities developed for past Babylon festivals. The management plan encourages reducing modern structures in sensitive archaeological areas and, in many cases, calls for their removal in order to focus commercial activity along Marduk Street, the central east-west axis through the site. Emphasis is on limited services inside the boundaries and encouraging development in local communities. The management plan proposes no new commercial development within the boundary and Primary Buffer

⁷⁴ Iraq Law 55, art. 9.

Zone outside, and only as under the authority of SBAH management.

Institutional

Institutional land is designated for activities that serve the public (visitor and non-visitor), irrespective of its ownership and management status. Existing institutional facilities include the following sub-categories:

Cultural: including open areas and buildings used for performances, museums, exhibit spaces, archaeological displays, and other activities of cultural relevance.

Community: including public information outlets, health clinics, and other facilities servicing communities at the neighbourhood level.

Educational: including schools, nurseries, learning centers, and other facilities established for educational purposes.

Religious

The Amran Ibn-Ali shrine on Amran Hill is zoned for religious land use. The Shi'a Endowment operates the shrine and the SBAH controls the land. Religious centers in Sinjar (two, one Shia' and one Sunni) and al-Jimjmah (two Shia') also belong to this designation.

Nature preserves and public green areas

Large tracts of land are designated for nature preserves to provide green areas for the public while removing or curbing unwanted development. Some archaeological area will be left undeveloped and uncultivated until scientific study is undertaken; others are destined for low-impact and reversible development as nature trails or recreational facilities for visitation. In all cases these area will be interpreted keeping with the boundary and Primary Buffer Zone regulations.

[Site Boundary Regulations](#)

A series of regulations will guide the development of the numerous current and future land uses inside the site boundary. While expert advice is still required to formulate the detailed building code regulations appropriate for historic sites, general guidelines that will go into immediate effect include the following:

Built environment

New permanent buildings and structures are prohibited for land use zoned as 'archaeological', 'agricultural', 'residential', 'institutional' and 'religious'.

Modifications to existing structures zoned as 'archaeological', 'agricultural', 'residential', 'institutional' and 'religious' which do not enlarge a building footprint or increase building height are permitted with prior approval of the SBAH providing they respect regulations.

New permanent commercial structures are permitted where zoned 'residential and commercial mixed use' and 'commercial' as long as they serve tourism development and respect regulations, pending SBAH approval. For 'residential and commercial mixed use' commercial usage of a plot cannot form more than 50 percent of the plot's built area. In cases of new construction the SBAH will approve and monitor impact, design, and building materials.

New construction or additions to existing structures cannot exceed one floor and five meters in total height.

Exposed brick finishes are prohibited in new structures and modifications to existing ones. Plastering will be the basic finishing material for all storeys. Materials and finishes will be subject to SBAH review and the following will not be permitted: cement and other sprayed-on rough plaster finishes, tiling, marble panelling, aluminium panelling, plastic.

Roof surfaces must be coated with bitumen.

The maximum height of roof parapets is 110 cm.

Basements and underground structures are prohibited.

Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. The tanks' maximum depth will not exceed 2.25 meters from the surface with maximum dimensions of 2m x 2m. Solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech pollutants and compromise archaeological remains.

New fence lines of solid materials around private properties are prohibited.

Natural environment

Activities that threaten the environment will be forbidden. These include industries that produce air and ground pollution and solid waste, such as brick kilns, factories, auto repair, and chemical production.

New water wells are prohibited without SBAH permission.

Dumping of waste or toxins on archaeological lands is prohibited.⁷⁵

Hunting and fishing are forbidden within the site boundary except recreational single pole and line fishing with permits issued by the SBAH along the Shatt al-Hillah. Dynamiting and net fishing is strictly forbidden.

Agricultural activities

Farming is permitted only on established plots zoned 'agricultural' and on properties with recognized contracts containing agricultural clauses. Farming is prohibited inside the Central Administration Area, the Summer Palace Sub-Area, and where the SBAH has identified archaeological remains for protection.

On properties under cultivation, only seasonal shallow-root farming will be allowed.

New date palm planting is prohibited inside the Central Administration Area, the Summer Palace Sub-Area and where archaeological remains are identified for protection by the SBAH. On land between these zones and the outer site boundary planting of date palms is permitted only to replace previously existing trees. Irrigation practices outlined in the regulations will be permitted pending SBAH approval.

New fruit/nut trees are permitted only under date palms or near residences (where they are traditionally planted). Orchards are prohibited.

New irrigation canals or dredging of existing canals is prohibited unless approved by the SBAH. New irrigation trenches are restricted to 25cm in depth and 50cm in width.⁷⁶ Spray irrigation will be permitted.

Livestock grazing is prohibited inside the Central Administration Area, the Summer Palace Sub-Area and where SBAH identifies archaeological remains for protection. Small-scale livestock grazing will be permitted in other areas.

Use of heavy vehicular farming equipment such as tractors, combines and deep soil ploughs is prohibited within the Central Administration Area, the Summer Palace Sub-Area and where archaeological remains are identified for protection by the SBAH. Where agriculture is zoned between these areas vehicular farming equipment will be strictly regulated by the SBAH.

Cases of illegal construction or other activities are subject to demolition, fines, and possible imprisonment, as called for by the designated law.

⁷⁵ Iraq Law 55, art. 15, item 5.

⁷⁶ Muayyad Said Demerji, Department of Investigations and Excavation, State Organization of Antiquities and Heritage, Administrative Memorandum no. 5187, 11 February 1998.

Acquiring Private Property inside the Boundaries

The management plan acknowledges private ownership inside the site boundaries as part of Babylon's future, but in accordance with Law 55 envisages the acquisition of private properties in sensitive archaeological and natural resource-rich areas.⁷⁷ Prioritizing land purchases is complicated by the lack of sufficient updated data on ownership and tenure so the Babylon Community Association can function as intermediary for the inter-agency committee and land owners. The Priority Areas and Strategic Timeline map designates and prioritizes private lands for acquisition. Properties in the Central Administration Area are to be purchased in Phases One (one to five years) and Two (six to eleven years), and those outside in Phase Three (twelve to twenty years). Having defined a timetable, it must be said, property acquirement is complicated by the types of ownership, laws of inheritance and forced acquisition being nearly impossible in contemporary Iraq.

Demarcating and Monitoring Buffer Zones

The definition of setting requires an appreciation of the history and evolution of Babylon's character-defining features. Protecting the setting of archaeological properties is considered an essential management component, acknowledged in international charters and Iraqi law.⁷⁸ Just as buffer zones aim to protect the site from activities that could compromise its integrity, significance, and values, so view sheds seen from and looking onto the site must be considered.

Once the setting for Babylon was defined questions arose concerning the extent to which the surroundings should be maintained to best preserve the rural landscape while allowing for its evolution. Protective regulations consequently address the specific needs of buffer zone. For example, within the Primary Buffer Zone, which is in direct visual proximity to the site. For the Near Buffer Zone protecting the immediate setting, building is allowed under restrictions and design consultations to ensure careful development of the near view.

In the Extended Buffer Zone, large-scale intrusions visible from high points within the site such as factory chimneys, multi-storey buildings, high-voltage lines, communication antennae, and industrial pollution, must be regulated in cooperation with government entities.⁷⁹ For buffer zone to be effective they must have logical borders based on visually recognizable landmarks and clear sets of restrictions that are easily understood.⁸⁰

⁷⁷ Iraq Law No. 55, art. 6, items 1-2.

⁷⁸ Iraq Law No. 55, art. 5.

⁷⁹ Herb Stovel, "ICOMOS Position Paper," *World Heritage and Buffer Zones, International Expert Meeting on World Heritage and Buffer Zones, Davos, Switzerland 11-14 March 2008*, 23-42.

⁸⁰ *Ibid.*, 48.

Buffer Zone

Like the site boundary, the Buffer Zone is in Zone 2 of the Hillah Master Plan. The purpose of the Primary Buffer Zone is to strengthen protection of the site boundaries by preserving the immediate setting in a manner consistent with the site.

The limit of the Buffer Zone is 100 meters from the Babylon site boundary except at three locations where it deviates to follow natural and manmade features. Descriptions of these exceptions, moving clockwise around the site boundary, are as follows:

At the southeast corner of the site boundary, the Buffer Zone enlarges beyond 100 meters to follow the east bank of the Babil River until it connects to the Baghdad-al-Basra Highway. Here the outermost edge of the Primary Buffer Zone turns west and parallels the north shoulder of the highway. The buffer zone then alternates between just under and just over 100 meters until the highway turns south at al-Jimjmah – North.

Due west of Sinjar village, the Primary Buffer Zone parallels the Hindiya - al-Kifl Irrigation Canal. Here the width of the Primary Buffer Zone alternates between just under and just over 100 meters.

Where the site boundary follows the Shatt al-Hillah, the Primary Buffer Zone adheres to the west side of the riverbank rather than a strict 100 meters from the site boundary.

Buffer Zone Regulations

A series of regulations will guide the development of the numerous current and future land uses inside Buffer Zone. Although additions to existing structures are allowed for certain land use categories, to provide incentives to engage local property owners in site protection and to encourage the survival of al-Jimjmah and Sinjar as communities, the SBAH is responsible for controlling these developments. General guidelines by the SBAH include the following:

Built environment

New permanent buildings and structures are prohibited for land use zoned as ‘archaeological’, ‘agricultural’, ‘residential’, ‘institutional’, and ‘religious’.

Modifications to existing structures zoned as ‘archaeological’, ‘agricultural’, ‘residential’, ‘institutional’, and ‘religious’ that do not enlarge a building footprint or increase building height are permitted with prior approval of the SBAH providing they respect regulations.

New permanent commercial structures are permitted where zoned ‘residential and commercial mixed use’ and ‘commercial’ as long as they serve tourism development and respect regulations, pending SBAH approval. For ‘residential and commercial mixed use’ commercial usage of a

plot cannot form more than 50 percent of the plot's built area. In cases of new construction the SBAH will approve and monitor impact, design, and building materials.

New construction or additions to existing structures cannot exceed one floor and five meters in total height.

Exposed brick finishes are prohibited in new structures as are modifications to existing ones. Plastering will be the basic finishing material for all storeys. Materials and finishes will be subject to SBAH review and the following will not be permitted: cement and other sprayed-on rough plaster finishes, tiling, marble panelling, aluminium panelling, plastic.

Roof surfaces must be coated with bitumen.

The maximum height of roof parapets is 110 cm.

Basements and underground structures are prohibited.

Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. The septic tanks' maximum depth will not exceed 2.25 meters from the surface with maximum dimensions of 2 meters x 2 meters. Solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech pollutants and compromise archaeological remains.

New fence lines of solid materials around private properties are prohibited.

Natural environment

Activities that threaten the environment will be forbidden. These include industries that produce air and ground pollution such as brick kilns, factories, auto repair, chemical production, and solid waste.

New water wells are prohibited without SBAH permission.

Dumping of waste or toxins on archaeological lands is prohibited.

Hunting and fishing is forbidden within the Primary Buffer Zone except recreational single pole and line fishing with permits issued by the SBAH along the Shatt al-Hillah. Dynamiting and net fishing are strictly forbidden.

Agricultural activities

Farming is permitted only on established plots 'agricultural' and on properties with recognized contracts containing agricultural clauses. Farming is prohibited where the SBAH identifies archaeological remains for protection.

On properties under cultivation, only seasonal shallow-root farming will be allowed.

New planting of date palms is prohibited inside buffer zone. The planting of date palms is permitted only to replace previously existing trees. Irrigation practices outlined in the regulations and with approval of the SBAH will be permitted.

New fruit/nut trees are permitted only under date palms or near residences (where they are traditionally planted). Orchards are prohibited.

New irrigation canals or dredging of existing canals is prohibited unless approved by the SBAH. New irrigation trenches are restricted to 25cm in depth and 50cm in width. Spray irrigation will be permitted.

Small-scale livestock grazing will be permitted.

Use of heavy vehicular farming equipment, such as tractors, combines, and deep soil ploughs is prohibited where archaeological remains are identified for protection. In areas between these zones it will be strictly regulated.

Cases of illegal construction or other activities are subject to demolition, fines and possible imprisonment, as called for by the designated law.

Areas surrounding the buffer zone

The SBAH observes the surrounding area of the buffer zone by cooperating with the stakeholders. Encourage low destiny housing agriculture activities, which doesn't hinder the vision of the site and its vision from the site. As well as this area try to contain the commercial growth along the highway between Baghdad and Basra, and monitor the new restriction in term of impact, design and materials.

III.6 Defining a Site Planning Methodology

In the interest of effectively managing Babylon and in accordance with international standards, the management plan recommends establishing a solid structure for the site's administration, cementing supportive partnerships, and strengthening the exiting legal framework. Due to its size and diverse occupancy, Babylon requires detailed central area and sub-area planning for clusters of properties and communities sharing common identity, purpose or complexity inside the boundary. Site administration methods include defining these areas in order to address their use and needs (i.e. infrastructure, signage, hardscape, traffic circulation design) through a process to be implemented in stages.

Each planning area is described below. Descriptions are meant to accompany the map references in brackets; please refer to BM11, 'Proposed: Intervention Sub-Areas' to understand the location and limits of each planning area.

Central Administration Area

The Central Administration Area, the nucleus of Babylon, will encompass the most important area for visitors so comprehensive management of this area is essential. The area covers overlapping sub-areas, water features added in the 1980s, and the Shatt al-Hillah. Governed under the strictest of terms of Law 55 and the regulations of the site boundary, the Central Administration Area must be formally defined and fenced so the SBAH can begin land acquisition efforts placing all of its property under direct government ownership and SBAH management. The Central Administration Area will become the ticketing area and focus of visitor services upgrades.

Types of Sub-Areas for Intervention

The sub-area strategies provide a road map for extended future planning and management. Each sub-area is to be developed with proper documentation before interventions, design guidelines, base drawings, bills of quantities, budget outlines, etc. are proposed. Baseline information for sub-areas that should be incorporated into any plans for intervention appears below. Emphasis is given to the communities found within the site.

Sub-Areas for Circulation and Traffic Improvement

Several traffic corridors on Babylon's periphery have been identified for improvement to ease traffic flow, increase safety, and present pleasing approaches to the site.

Sub-Areas of Predominantly Archaeological Remains for Intervention

For archaeological sub-areas, the management plan recommends that the SBAH and the Ministry of Tourism and Antiquities tailor interventions to the resources and uses found in the area. This sub-area type may require conservation and presentation strategies based on broader guidelines outlined below.

Sub-Areas of Predominantly Modern Structures for Intervention

Sub-areas with predominantly modern structures require strategies focusing on design guidelines and future functions; several structures included in these sub-areas once served Babylon visitors. Several of these areas contain commercial and residential structures that may provide opportunities for economic development that necessitate further study. The SBAH and Ministry of Tourism and Antiquities should seek partnerships with entities such as the Babil Governorate planning offices or private planning firms for development-related assistance.

Choices about redeveloping commercial properties would be aided by further examination of the potential of these buildings through a carrying capacity study conducted in parallel with condition assessments of building envelopes, utility lines, sidewalk and paving. Demolishing structures that compromise the site will allow for a fresh take, reinforcing a new approach to Babylon's management. Reducing the modern footprint will help restore the site's authenticity while making more green space available for visitors.

Sub-Areas of Natural Resources for Preservation

Several areas within the site have been identified for nature conservation that would benefit local communities and visitors, while preserving the site's setting and enhancing its cultural significance.

Sub-Areas for Circulation and Traffic Improvement

North Entrance Corridor

The North Entrance Corridor, the primary access route to Babylon, originates at the Baghdad-al-Basra Highway to south of the palace near the Saddam Hussein sign.

Future Railway Station Connecting Corridor

With construction of a new site visitor center near Marduk Gate and the proposed railroad stop at the Baghdad-al-Basra Highway, this corridor could conduct pedestrian and bicycle traffic across agricultural fields connecting these two areas.

South Entrance Corridor

Abandoned since the 1980s when the Baghdad-al-Basra Highway was rerouted, this part of the highway with the Hammurabi statue in the middle lies between the Hawliyah Canal and the new highway route providing access to local communities to the east and west.

Amran Entrance Corridor

This corridor is the main route used by pilgrims to the Shrine of Amran ibn-Ali. The indirect approach originates at Road 60 (extension of the Babylon-al-Basra Highway south of Babylon) via al-Jimjmah, past Mount Tammuz, and around Tell al-Jimjmah.

Al-Jimjmah Commercial Corridor

This corridor follows the main street of al-Jimjmah extending parallel to the southern site boundary between Tell al-Jimjmah and the Shatt al-Hillah. This corridor holds particular tourism potential for the community of al-Jimjmah.

Sub-Areas of Predominantly Archaeological Remains for Intervention

Summer Palace Sub-Area

Located at the far north end of Babylon, this triangle-shaped sub-area has an important history and distinctive archaeology with special needs owing to the long-term exposure of excavated layers.

Palaces Sub-Area

Comprising archaeological sites, numerous interventions and modern monuments, this sub-area's diverse resources are bound by their proximity and future opportunities for visitor presentation. The large-scale reconstruction of the Southern Palace contrasts with the ruined Northern Palace. Between them, the Inner City Wall embodies similar contradictions: the eastern half was reconstructed while the western half saw only basic conservation. The Lion of Babylon, at the northern end of the Processional Way, is a singular landmark, popular with visitors for the photo opportunity it presents. Moving south along the Processional Way are the Ishtar Gate and the reconstructed Ninmah Temple.

Warsaw Gate Sub-Area

Designated by the SBAH as a valuable element of contemporary site history, Warsaw Gate, a remnant of Camp Alpha, is a self-contained, intact structure in need of conservation and interpretation.

Temples Sub-Area

This cluster of temple and residential reconstructions demonstrates efforts to present Nebuchadnezzar-period monuments to the public during the 1980s. Made from common building materials, these reconstructions were based on foundations and, in some cases, lower wall remains of original structures that were excavated over a period of 80 years.

Ziggurat and Amran Sub-Area

This sub-area covers an open expanse of hillocks containing the modern cemetery on Amran Hill, with a significant excavation at Esagila Temple, the ziggurat or Tower of Babel, and the Shrine of Amran ibn-Ali. Although distinct from one another, these major features are bound together by not only proximity, but their shared recognition of a sacred place in history.

Tell al-Jimjmah Sub-Area

Tell al-Jimjmah is a recent SBAH excavation threatened by exposure and its proximity to al-Jimjmah. It is separated from the Amran Hill landscape by a modern road.

Sub-Areas of Predominantly Modern Structures for Intervention

Future Visitor Center Sub-Area

Located across the Hawliyah Canal outside of the Central Administration Area, this large plot of government-owned land east of Marduk Gate is designated for future development as Babylon's principal visitor center.

Houses rent for employees Sub-Area

The SBAH Babil Inspectorate offices, administering all SBAH concerns within Babil Province, are located here along with storage facilities and several employee residences.

Greek Theatre Sub-Area

Grouped by proximity and association with the Babylon Festival, the reconstructed Greek Theatre, the partially ruined tourist village (commercial structures) and adjoining parking lot constitute this sub-area.

Museums Sub-Area

Proximity and former use unify this sub-area which includes the Nebuchadnezzar Museum, Babylon Casino and Hammurabi Museum, public bathrooms, an excavation house, parking lots, and modern buildings in various states of decay.

Conference Center Sub-Area

Like the former palace of Saddam Hussein and the Greek Theatre, authority over this sub-area is understood as the Conference Center facilities are maintained by the Babil Governorate. Built to house support services for Saddam Hussein's palace and the Babylon Festival, some Conference Center facilities currently function as accommodation and event venues.

Saddam Palace Sub-Area

While the former palace of Saddam Hussein will remain vacant in the near term, some of its support buildings are currently being reused as an Iraqi police station and house utilities systems for the Babylon Conference Center and palace.

Sinjar Village Sub-Area and al-Jimjmah Sub-Area

The management plan recommends long-term planning to protect the archaeological remains beneath and around these villages while upgrading the inhabitants' quality of life through incentive programs. In any event, both villages are likely to host visitor services such as coffee shops, restaurants, and guesthouses. Attracting visitors will inevitably put the site at greater risk from encroachments in these sub-areas unless local government can firmly and equitably enforce the land zoning and regulations for the site boundary and buffer zones.

Sub-Areas of Natural Resources for Preservation

Shatt al-Hillah Riverbank Sub-Area

Bisecting Babylon, the river links varied eco-systems supporting habitats for large populations of non-migratory and migratory birds, fish, amphibian, and mammal species, in addition to hosting traditional rural activities such as fishing, boating, and livestock grazing.

Lake Saddam Sub-Area

An artificial lake at the terminus of the Hawliyah Canal, Lake Saddam is habitat for numerous plants and animals, including a threatened duck species.⁸¹

High grass Sub-Area

Pockets of high grass and other vegetation have flourished north of the palace area thanks to the relative absence of visitors, providing habitat to a variety of animals.

Lake Tammuz Sub-Area

The artificial Lake Tammuz, at the south end of the Hawliyah Canal, is larger than Lake Saddam yet hosts less variety of fauna because of its proximity to roads and human settlements where hunting and fishing are common.⁸²

Future Nissan Park Sub-Area

Bounded by the route of the subterranean pipelines on the west, the artificial Mount Nissan, Babil Canal, and archaeological mounds of the outer city wall, a new public fitness park is proposed around Lake Nissan at the southeast corner of Babylon.

Al-Furat Fisheries

A government-operated commercial enterprise comprising 13 artificial lakes for fish breeding two kilometres away from Babylon, the Furat Fisheries is a habitat for thousands of birds.

III.7 Protecting and Conserving Archaeology

Babylon's Archaeological Potential

⁸¹ Nature Iraq, "The Future of Babylon Project, Biodiversity Baseline Study" (commissioned by WMF, 2011), 19-23.

⁸² Ibid., 27-29.

Despite the scale of previous excavations, most of Babylon has yet to be investigated. However, the archaeological remains in parts of the Neo-Babylonian core have suffered major disruptions, from railway lines to military camp infrastructure. In addition, remains from the Old Babylonian, Kassite, and Middle Babylonian periods are inaccessible owing to the depth of intervening Neo-Babylonian deposits and the high water table. Yet the Neo-Babylonian city alone is of such scale and historic import that it could support fruitful archaeological research for generations.

The more accessible Achaemenid, Seleucid, Parthian, Sassanian, and Islamic remains have received less attention than those of the Neo-Babylonian period. Remote-sensing work by the Centro Ricerche Archeologiche e Scavi di Torino (CRAST) has revealed sub-surface street plans and changes in watercourses, data that would richly serve future excavation planning.

Although most of ancient Babylon lies underground, large excavated areas were left exposed to the elements, many dating to Koldewey's work, others to the Babylon Festival. Some of the exposed remains are overgrown and eroding lumps of earthen masonry. Larger excavated sites at Esagila Temple, the Northern Palace, and the Summer Palace feature larger remnants of baked and unbaked mud-brick structures.

These exposed brick elements present urgent conservation and documentation issues. Addressing them as part of the management plan is a main concern and archaeological investigations are, for now, a secondary priority. Nonetheless, the SBAH is concerned that future explorations be taken into account and guidelines established for planning purposes. Excavation priorities applicable throughout the country are as follows:

1. Archaeological sites under imminent threat from modern development (such as roads, pipelines, and dams) should first be subject to salvage excavations.
2. Where natural elements or events threaten to destroy archaeological stratigraphy (changes in river courses and erosion) excavations should be conducted.
3. Salvage excavations should be conducted to prevent looting at endangered sites.
4. Further investigations should be conducted to clarify the historic timeline of previously excavated archaeological sites for presentation to the public and for scientific understanding.
5. The SBAH compiled a shortlist of potential excavation topics for future scientific study and to improve the visitor experience at Babylon. New excavations should be determined through systematic risk assessments and further investigation based on SBAH priorities.⁸³ Topics include:
6. Determine the location of key features and overall city plan of Nebuchadnezzar's Neo-Babylonian city by continuing Iraqi and international investigations initiated by Robert Koldewey up to preparations associated with the Revival of Babylon project in the 1970s.
7. Verify the information found in cuneiform and other historic texts addressing the locations and structure of religious centers such as

⁸³ WMF interviews with Eman Mohsen, 2013.

Esagila Temple and the House of Akitu, a small temple outside of the city used for the New Year festival.

8. Conduct archaeological survey for landmarks described in religious documents (i.e. Quran, Bible and Torah) and the writings of early historians and travelers.
9. Complete excavations along the Processional Way and undertake explorations along the main passages from city gates where important buildings and complexes were concentrated.

Protecting and Conserving Babylon

Late twentieth-century reconstructions severely damaged Babylon's historic remains. Correcting their condition demands major decisions and efforts, based on an assessment of the value and impact of past interventions and the limits and/or possibilities of local capacity. The SBAH administration suffers a shortage of financing and skills. To address administrative shortcomings, the management plan proposes a new managerial structure with a dedicated and trained conservation staff backed by a Babylon Site Manager. The SBAH must invest in staffing conservationists and restoration architects while assigning funds for training aimed at implementing preservation policies. Tertiary stakeholders can help with training, but the SBAH and its partners in government must ensure adequate funding.

Owing to a policy of doing nothing rather than something expensive or possibly wrong, the exposed archaeology and reconstructions have been neglected and their survival placed at risk. Routine maintenance at Babylon has never been planned or budgeted, nor a competent staff assigned to these preservation tasks. The conservation department outlined in the management plan would be responsible for routine maintenance. The SBAH must allocate funds to cover maintenance costs based on annual and emergency recommendations and scheduling developed by the conservation department in consultation with the Babylon Site Manager.

In 2010 when WMF began conservation efforts, the SBAH still regarded the site as they did in the 1980s, favouring full reconstruction of all monuments. In formulating a conservation philosophy for the management plan, the SBAH revised this view and now supports leaving monuments in a ruined or partially ruined state for interpretation and presentation. Where modern interventions compromise the structure's integrity and/or interfere with the site's preservation, they will be removed.

This section features a preliminary assessment of Babylon's conservation challenges and opportunities alongside guiding principles for intervention. It explains the ongoing intervention process led by WMF at priority monuments and provides a framework for an approach designed to preserve Babylon and restore a sense of authenticity. Monument-specific case studies illustrate the methodology for determining interventions to protect and conserve Babylon. The site's preservation plan will change and grow to address new studies and demands as resource-specific conservation manuals and a comprehensive plan are developed over the next two years.

Guiding Principles for Protection and Conservation

Methodologies maintaining international principles and standards will ensure consistent and appropriate site protection and conservation.⁸⁴ Given the overall significance and character-defining features of the site, the general guiding principles for protection and conservation intervention at Babylon are as follows:

- Conservation and architecture work will be undertaken only when adequate documentation has been collected and prepared for each monument. Scientifically conducted condition surveys and assessments will determine intervention strategies.
- The preservation strategy for any single monument must reflect its context and the possible conservation and architectural outcomes of the structures around it.
- A specific vocabulary of conservation techniques and architectural solutions should be defined to reflect a fundamental style of intervention matching international standards. This process will set standards for future interventions, beyond the Future of Babylon project.
- Pilot interventions supported by a period of testing will be undertaken to yield the data required for effective intervention strategies.
- Conservation of original materials is a priority for baked mud-brick structures; their inclusion and influence will define all final preservation strategies. For unbaked mud brick, in-kind replacement is possible if in keeping with the original spirit and composition of historic material.
- Replacement material in baked mud-brick structures will be distinct from original fabric in both treatment and documentation. For unbaked mud-brick structures documentation is sufficient.
- Replacement materials will be chosen to meet the criteria of compatibility, durability, aesthetics, and ease of maintenance in consideration of contemporary conditions in Iraq.
- All interventions will be reversible and without damage to the original fabric.

⁸⁴ Primary international treaties referenced in assembling this section: ICOMOS, *International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter 1964)*, www.icomos.org/charters/venice_e.pdf; ICOMOS, *The Declaration of San Antonio*, 27-30, March 1996, <http://www.icomos.org/en/pub/179-articles-en-francais/ressources/charters-and-standards/188-the-declaration-of-san-antonio>; and ICOMOS, *The Burra Charter*, (The Australia ICOMOS, Charter for Places of Cultural Significance) 26 November 1999, http://australia.icomos.org/wp-content/uploads/BURRA-CHARTER-1999_charter-only.pdf.

- Regardless of their condition, exposed ruins will be documented, cleaned, and stabilized. Following a principled assessment, sites will be either reburied or, if of high interpretative value, conserved and presented to the public.
- The presentation of restored structures is integral to their conservation. All new elements for protection and presentation to the public must adhere to consistent standards while reflecting simplicity and neutrality. These elements will be discreet (material, form, and colour) with respect to the period and appearance of historical remains, and always secondary to the original fabric.
- Post-conservation maintenance manuals, including policies for project sites, will be produced for each monument, followed, and updated accordingly. The SBAH will regularly inspect restored monuments and perform routine maintenance to ensure the long-term sustainability of conservation work.
- Improving the capacity of the SBAH and Iraqi consultants engaged in restoration is a fundamental component of all site work. Training programs will provide direction through classroom guidance, visits to similar sites and on-site modules.

Description of Building Materials

Babylon comprises diverse structural typologies and materials that generally represent two periods: Neo-Babylonian (626-539BC) and twentieth-century interventions. Neo-Babylonian materials are earthen, principally baked and unbaked mud brick and mud plasters as well as bitumen and gypsum-based mortars and plasters. Most twentieth-century interventions are intrusive cement-based mortars and plasters, fired brick and/or gypsum blocks. Small-scale repairs include nails and chicken wire coated in thick cement and gypsum-based renders. These materials, used in reconstructed monuments, complicate conservation strategies. The cement and cement blends are difficult to remove or replace without severely damaging original masonry. The site's conservation and interpretation nonetheless demands the harmonious treatment of structures featuring these diverse materials.

Unbaked mud brick

Unbaked mud brick (adobe, *leben* in Arabic) were made from soil containing clay (phyllosilicates), sand and aggregates, mixed with water and organic materials such as straw, bone, and animal dung. The quadratic, weight-bearing, standard-sized bricks were cured without a baking process. Soil properties, the curing process, effects of additives and the method of fabrication determined the brick's strength. Unbaked mud brick walls decay rapidly, especially from rain and weathering, so layers of sacrificial mud or gypsum renders and coatings were generally

applied.⁸⁵

Examples of mud-brick construction can be found in the excavated remains of reconstructed buildings in the Temple Sub-Area, including one of Babylon's best preserved sites, Nabu-sha-Hare Temple. The structure is mainly Neo-Babylonian or late-Assyrian, but modern masonry infill and wall reconstruction was added (both unbaked mud brick and fired brick). The inner city wall between the northern and southern palaces is a massive Neo-Babylonian structure of unbaked mud brick reinforced partly with modern unbaked mud brick. The reconstructed Ishtar and Ninmah temples also include modern unbaked mud brick.

Baked mud brick

The basic ingredient of baked mud brick (*tabouq*, Arabic) is a clay-based mixture composed of mainly silica and alumina. The clay may be from soft and plastic surface deposits or firmer subsoil deposits. Like unbaked mud brick, the clay was pressed into moulds but additionally baked in a kiln into a stronger, ceramic building material. The bricks' components, the drying procedure, baking temperature, and pore structure affected their strength.

The remains of the Northern and Southern palaces that dominate the Palaces Sub-Area are primarily baked mud brick. While the Southern Palace was partially reconstructed using modern fired brick superimposed on older baked mud brick structures, the Northern Place was left in ruins. In the Neo-Babylonian period many bricks were stamped with cuneiform inscriptions, a treatment imitated by Saddam Hussein.

The excavated Ishtar Gate found on site today is composed entirely of baked mud brick. During Nebuchadnezzar II's second reconstruction now in Berlin, glazes were applied to exposed surfaces. The Gate, like the Southern Palace, suffered irreversible interventions during the 1980s, when modern fired bricks were added.

Bitumen

Bitumen was an important building material in the Babylonian/Neo-Babylonian periods used to reduce humidity migration in masonry, as the primary ingredient in an asphalt brick mortar, and mixed with ground limestone, aggregates, sand or similar materials used as a water barrier under-surfacing floors or pavements. Depending on the use, a number of additives such as earth, bones, graphite, eggshell, etc. gave the bitumen special qualities. The substance was produced in both liquid and solid forms, corresponding roughly to tar and pitch. Bitumen originated from a lake near Hit, at the southern end of the kingdom.⁸⁶

Most large, baked mud-brick masonry structures at Babylon show traces of bitumen used as a mortar, often in a melted form. Bitumen was used as a water barrier in flooring in the courtyard of Nabu-sha-Hare Temple and between joints in the Processional Way. It appeared as a plaster

⁸⁵ Garip Önder Özen, "Comparison of Elastic and Inelastic Behaviour of Historic Masonry Structures at the Low Load Levels" (master's thesis, Middle East Technical University, 2006).

⁸⁶ H. W. F. Saggs, *Everyday Life in Babylonia and Assyria* (Assyrian International News Agency, 1965) <http://www.aina.org/books/eliba/eliba.htm>

coat, on the kisu of the temples, to protect altars in and out of the temples and as a coating decoration in the courtyards of temples.

The SBAH applied new coatings of bitumen as water-proofing at several sites including Ninmah Temple, with unsatisfactory results.

Gypsum

Gypsum appeared in three construction components at Babylon: bed mortar, final plaster coats, and as a thin wash. In masonry construction a bed mortar of earth and gypsum was applied every five to nine horizontal lays of brick. Like bitumen, the bed mortar was used to reduce humidity, but also to help align masonry lays. Gypsum was an ideal wall coating because it smoothed irregular masonry. As a surface wash treatment it received painted decoration that brightened internal spaces.⁸⁷

In the Palaces Sub-Area, exposed cuts in the masonry of the inner city wall show gypsum was used as a bed mortar. SBAH excavations also uncovered gypsum plaster coats that have since eroded away. There is no current evidence of gypsum applied as a thin wash on site, however traces of the delicate material were probably found during 1979-80 excavations at Nabu-sha-Hare Temple that have since disappeared.

Gypsum was used in the modern reconstructions in the Temples Sub-Area as an interior wall plaster. Copious amounts (in some cases up to 15cm thick) applied as a wall coating at Nabu-sha-Hare Temple weigh heavily on the masonry, threatening its collapse.

Reed matting

Mats of reeds (*asira*, Arabic) woven from local vegetal fibres and used within unbaked mud brick masonry can be found every 6 to 8 lays of bricks in a thick crosshatched pattern at the Summer Palace. This common technique of construction, used as a horizontal 'chainage,' strengthened masonry and reduced ground differential settlements. Reed mats were also used as a finishing layer in timbered and earth ceilings. None of the original ceiling matting materials survive, but it was used in the modern reconstructions in the Temples Sub-Area and at Ninmah Temple.

Modern fired brick

Most of the 1980s reconstructed masonry was made of compressed and extruded bricks of calcium-silicate. Dried and fired in a kiln, they form hard, dense bricks but are perforated to reduce weight. While the historic baked mud bricks are reddish, the modern ones are typically yellow-beige, probably due to the higher lime content and firing process. Modern fired bricks were extensively used in the 1980s to rebuild the Southern Palace and Greek Theatre, and in underpinning repairs and retaining walls at Ishtar Gate. In the temple reconstructions they are often coated with a mud render to match the original brick masonry. Modern fired bricks were also used in the modern commercial facilities built on site.

Modern gypsum blocks (thermostone)

⁸⁷ R. Koldewey, *The Excavations at Babylon* (London: Macmillan, 1914), 291, 299.

In some cases, 1980s masonry included large, lightweight gypsum blocks (*thermostone*) in combination with other types of materials. Gypsum blocks were used as an underpinning repair at Nabu-sha-Hare Temple and on top of Ishtar Gate and in many Babylon Festival-related buildings.

Portland cement

Portland cement, a cheap building material, was liberally applied in the 1980s as a binder in mortar, plaster, and concrete. It reappeared in 1990s repairs on buildings as plasters to save time and money, often reinforced with chicken wire and nails. The prevalence of Portland Cement complicates preservation efforts at Babylon, because it constrains moisture migration and fosters salt deposition.

Concrete

Utilized in the 1980s, concrete (cement, aggregate and water) poses conservation challenges for adjacent archaeological layers. Concrete sidewalks and pavements encircle reconstructed temples and are found throughout the archaeological areas; concrete pavement slabs, 25cm in thickness, sometimes reinforced with rebar are found at Ishtar Gate. In combination with modern fired brick, quantities of concrete were applied to the top of the inner city wall and used in building foundations dating to this period.

Defining Conservation and Restoration Strategies

Effective intervention strategies rely on precise condition assessments that define pathologies, decay processes, and causes of damage. Comprehensive sets of architectural drawings and condition surveys are being assembled to determine cause and effect for each priority site. Aside from guiding restoration and other interventions, these form the basis for mapping condition assessments.

Comprehensive drawings have thus far been completed for Nabu-sha-Hare Temple, the inner city wall, and the Ishtar Gate. Assembled by the Babylon Documentation Work Group, they provide detailed documentation of original construction and subsequent alteration. This information forms the basis for intervention strategies. They also document conditions at a given time, help to monitor change, and provide important archival information.

A scientific, internationally-accepted management approach will define the sequence of conservation and restoration activities at Babylon's historic monuments by: 1) developing comprehensive documentation and surveys 2) preparing the environment 3) monitoring conditions and 4) performing detailed condition assessments and symptom analyses. These steps have either been taken or initiated at Ishtar Gate, Nabu-sha-Hare Temple, and the inner city wall, Ninmah Temple and Ishtar Temple.

Comprehensive documentation and survey

This process involves assembling archives, compiling building and topographic surveys, and locating all former conservation or reconstruction-related documents. Complete sets of existing, and/or in-progress and proposed architectural drawings (comprehensive plans, elevations,

sections, and details) and graphic drawings (traditional site surveys, computerized CAD-based drawings or 3D site survey scans) are integral to the restoration and conservation process.

Archives safeguard the history of an archaeological site, illustrating the cycles of discovery and intervention. Translations of ancient tablets and inscriptions, books and publications, historic illustrations and plans, surveys, photographs and drawings all serve to gauge the impact of time and human factors on a given monument. The built environment is also an important archive. Babylon's traditional unbaked and baked brick building technologies are a legacy to be documented through research and field-based investigations.

Preparing and stabilizing the environment

Alongside documentation and survey, the monument environment must be stabilized to prevent further decay and prepare for interventions. The process is as follows:⁸⁸

- Improve security by installing construction site fencing during the intervention phase to restrict access. In the case of temples, erect temporary gates at entrances that cause no harm to original fabric.
- Clean the site by removing unnecessary modern intrusions, collecting garbage and deracinating vegetation (removing roots and treating the soil) to avoid further damage from overgrowth in the vicinity of historic remains.
- Halt or reduce sources of water damage. This may require changing drainage patterns and in extreme cases topographic re-grading by re-excavating where modern backfills have been deposited and historical sections of the construction reburied.
- Stabilize architectural elements that risk collapse through bracing and shoring.
- Repair damage from burrows and prevent other impact caused by animals. The site management plan defines regulations for the control of livestock and other animals.

Monitoring conditions

The regular collection of statistical data will allow for interpretation of the decay processes affecting historic structures, informing decisions regarding priorities, methods, and treatments. WMF with Iraqi teams has initiated a number of investigations, some standard procedures in monument conservation, others tailored to Babylon, including the focus on moisture pathologies observed in the majority of resources.⁸⁹ The

⁸⁸ Mahmoud Bendakir, "Babylon Archaeological Site Practical Training Workshop, Third Mission Report" (commissioned by WMF, November 2011), 45-107.

⁸⁹ Mahmoud Bendakir, "Babylon Archaeological Site Condition Assessment, April Mission Report" (commissioned by WMF, June 2010), 104-107.

following steps have been taken:

Information on historic and current climate patterns was gathered beginning in 2012 to assess the implications of weathering.⁹⁰ WMF installed a meteorological station to support the SBAH's monitoring program of daily measurements and data analysis.

Documented water table levels show fluctuations that affect above and below-ground archaeological remains. As of 2013 water levels of the Shatt al-Hillah and manmade water bodies were measured twice monthly, as was the water table at pre-existing wells and those drilled for the hydrology study. This data, combined with the hydrological study by CEB, aids our understanding of the interaction between river levels, the lakes, groundwater flow, and rainfall.

Beginning in 2013, masonry humidity has been systematically measured through moisture meters and recorded for comparison with meteorological data and the fluctuation of the water table. These tests, performed by the SBAH, in addition to studies of salt levels and water quality conducted by CEB, will yield evidence of water migration and distribution that can improve the SBAH's ability to handle erosion problems.

Since 2011, prominent structural cracks have been monitored monthly to study seasonal movements in masonry. Analyzing the cracks' evolution sheds light on root causes (often soil settlement and erosion) and helps identify appropriate interventions.

In 2012 Babil University, CEB, was engaged to conduct compression tests on building materials which further supported conservation efforts. This was followed in 2013 by soil analysis and an assessment of building conditions and components including causes of masonry failure.

SBAH and WMF are exploring an expanded monitoring program of physical, natural, and environmental conditions based on these preliminary studies. A site laboratory would facilitate a monitoring and data analysis program, including a priority study of representative building materials that will help determine problems while yielding formulas for manufacturing new unbaked and baked mud bricks, and suitable compositions for mortars and plasters. At least three parallel studies should be conducted to: 1) identify the basic characteristics of building materials through density and compression stress tests 2) test bricks for porosity, granulometry, bulk density, absorption levels, salts measurement, and to track humidity migration and 3) chemically analyze brick, mortars, and plasters.⁹¹

Developing an Intervention Plan

Completing the aforementioned scientific steps based on detailed condition assessments and symptom analyses provides a 'technical passport',

⁹⁰ Consulting Engineering Bureau (CEB) of Baghdad University began compiling this data as part of their hydrology study.

⁹¹ Brian Ridout, "Moisture Monitoring in Earthen Structures" *An Overview of Research in Earthen Architecture Conservation*, Terra Literature Review, ed. Erica Avrami (Los Angeles: The Getty Conservation Institute, 2008), 62-68.

i.e. the background and detailed descriptions necessary to formulate a conservation strategy adhering to internationally accepted standards. This intervention plan will include a clear set of actions, bills of quantity, staffing rosters, and scheduling.

Selection of Priority Sites

As part of the Future of Babylon's early planning process, members of the SBAH prioritized five sites for general maintenance and conservation actions with Ishtar Gate, Nabu-sha-Hare Temple, and the inner city wall (north section) classified as highest priority.⁹² All are standing monuments with substantial amounts of original fabric that have preserved their authenticity and integrity despite the 1980s interventions and subsequent years of neglect. Ninmah and Ishtar temples were also selected and preventative conservation measures undertaken.

Founded on background research, investigation, assessment, and stabilization at Ishtar Gate and Nabu-sha-Hare Temple has begun, while at the inner city walls stabilization was undertaken. These sites feature challenges common throughout Babylon, making them ideal classrooms for learning skills that can be replicated at other locations at Babylon and elsewhere in Iraq.

The sequence of restoration activities at these monuments changed in the course of the intervention process. Initial efforts focused on defining a procedure of interventions at Nabu-sha-Hare Temple, a complicated but model case for similar actions at other earthen architecture temples. The lack of documentation regarding modern reconstructions presents problems for choosing conservation procedures, and further investigation of the monument is required.

With the Babylon Documentation Work Group's completion of architectural drawings for Ishtar Gate, the path of conservation action is clear. This monument is better documented and contains less 1980s interventions. Restoring this renowned site enhances public relations benefits and may make further funding and support for the Future of Babylon project possible. Brief summaries of the accomplishments at Ishtar Gate and Nabu-sha-Hare Temple illustrate the Future of Babylon project's intervention approach and are as follows:

Ishtar Gate

Ishtar Gate is considered Babylon's most important monument due to its history and the amount of in-situ fabric. Despite twentieth-century reconstruction activities, it has few known serious structural problems. Owing to its fame, material composition (baked mud brick), and as a result of initial condition assessments, the Ishtar Gate was chosen from the priority sites by the SBAH as the first monument to undergo full conservation.

⁹² World Monuments Fund, "Meeting with Iraq State Board of Antiquities and Heritage Regarding the Development of the Babylon Site Management Plan, The Future of Babylon Project" (mission minutes, New York City, NY June 1-June 5, 2009).

Documentation and survey

Unlike other priority sites, Ishtar Gate is relatively well-documented with background history. Robert Koldewey's excavation reports (from the German Oriental Society archives, Berlin), archival photos and some conceptual drawings by Italian architects in the mid-1980s constitute the baseline data on this monument. Comprehensive restoration reports from the 1980s and subsequent work, including basic architectural drawings are however missing. Interviews with retired SBAH archaeologists involved in the reconstructions, several SBAH reports and back issues of *Sumer* filled some gaps in the monument's recent past.

Through a Kress Foundation grant in 2010, World Monuments Fund employed CyArk, a non-profit California-based digital documentation company, to complete a three-dimensional laser scan of the Ishtar Gate complex. Working with members of the SBAH, two CyArk technicians completed a scan of the gate in four days. At its offices in Oakland, CyArk provided training for members of the Babylon Documentation Work Group in software for the creation of AutoCAD plans, elevations and sections drawings. The drawings, detailed to the level of individual masonry units, represent the first comprehensive documentation set of Ishtar Gate.

Preparing and stabilizing the environment

An intensive site clean-up involved the removal of trash, vegetation, and remnants of modern infrastructure, including electrical wiring for abandoned security cameras, cement fence posts, and broken masonry. Modern drainage channels were cleared of silt to improve rainwater discharge. Truckloads of garbage were removed from the cisterns. It was discovered that these lacked waterproof bottoms, and consequently concentrate rainwater flow beneath the gate, presenting further conservation problems.

Although the Gate is mainly stable, some architectural elements required temporary shoring with wood framing and buttressing. A large stand-alone, column-like baked mud brick structure nearing collapse was braced. A failing section of the Gate's massive mud brick walls was also stabilized with wood framing and buttressing.

Monitoring conditions

Since 2011, four monitors installed in at a vertical crack on the south facade of the Gate's western wing are checked monthly to track its movement and determine the nature and severity of the pathology.⁹³ Part of the cement flooring was removed and sondages made to identify water table levels. Manmade water bodies and wells are also being monitored in preparation of conservation plan development and visitor presentation designs. A hand held moisture measure (a Protimeter humidity device with pins and probes) is being used monthly to monitor changes in humidity levels as the Gate's cement flooring is removed. The results will help track efforts

⁹³ Mahmoud Bendakir, September 2011, 30-39. Saugnac Gauges (G6 gauge) crack monitors were installed in 2011 to measure variations in the opening and rotation of the edges of the crack in a single plane. The gauge was simple to install, durable, and measures with an accuracy of 0.1mm and in rotation 0.1 degree. SBAH staff was trained to install the gauge and collect data for a crack movement model.

to lower groundwater penetration into the masonry facades.

Condition assessment and analysis

Fundamental condition assessments were made from 2010 to 2013 consisting of detailed notations on a set of CAD documentation drawings. This process highlighted a number of decay factors affecting various monuments.

For example, the Ishtar Gate sits lower than the surroundings and the water table is just over a meter beneath the flooring, meaning well over the foundation of the masonry facades. Rising damp and humidity exchange between the soil and wall surfaces destroyed the lower courses of masonry. Evaporation provokes hydration and crystallization of dissolved salts inside baked mud bricks, breaking them down. The concrete slab flooring installed in the 1980s obstructed evaporation and aggravated erosion by forcing rising damp into the walls. Two uncontained cisterns, working as discharge wells for the slab surface run off, concentrated rain water drainage beneath the Gate.

Instead of evacuating water from Ishtar Gate, drainage patterns created in the 1980s funnel surface water within the gate's context directly into the backsides of the structure, encouraging water migration deep into the masonry core; dampness, in turn, is visible on the interior façades after rainstorms.

Moreover, the fired brick and cement-based mortar infill added to the top of the Gate in the 1980s was meant to shore up archaeological remains and add massing to the overall form. However, capping it with a modern cement-based mortar coating hastened surface weathering by channelling rainwater from the top directly down the structure; concentrated runoff has eroded vertical troughs in the masonry, in some cases damaging animal reliefs.

In addition, during the 1950s and 1980s, infill masonry was laid to underpin areas of substantial loss of baked mud-brick from rising damp.⁹⁴ This infill consists of incompatible yellow-green fired bricks and a less porous cement mortar which serves to channel moisture through the bricks themselves rather than through the joints. As a result, both original, baked mud bricks and modern, fired ones are dissolving. As the shallow brick work of the Gate's underpinnings do not reach into the core, removing and replacing these materials presents limited risk to the adjoining historic fabric.⁹⁵

Modern masonry burdens the structure, stressing the historic fabric. At the Southern Palace, the reconstructed outer wall adjoining Ishtar Gate and the fired brick masonry infill behind the Gate have produced dangerous lateral forces and settlement inconsistencies in the less robust

⁹⁴ WMF interview with Wahbi Abdel Rezzak, 2011. Roberto Parapetti, "Babylon 1978-2008 A Chronicle of Events in the Ancient Site," International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq Sub-Committee on Babylon *National Reports Annex 5* (2008), 5.

⁹⁵ Northern Ireland Environment Agency (NIEA), Environment and Heritage Services "Masonry Walls, Technical Note No. 45", June 1992, revised August 2003, http://www.doeni.gov.uk/niea/tn45_masonry_walls-2.pdf

historic masonry. The south facade of Ishtar Gate, intact during Koldewey's excavations, now has a large crack from the shearing force that split individual baked mud brick units in half. Monitors indicate stresses from differential settlement were relieved by the initial cracking and movements are now confined to seasonal fluctuations.⁹⁶

Intervention Strategy for Ishtar Gate

A preliminary intervention strategy for Ishtar Gate was developed to stabilize and protect its environment. Since the water table is the main problem, the strategy involves reducing the impact of rainwater drainage from anterior façades and encouraging evaporation from the water table. Interventions will be further developed in 2013-2014, and will entail the following actions in sequence: ⁹⁷

- Removal of the concrete flooring allowing groundwater evaporation and reduction of humidity, which is now migrating through the standing masonry walls composed of baked mud brick.
- Re-design of this floor area to develop integrated drainage systems that serve to move water away from Ishtar Gate, this will include constructing definably new bulwarks at the north and south ends.
- Transformation of discharge cisterns into waterproof reservoirs to collect water and solar-powered pumping systems to move it out of the site.

Once steps are taken to reduce the effects of low level moisture and humidity, and their impacts assessed, a series of conservation architectural activities will begin:

- Modern fired brick masonry underpinnings will be removed, section by section, and replaced with compatible, traditional materials and mortars. Where appropriate, interventions to facilitate humidity evaporation such as venting will be introduced to the lower courses of the replacement brick.
- Sub-grade work will reinforce foundations after defining the cause of the large crack in the southern façade. On the façade, grouting and re-pointing will be applied to reinforce the wall, restrict access of moisture, and present a more unified appearance. Using the same techniques minor cracks will also be repaired.
- Surface damage will be treated, including brick masonry cleaning and mechanical re-attachment, consolidation, grouting and re-pointing will occur where needed.

⁹⁶ Lina al-Hakim, "Ishtar Gate, Structural Analysis for Wall S010" (commissioned by WMF, August 2013). An in-depth structural analysis of the large crack in the southern façade was undertaken.

⁹⁷ Thierry Grandin, "Babylon Archaeological Site, October Mission Report" (commissioned by WMF, November 2012), 66-86.

- Cement-based mortar capping and modern fired brick infill's behind the interior façades will be analyzed to determine plans for alteration, repair or removal.
- To avoid further deterioration of brick masonry surfaces, a lightweight canopy is proposed to cover the east and west parts of the Ishtar Gate, a subject to be further explored as work continues.
- Visitor access will be directed/controlled and infrastructure improved with condensed access pathways, lighting, benches, stairs, and interpretation.

Nabu-sha-Hare Temple

Nabu-sha-Hare Temple is considered one of the most important extant examples of Babylonian temple architecture, with massive, original walls of unbaked mud brick and surviving mud plaster coatings. Unearthed in 1978 and 1979 by an Iraqi archaeological mission directed by Danial Ishaq, the process of reconstruction immediately followed led by then Director General of the SOAH Muayad Said Damerji.⁹⁸

Documentation and survey

For such an important and recent find, excavation documentation is scant, consisting of *Sumer* articles, several photos in publications, an architectural floor plan, several conceptual illustrations, and minor mention in larger topic reports. The Ishtar Gate, excavated 100 years ago, is better documented. Several current SBAH employees took part in the excavation and reconstruction, but only one was willing to discuss the process.

Following CyArk's scan of the building, architectural drawings were produced based on splicing the three-dimensional file into two-dimensional plans, facades, and sections and using them as underlays for AutoCAD drawings. The data provided the first comprehensive set of architectural drawings for Nabu-sha-Hare Temple and enabled an examination of construction techniques used in both the original and reconstructed elements.

Preparing and stabilizing the environment

Before this project began, Nabu-sha-Hare Temple was exposed to the elements and unsecured. A temporary gate was installed, locks placed on the two building entries, and a construction fence set up around the perimeter of the work site.

Modern reconstructions and water problems have contributed to Nabu-sha-Khare Temple's decay. Rainwater flowing towards the temple caused

⁹⁸ Danial Ishaq, "The Excavations at the Southern Part of the Procession Street and Nabu ša Hare Temple," *Sumer* 41, No. 1-2 (1981), 30-33.

extensive damage, compounded by the lack of site maintenance and uncontrolled vegetation growth. The first steps in combating these problems included removing vegetation and plugging a water pipe that had apparently been leaking for years.

After the temple's reconstruction in the early 1980, to counter fears of collapse modern backfill was heaped against the south and west facades, partially reburying the monument in up to 2.5 meters of broken building material and soil. In 2011 approximately 400 cubic meters of modern fill was removed from the sides of the temple in order to further reveal the *kisu* (an elevated platform around or under religious buildings serving structural purposes) and encourage humidity in the interior to evaporate. The modern fired brick *kisu* follows the foundations of an older, baked mud-brick structure. A temporary drainage channel and a discharge well were installed parallel to the *kisu* to control rainwater run-off.

Behind the temple, archeological remains left exposed since Dainal Ishaq's excavations were cleaned and temporarily covered with geo-tech fabric until a final presentation plan for the temple's context is decided.

Evidence suggested that livestock recently sheltered in the open building and the original pavement was covered with several centimeters of dust. The flooring in all internal and courtyard spaces was re-excavated then temporarily recovered with geo-tech fabric and a top layer of sieved protective soil. Years of exposure without maintenance contributed to the loss of most interior structures. Remaining architectural features, such as altars of baked mud brick and bitumen mortar, were covered with geo-tech fabric and protected using sandbags left over from Camp Alpha.

Since portions of the roof had collapsed from termite damage, interiors were propped and scaffolding erected in all rooms. Holes in the roof were temporarily covered to prevent rain penetration awaiting an intervention strategy.

Monitoring conditions

The temple suffers primarily from humidity, particularly in walls where historic baked mud brick is combined with modern reconstruction materials such as modern fired brick, gypsum blocks, and later cement-based repairs and plasters. The decay is mainly located near the ground level and along the courtyard rooflines, where exposed joints permit rainfall penetration, detachment of mud plaster renders and wall paintings, and efflorescence which are all water-related. The degree of moisture will be measured systematically and recorded for comparison with meteorological data.⁹⁹

Standard systems are being applied to collect and analyze moisture levels (a Protimeter humidity device with pins and probes) and to document seasonal changes. Cores for gravimetric tests are being drilled at several locations. The resulting data will permit an evaluation of the effects of the water table, rainfall, and moisture migration within the structure.

⁹⁹ J.C. Yarmola, "Conservation of historic brick masonry in Pagan", *Conservation of Cultural Heritage of Selected Sites in Burma Report, Report No. 3*, (United Nations Educational, Scientific and Development Cultural Organization: Paris, 1988), 2.

Condition assessment and analysis

A fundamental condition assessment of NKST was made in 2010 and 2013. The temple's upper walls had been completely reconstructed using new unbaked mud bricks tempered with hay, and often with gypsum blocks and fired bricks similar to those used in the Southern Palace reconstruction in the 1980s. Modern gypsum plasters were applied liberally over interior and courtyard spaces, often attached to the unbaked mud brick substrate with metal screens (chicken wire) and nails. These additions make it difficult to understand historic from modern surfaces and additional studies were undertaken in July of 2013 to discern plaster compositions and conditions.¹⁰⁰ Repairs from the 1990s produced further incongruities; cement used to fill holes left by rising damp was coated with gypsum plaster.

The concrete slab flooring and pavers around the building obstruct evaporation and aggravate erosion by forcing rising damp into the adjacent kisu and unbaked mud-brick walls behind it.

The actual topography is 80 to 90 centimetres higher than the internal floor, a discrepancy that further exasperates rising damp conditions in the masonry.

Here, as at Ishtar Gate, the water table lies just below the original flooring, encouraging rising damp and humidity exchange between the soil and wall surfaces.¹⁰¹ Incompatible modern materials exacerbate the damage: cement renders, metal screens, nails, and gypsum wall plaster 15centimeters thick threaten the original fabric. Many sections of gypsum wall near ground level fell off, taking substantial quantities of the unbaked mud-brick masonry substrate with them and weakening the masonry above, leading to further collapse.¹⁰² At the temple's southeast corner the entire inside facing of the exterior wall collapsed taking more than half a meter of historic, unbaked mud-brick internal wall with it, while reducing support for the ceiling. The ceiling had to be shored and walls braced to prevent further collapse.

The modern roof is built using traditional techniques and materials (i.e. layering timber with plant fiber matting and layers of earth).

Intervention Strategy for Nabu-sha-Hare Temple

Investigative procedures are underway to determine the monument's intervention strategy, but enough is now known to discuss alternatives and designate tasks common to all options (each subject to refinement based on further study of the building). The SBAH will choose from intervention and presentation alternatives presented below.¹⁰³

Alternative 1: Conservation of original elements followed by complete reconstruction includes removal of incompatible modern additions and

¹⁰⁰ Alexandra Winkels, "Conservation and Scientific Investigations at Nabu-Sha-Khare Temple and the Ishtar Gate" (commissioned by WMF, July 2013).

¹⁰¹ Bendakir (June 2010), 25-27.

¹⁰² Winkels (July 2013), 6-10.

¹⁰³ Thierry Grandin (November 2012), 32-33, 71-77.

materials followed by replacement using in-kind traditional materials and techniques. This means removing the entire roofing structure and top three to four meters of modern unbaked mud brick and fired brick then replacing it with new unbaked mud brick masonry, ceiling timbers, and roofing layers more faithful to its original, historic construction. The ruined temple would be restored to its Babylon Festival-era appearance. However, since many architecture elements of the original temple are unknown, including roof and wall height and whether the courtyards were open air spaces or not, the reconstruction would be based on conjecture. In keeping with international charters the SBAH and WMF consequently discarded this option.

Alternative 2: Conservation of original elements with construction of a shelter includes complete removal of all modern materials and retaining the site as a ruin, such as it was found when excavated. This alternative requires accurately distinguishing between authentic elements and those added or changed during reconstruction. Knowledge concerning the temple's appearance before modern additions is limited and can only be further extrapolated once modern gypsum wall plasters are removed to determine the amounts of replacement materials added atop the original walls. Investigations involving the dismantling of modern additions, including the roof, upper walls, and associated coatings, must proceed cautiously to avoid damaging original material. While removing modern materials may help restore authenticity, it may involve the partial or major loss of some original elements. A large, lightweight shelter would protect the temple. Its cost and design must be assessed, along with its potential impact to the site and the surrounding landscape. The appearance of a new structure amongst several reconstructed earthen buildings clustered in the Temples Sub-Area must be considered.

Alternative 3: Conservation of original elements without a shelter follows the same conservation process as Alternative 2, but with the historic remains left exposed, regularly, and intensively maintained. How these ruins would appear beside nearby reconstructed buildings is a question, and treating the nearby buildings similarly would have to be considered.

Alternative 4: Conservation of the original elements with partial reconstruction requires removing all modern materials but conserving and presenting original elements with sacrificial layers of traditional renders and coatings. In some cases localized shelters may be needed. While technically more sophisticated, this presentation may make distinguishing original from reconstructed elements more difficult for visitors. Although the site would be better protected, weathering of historic flooring and wall coatings remains a challenge, along with presenting adjacent structures in a harmonious context.

Regardless of the chosen alternative, initial actions should proceed:¹⁰⁴

- Further research regarding previous excavations in order to understand actions taken at the time should be conducted.

¹⁰⁴ Mahmoud Bendakir (June 2010), 65-66.

- Re-excavation of the temple surroundings to their original levels should occur. The current external level of paved and non-paved surfaces is higher than internal ones, encouraging penetration of humidity through the *kisu* to external temple walls.
- Investigation and survey of original wall renders and coatings in the courtyards should be conducted. Recent conversations with SBAH staff suggest there are more historic surfaces than originally stated.
- Removal of all modern renders and coatings to evaluate the original structure beneath is suggested. This has proved difficult as thick replacement materials are typically less porous and denser than the original unbaked mud-brick masonry underneath, separating them from the substrate and historic plasters has presented numerous challenges.
- Removal of decayed or non-compatible modern materials, including the upper walls and roof is recommended.

The aforementioned steps aim to reduce the effects of low-level moisture and minimize the burden of 1980s additions. After a period of tests to assess the impact of these interventions, conservation activities will begin:

- Original unbaked mud-brick lost from rising damp around the base of walls, external walls and above the *kisu* will be replaced with compatible substitute materials.
- Original unbaked mud-brick masonry will be treated to restore integrity by replacing decayed or collapsed sections where modern infill must be removed, repairing cracks, grouting, and re-pointing. In cases where the site is exhibited as a ruin, the wall capping will be treated with reinforced bricks and sacrificial coatings for better protection.
- Original wall renders and coatings will be conserved by micro-grouting surface cracks and, in the case of detachment from the substrate, consolidation by mortar edging and injection to strengthen the bond to the substrate.¹⁰⁵ Areas of total loss could be filled and/or covered with new earthen and gypsum-based mortars with compatible characteristics yet distinguishable from original surface treatments. The techniques will vary depending on the location, whether an external wall, courtyard or internal space. Where there is total render loss but adequate protection, the original unbaked mud-brick masonry core may be left exposed.

III.8 Protecting Natural Resources

¹⁰⁵ Hugo Houben and Hubert Guillaud, *Earth Construction, A Comprehensive Guide* (English reprint, Warwickshire: Practical Action Publishing, 1994), 346-349.

Given the rate of urban development around Babylon, it may soon become the last large, undeveloped green space in the Hillah municipality and surrounding countryside, and attract numerous visitors on this virtue alone. Based on a biodiversity study conducted by Nature Iraq and field studies undertaken by WMF in 2011, Babylon additionally contains ecosystems worthy of management strategies and interpretation.¹⁰⁶ It is recommended that sensitive interpretive strategies enable visitors to enter these areas from a trail or observe them from a nearby viewing point. Several areas within the site, particularly the proposed Nissan Fitness Park (*see* below), have been identified for conservation that would benefit local communities and visitors, while preserving the site's setting and enhancing its cultural significance.

Nature Iraq's biologists and habitat specialists identified threats to habitats within the site and its buffer zone, including water shortages, road and vehicle disturbances, residential and commercial development.

Additional assessments of Babylon's ecology are recommended, including annual migration, nesting, and foraging patterns for birds and other animals. Ideally, a SBAH representative from the education, outreach and communication department could assist in these assessments to build knowledge of the site's natural assets and related responsibilities. Awareness-raising efforts should extend to the Iraqi Police who guard the site and local communities who benefit from it, through strategic partnerships with local environmental NGOs and the Babil Governorate.

Shatt al-Hillah Riverbanks Sub-Area

The Shatt al-Hillah is currently threatened by sewage discharge, fertilizers and pesticides, and urban and industrial run-off.¹⁰⁷ Fishermen sometimes use dynamite to cull fish. There is nonetheless a growing public awareness of the dangers of abusing the river. The SBAH must proactively form partnerships with the Ministry of Environment, concerned citizenry and local fishermen to contain and reverse the damage, and stopping all permanent development on the riverbanks banks within the limits of the Near Buffer Zone. Recently a deterrent measures have been taken as well as the river cleaned and the excesses raised cooperating with the Ministry of Water Resources.

Preserving the riverine environment is essential. Historically integral to Babylon's setting and well-being, it enhances and expands the visitor experience. The east riverbank could also be considered the preferred arrival/departure point for the site (via ferry, as mentioned above) and walking trails can be developed on both sides. The east riverbank in particular provides an interesting mix of archaeology, future visitor services, and cultural experiences.

Lake Saddam Sub-Area

An artificial lake at the terminus of the Hawliyah Canal is habitat for numerous plants and animals, including a threatened duck species.¹⁰⁸ Other than duck blinds and watchtowers erected around the periphery for birdwatchers, this designated nature preserve area would undergo no

¹⁰⁶ Nature Iraq, "Biodiversity Baseline Study" (2011).

¹⁰⁷ Fikrat Hassan et al., Effect of Chemical and Physical Properties of River Water in Shatt al-Hilla on Phytoplankton Communities, *E-Journal of Chemistry*, 2008, Vol. 5, No. 2, 323-330.

¹⁰⁸ Nature Iraq, "Biodiversity Baseline Study" (2011), 19-23.

development and a quiet zone would be established around it. Other improvements in the Warsaw Gate Sub-Area, such as presentation of the military remains, would be designed or relocated to balance the requirements of these natural features.

High Grass Sub-Area

Pockets of high grass and other vegetation have flourished thanks to the relative absence of visitors. Animals reside in the dense overgrowth at the north side of the Central Administration Area, including nocturnal scavengers and foragers such as fox, jackal, and wild boar. Restricted visitor access will preserve this natural area at least until the SBAH decides to excavate here.

Lake Tammuz Sub-Area

The artificial Lake Tammuz at the south end of the Hawliyah Canal, is larger than Lake Saddam yet hosts less variety of fauna because of its proximity to roads and human settlements where hunting and fishing are active pursuits.¹⁰⁹ Protecting Lake Tammuz largely depends on how the SBAH wishes to define the Central Administration Area perimeter. Existing water features (the Hawliyah Canal and Lake Tammuz) may serve as Central Administration Area boundary, but will not protect this ecosystem unless perimeter fencing encircles these water features.

Future Nissan Park Sub-Area

As the Babil Governorate has identified the need for recreational areas, in Phase Three the management plan recommends designating a large tract of land around seasonal Lake Nissan as a nature preserve and fitness area. This designation would also serve to protect the southeast corner of the outer city walls now threatened by destruction from permanent development. The area is bounded by subterranean pipelines to the west, includes Mount Nissan on the north, and stretches across to the Babil Canal on the east, to the Baghdad-al-Basra Highway on the south.

Proposals for Lake Nissan, a seasonal body of water used for agricultural purposes, should be developed through a partnership between the Ministry of Tourism and Antiquities and the Babil Governorate in consultation with archaeologists and environmental specialists. Any proposal would require the acquisition of private land in the sub-area as well as the demolition of existing structures around Lake Nissan.

Walking and jogging trails with exercise areas would be installed around the lake and mounds of the outer wall. An endurance hill climb to the top of Mount Nissan could be featured and limited commercial facilities including a workout gym developed to serve visitors. A small fee for park usage would support its management.

Al-Furat Fisheries

A government-operated commercial enterprise comprising 13 artificial lakes for fish breeding, the al-Furat Fisheries is a habitat for thousands of birds. Babylon's inter-agency coordinating committee should initiate dialogue with officials at the Fisheries to create bird-watching points

¹⁰⁹ Ibid., 27-29.

around the lakes as part of the larger Babylon interpretative program.

III.9 Managing Water Resources

Lowering Groundwater

Consulting Engineering Bureau's (CEB) geo-hydrological study confirmed and refined the results of previous studies while offering concepts for de-watering solutions.¹¹⁰ Groundwater levels rose when the Shatt al-Hillah's levels were deliberately raised for irrigation purposes, and efforts and finances required to mitigate the problem will be considerable.

Using data from previous studies, CEB concluded that to lower the groundwater digging drawdown wells (to pump from) was an option that promised less than optimal levels of success.¹¹¹ Pumping from a series of wells requires continuous access to electricity that the present grid is unable to supply and the cost of fuelling diesel generators in times of need would be prohibitive. Well-based drainage systems may, however, provide a temporary solution targeting specific areas. For example, if the SBAH must dig excavation test pits or undertake emergency salvage operations in a contained area, drilling and pumping with generators would temporarily reduce ground water levels.

CEB also examined reports concluding that changing the river's course might more effectively reduce elevated groundwater. Although theoretically sensible, the cost of this solution would be prohibitive. Typically, at other archaeological sites facing the same problem, measures are either taken to salvage a particular monument (or series of remains) or else they are abandoned rather than trying to divert water around them.¹¹²

CEB recommends neither pump wells nor changing the course of the Shatt al-Hillah. Instead, the CEB hydrological study proposes a two-stage transmissivity reduction for lowering of groundwater across the site consisting of:

- An underground cut-off curtain running parallel with the Shatt al-Hillah. This entails drilling hundreds of deep narrow holes in three rows (the deepest 45 meters) in line with the river, then injecting grout. Under pressure, the grout would spread underground forming an impenetrable curtain.

¹¹⁰ Consulting Engineering Bureau, 'Hydrological Study of Ancient Babylon Site, Final Report' (commissioned by WMF, 2012).

¹¹¹ Ibid., 42. Earlier studies of Babylon's hydrology examined by CEB include Directorate General of Geological and Mineral Surveys, Ministry of Industry, 1979; Al-Furat Centre for Studies and Design of Irrigation Projects, 1989; and I.B. Karim in a doctoral dissertation presented to the University of Technology Baghdad, 2005.

¹¹² Many archaeological sites have been lost as a result of dam/reservoir building. The UNESCO-coordinated Nubian Campaign in response to the construction of the Aswan High Dam, was a unique instance of mass salvage.

- Grouting hundreds of holes 25 meters deep in similar fashion on the north, east and south inner sides of the Hawliyah Canal.

This would create an underground dam containing the aquifers around the Central Administration Area. CEB estimates project costs at approximately USD10 million.¹¹³

Alternatively, the eastward portion of the Hawliyah Canal could be drained and its concrete basin demolished and in-filled, reconnecting the inner and outer city areas within the site boundary. A cut-off curtain would be implemented only along the Shatt al-Hillah and north and south lengths of the Hawliyah Canal, where the concrete basins could be improved to prevent leakage. Besides lowering costs, this alternative would allow Lake Saddam, Lake Tammuz, and their associated nature habitats to be preserved. Additionally, since this solution requires less grouting, the damage risk to archeological remains would be reduced.

None of the proposed large-scale, high-impact interventions are ideal for a highly sensitive archaeological site. Whichever method is used, lowering groundwater may increase the consolidation of soils at Babylon, resulting in compaction and additional pressures on fragile subterranean fabric such as mud brick.¹¹⁴ Digging and grouting may destroy archaeological material.

Similar gravity-well projects undertaken at other historic sites combined well-digging with archaeological salvage operations.¹¹⁵ These typically required divers trained to locate archaeological material in the murky waters of the wells. CEB believes that water pumping would significantly accelerate the drawdown of water, but also increase the risk of ground collapse. Relying only on evaporation however, would achieve a far more gradual drop in water levels.

Given the sheer size and complicated nature of any dewatering project at Babylon, additional research must be conducted and further professional assistance sought, possibly from international consultancies who handled ground water issues in similar alluvial-located archaeological environments in Egypt. To start, an exploratory committee dealing solely with water issues should be formed, including the inter-agency coordinating committee, community leaders, and farmers representing the affected area in possible consultation with CEB.

Managing Irrigation

Different types of irrigation systems are used within the boundary, around the Babylon Conference Center, and former palace of Saddam Hussein. On Mount Saddam, line-fed hoses are laid on the ground for watering, but most watering is done by flooding irrigation trenches adjacent to and

¹¹³ Consulting Engineering Bureau, "Hydrological Study," 42-44. A bill of quantities appears in Appendix A.

¹¹⁴ Ibid., 43.

¹¹⁵ Peter Sheehan, *Babylon of Egypt, The Archaeology of Old Cairo and the Origins of the City* (American University in Cairo Press, 2010) presents a comprehensive site history of a major hydro-archaeological project (2000-2006) to lower groundwater affecting monuments in an area of Cairo known historically as Babylon.

running through fields. In the southeast corner of the Central Administration Area the land is flooded after heavy rains, the water collecting in a large but shallow seasonal lake. Lake Nissan is an even larger shallow body of water to the east. Both are unrestricted retention ponds tapped for agricultural purposes that concentrate water over archaeological areas.

The cumulative effect of irrigation water used in areas surrounding the site is of concern. Although Law 55 cites restrictions, earth is being dredged and water is being channeled and pumped to cultivate land within the boundary and proposed buffers zone.¹¹⁶ Farmers complain that restrictions limit their yields and profits. The amount of water required for maintaining crop productivity in these areas has not been quantified and a better understanding of how these irrigation practices affect groundwater levels and archaeological remains is needed.

For the SBAH to formulate appropriate agricultural policies inside Babylon (and elsewhere in Iraq around archeological sites) it must determine where to designate agricultural land use and optimal crop water consumption for those areas. The SBAH, through its relationship with the Babylon Community Association, should compile a list of profitable crops that have low water consumption and shallow roots. Experts within the Ministry of Irrigation and Iraqi universities can also help develop sound cultivation policies.

Meanwhile priority actions include adopting the land use zoning proposed in the management plan and acquiring all private properties inside the Central Administration Area, where agricultural activities must stop immediately.

III.10 Improving Infrastructure

Improving site infrastructure requires an understanding of existing conditions and future needs. Key aspects include the following:

Measuring Carrying Capacity

The United Nations World Tourism Organization (UNWTO) defines carrying capacity as ‘the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction.’¹¹⁷ A carrying capacity study at Babylon is in its initial stages, research that informs many of the proposals in this volume. It is a natural extension of the management plan.

¹¹⁶ Iraq Law No. 55, art. 9, item 3 and art. 15, item 2. The law is vague and provides no specifics other than banning canal excavation and cultivation. In recent cases water canals were dredged and enlarged cutting deeper into the archaeological strata with the SBAH's full knowledge.

¹¹⁷ Samantha Desirée Santonocito, “Sustainable Tourism and Carrying Capacity in the Mediterranean Area,” Vol. 1 of papers presented at the third IRT International Scientific Conference, Helwan, Egypt, October 2009, 387.

Visitor records from the Babylon Festival (when visitation rates were high) are lacking. Consequently the capacities of visitor facilities (restaurants, craft venues, etc.) built at that time are difficult to accurately assess and/or use as a baseline from which to determine necessary additions. Further study is required to assess the visitor infrastructure (bathrooms, parking spaces, restaurants, shops) required to operate Babylon as an attraction.

In 2012, Babylon received 13,000 Iraqi visitors (mostly group tours) and just over 200 international visitors.¹¹⁸ These numbers increased in the subsequent years, there is an urgent need to understand the site's carrying capacity, especially in the Central Administration Area. Detailed strategies for phasing infrastructure improvements can then be developed in cooperation with other governmental agencies. The following issues should be evaluated towards completing a carrying capacity study, designs, and budgeting for required improvements in each sub-area:

Visitor Infrastructure

Temporary and permanent facilities housing visitor services will be established at Babylon through a phased implementation. At the core of development site museums should accompany a visitor center and together serve to interpret specific periods of Babylon's history as well as dispense information. Additional visitor amenities should be provided throughout the site as demand arises, including bathrooms, interpretive routes, and associated interpretive media.

Commercial Real Estate Feasibility Appraisal

Babylon has more abandoned than functioning buildings, mostly commercial properties developed for the Babylon Festival, which became ruins after the site was ransacked with the fall of Saddam Hussein. An evaluation and analysis of their potential reuse as commercial properties based on rehabilitation costs, location and proximity to archaeological areas will determine those to be left standing. Existing facilities that have been vandalized will require structural upgrades and new utilities systems; in many cases constructing new facilities in appropriate locations would be more economical.

Electrical Network

Since 2003, Babylon's electrical network has been systematically vandalized. In 2008 the SBAH assessed what was needed to restore basic electrical services to the site. The assessment, which predates the management plan and its proposals for infrastructure upgrades, will need to be reviewed and revised to correspond with the recommendations found in this document (*see* Action Plan). Without steady electricity, Babylon can host little more than the current, low visitor numbers, and offer limited access to facilities such as the Nebuchadnezzar Museum. Cooperation between the Babil Governorate and SBAH would help remedy this situation.

¹¹⁸ Figures provided by the SBAH indicate Babylon's visitors consist primarily of Iraqi student groups, with peak attendance during post-exam school holidays. International visitors mainly consist of Baghdad-based diplomatic missions and small adventure tour groups operating since 2010.

Potable Water

Potable water needs and availability at Babylon have not yet been assessed. Existing fresh water pipes may not provide adequate supply for expanded visitor facilities. Following a comprehensive carrying capacity study, the management plan recommends the SBAH cooperate with the appropriate government agencies to assess the current supply lines from the east and south to ascertain potential requirements, including linking the Central Administration Area to the municipal system.

Little is known of the potable water use or needs of communities located within the site boundary with the exception of the water supply for New Qwadesh. Fed by pumps north of Warsaw Gate using Shatt al-Hillah water, the New Qwadesh potable water supply must be re-routed (so as not to cross the site) and connected with the municipal network through piping parallel to the Baghdad-al-Basra Highway.

Sewage Disposal

Al-Jimjah and Sinjar villages are developing suburban sprawl yet remain unlinked to the municipal sanitation system. Existing cesspool and septic tank arrangements on most private properties reduce but do not totally remove organic waste, placing subterranean archaeology at risk. The Babil Governorate must prioritize these denser populated areas for linkage to the municipal system. As noted in the boundary and primary buffer zone regulations, the management plan recommends an immediate halt to new cesspool systems and the installation of only closed septic tanks. The management plan recommends further study of waste water treatment options by engineers from the Babil Governorate to identify problems and solutions.

The condition of existing sewerage systems for facilities inside the Central Administration Area, principally those under the authority of the SBAH and Babil Governorate, must be assessed and repaired where necessary. When funding is available for rehabilitating sub-areas, all cesspools on these properties should be changed to closed container septic tanks.

Routing Local Traffic and Circulation outside the Central Administration Area

The management plan recommends establishing standard arterial, distributor and local access road categories to move non-visitor circulation away from the Central Administration Area. Local traffic will be routed to the Baghdad-al-Basra Highway and al-Hillah-Karbala Road along four existing arterial roads, improving movement and safety. The following roads are proposed for improvements as main arterial routes for local traffic:

- The Bernoun Road, running northwest-southeast between Bernoun village and the Baghdad-al-Basra Highway, will undergo improvements, with a roundabout placed at the intersection of the primary site entry road south of the Summer Palace.
- The East Babil River Road, running north-southeast parallel to the river and across it to the Baghdad-al-Basra Highway, will be generally improved, with a new bridge running over the river. Improvements will take into account the proposed Nissan Fitness Park described later in the management plan.

- Al-Jimjmah Road (*aka* the Amran ibn-Ali Shrine Road) running north-south, will be rerouted around archaeological remains and straightened to improve access and traffic flow for residents to the Baghdad-al-Basra Highway.

The Annanah-Sinjar Road, across the Shatt al-Hillah from the Central Administration Area, is a busy north-south route parallel to the Annanah Canal, providing these communities access to the al-Hillah-Karbala Road. It will be generally improved and widened to four-lanes.

Reducing Roads inside the Site Boundaries

With efforts to move traffic outside of Babylon, a traffic circulation program should be further developed in conjunction with the Hillah Master Plan and local traffic authorities to reduce distributor and local access roads within the site boundary. The circulation system design should address the following:

Cancelling local access proposals

There is a long-standing municipal proposal for upgrading an existing local access road and associated footpaths running parallel and west of the Shatt al-Hillah between Sinjar and the river. The plan calls for linking traffic between the growing communities of Sinjar and Annanah directly to Road 60 south of the Shatt al-Hillah bridge (a.k.a the Baghdad-al-Basra Highway north of the bridge) along the edge of date palm groves.

This proposal must be abandoned, as it encourages further development inside Babylon's boundaries, along the river's edge, and within palm groves. Existing roads parallel to the river should be only used as access for emergency vehicles and a pedestrian walkway inside the site boundaries. Arterial circulation in these communities should remain limited to the Annanah-Sinjar Road, which moves traffic away from Babylon towards the Hillah-Karbala Road.

Eliminating unused roads

The Hawliyah Canal, dug around the Central Administration Area in the 1980s, truncated the Baghdad-al-Basra Highway. The dual carriageway south of Marduk Gate (built over archaeological remains) became a road to nowhere that can be demolished and cleared away. Other roads should be closed and demolished including the connector near the northeast corner of the Central Administration Area between the old Baghdad-al-Basra Highway and the East Babil River Road. The paved network of access roads for the abandoned tourist village north of the Greek Theatre should also be demolished. The road adjacent and south of the Hawliyah Canal between the Hammurabi statue and Lake Tammuz proposed to be closed; the dead-end road east of Tell al-Jimjmah demolished; and the west entrance to the Tomb of Amran ibn-Ali proposed to be removed also(See BM12, 'Proposed: Traffic and Circulation').

Site Access Improvements

Several traffic corridors around Babylon's periphery have been identified for improvements to ease traffic flow, increase safety, and present

pleasing approaches to the site. A consistent treatment of hardscape, open space upgrading, and signage is recommended for the following locations:

North Entrance Corridor

In Phase Two this road will be upgraded with entrance signage, curbing, drainage, and pavement treatments at the Baghdad-al-Basra Highway junction to present a more formalized entry to Babylon. A small pullover parking area is recommended adjacent to the Summer Palace during Phase One. At the south end of the corridor, the intersection with the Bernoun Road will be defined with similar hardscape treatments continuing to the Saddam Hussein sign, where a second pullover will be located. To improve safety a roundabout may replace the staggered intersection.

Future Railway Station Connecting Corridor

The proposed pedestrian route will be enhanced with new shade tree plantings. Footbridges will be erected to cross the Baghdad-al-Basra Highway and Babil River between the proposed Babylon railway station and visitor center near Marduk Gate (Phase Three). The pedestrian route and footbridges will be designed to accommodate bicycle traffic. A supporting taxi/microbus stand could be situated on both sides of the Baghdad-al-Basra Highway at the railway station to improve vehicular access to Babylon.

South Entrance Corridor

In Phase Two the long neglected traffic island at the Hammurabi Statue will be formalized with a roundabout, simplified signage and landscape and hardscape treatments in a manner keeping with the North Entrance Corridor near the Summer Palace. Envisioned as the main southern entrance to Babylon, the ideal situation would be to disassemble and turn the statue around; facing towards al-Hillah it would greet visitors arriving from that direction.

Amran Entrance Corridor

Since the number of pilgrims is increasing annually, rerouting this corridor to the west of Tell al-Jimjmah during Phase Two will improve access to the shrine and reconnect the archaeological mounds to the larger undulating archaeological landscape at the south end of Amran Hill. At the same time, security fencing will be installed along the edge of the Central Administration Area where it passes al-Jimjmah. In addition to fencing, hardscape improvements including curbing, drainage, street lighting, and directional signage are recommended. The existing microbus terminus at al-Jimjmah could also be upgraded with a new parking lot for the community and visiting pilgrims.

Al-Jimjmah Commercial Corridor

The main street of al-Jimjmah, an uninspiring stretch of low-rise residential and commercial buildings on the edge of the site boundary, does little to encourage visitors to explore the community beyond the Shatt al-Hillah. Upgrading building facades and hardscape street elements in Phase Three would create a more inviting environment for inhabitants and visitors. This should be a community-based process engaging residents in designing improvements for building finishes, lighting, and pavement treatments (following the established boundary and primary

buffer zone regulations). The results, if carefully planned within the context of socio-economic proposals, can facilitate business development and provide improved open spaces for inhabitants. Funding sources could include the Babil Governorate with the assistance of ministries in Baghdad.

Public Transportation

Improved public transportation is essential to reduce vehicular traffic and pollution at Babylon. Recommendations for developing alternative modes of site access and re-rerouting existing networks outside of the site are as follows:

Shatt al-Hillah River Ferry

The Hillah Master Plan calls for ferry transport on the Shatt al-Hillah between al-Hillah and Babylon.¹¹⁹ Partly for this reason, the Master Plan zones large tracts of land east and south of the former Babylon Hotel (a private enterprise located just outside Babylon's boundary and once used to house the US Regional Embassy) for additional accommodations. Ferries could stop at the hotels along the way, at al-Jimjmah (for commercial interests and guesthouses on the east bank), Sinjar (for the same on the west bank, and visits to the Furat Fisheries) improving transport and creating economic opportunities for the local communities. The proposed Babylon Conference Center stop could feature a ferry station and ticket office; another could be positioned near the ziggurat of Babylon. The ferry would turn around at its last stop in Annanah.

Microbus service

Microbus service between the Naziza Transportation Garage (an al-Hillah terminus) and the communities of al-Jimjmah and Bernoun offers transport to the edge of Babylon's Central Administration Area. Routes could be adapted to better serve Babylon visitors and local residents. For instance, microbus traffic coming from Naziza to Bernoun could also stop at the Babylon railway station planned for east of the site. Alternatively, from the Baghdad-al-Basra Highway the route could follow the East Babil River Road passing the proposed Nissan Fitness Park and south of New Qwaresh before arriving at Bernoun.

Since the Babylon Conference Center Road will be closed to the public, the Jimjmah microbus route could stop at a proposed village parking area. Visitors could then walk down the village's main street to catch the ferry to the Babylon Conference Center. The same service and parking lot would function for Shi'a pilgrims visiting the nearby Shrine of Amran ibn-Ali. The Sinjar and Annanah microbus service would continue as in the past, but visitors interested in exploring the proposed date palm conservancy could then take the ferry across the river to the Babylon Conference Center entrance. Others might wish to use minibuses to reach guesthouses or restaurants in the villages.

Walking trails

In Phase Three, designated pedestrian trails will be established beyond the visitor routes inside the Central Administration Area and along the

¹¹⁹ Ministry of Municipalities and the General Directorate of Urban Planning, *Updating the Master Plan for the City of al-Hillah; the Strategies of al-Hillah, Stage 6 and Final Report for Updating the Master Plan for the Municipality*, May, 2007.

Shatt al-Hillah. These will shape a formalized network of public trails connecting the core of Babylon to nearby destinations. Surface treatments will vary based on location and further study.

III.11 The Visitor Experience: Interpretation and Presentation

The management plan develops a long-term plan for visitor facilities and programming that offers an informative guide to Babylon without compromising its assets. The choice of what to preserve, how to preserve it, and how it is to be presented to the public are elements of site interpretation.¹²⁰ Planning emphasis targets a reduction of modern structures that now cover large areas of the site to restore integrity to the archaeological remains and preserve areas that provide environments for flora and fauna. Modern buildings, infrastructure and pavements will be re-concentrated along Marduk Street, the east-west axis through the site. Beyond this general premise this section defines interpretive schemes addressing Babylon's history and outlines the site's general presentation, noting the infrastructure needed to receive and circulate visitors, with proposed implementation in three phases.

Framework for Interpretation

Interpreting Babylon is an educational activity using various media to convey the significance of the site's resources to the public.¹²¹ The aim is a deeper understanding and appreciation for Babylon's value that inspires the wish to protect and preserve it. Rather than simply presenting facts, as has been done in the past, interpretation is regarded as an interactive process, representing a shift in what is explained and how these explanations are communicated. The SBAH selected three themes or messages to guide the development of interpretive media for visitors.¹²²

1) Human Interaction with the Physical Environment

As one of the earliest, largest, and most enduring human settlements, Babylon exemplified an urban way of life that was inextricably linked with its physical environment. Irrigation-based agriculture on a rich alluvial plain supplied the wealth expressed in monumental architecture. The city's evolution accommodated the shifting course of the Euphrates River, which inspired a number of adaptive planning solutions. The most dramatic, the Neo-Babylonian city, is an outstanding early example of a grand civic project, the building of an imperial capital.

2) Babylon's Significance in Human History

The Ishtar Gate, Processional Way, the temples, and palaces of the Neo-Babylonian city mark the culmination of ancient Mesopotamian

¹²⁰ ICOMOS, *Ename Charter of 2008* (ICOMOS, 2008), <http://www.enamecharter.org/downloads.html>.

¹²¹ Interpretation-related publications consulted for the management plan include Freeman Tilden, *Interpreting Our Heritage* (Chapel Hill: University of North Carolina Press, 1957); Sam Ham, *Environmental Interpretation* (Fulcrum Publishing, 1992) and Larry Beck and Ted Cable, *Interpretation for the 21st Century* (Champaign, IL.: Sagmore Publishing, 1998).

¹²² These interpretive themes were noted in the WHS tentative list nomination for Babylon dated November 1, 2011.

architectural, urban, and cultural traditions. A center of learning for the ancient world, Babylon's legacy of cuneiform texts containing contributions to literature, mathematics, astronomy, and other subjects are the object of continuing research. Babylon's imagery and historic narrative have inspired myth, philosophy, art, and literature throughout time and the countless classical and modern references to Babylon in works of art and scholarship are testimony to its place in the history of civilization.

3) Babylon in Recent History

Just as Babylon's ancient kings aligned themselves with the city's heritage by restoring or erecting monuments built by predecessors, so have modern leaders sought to leave their mark and bask in Babylon's reflected glory. Saddam Hussein reconstructed royal monuments and transformed the landscape into an imperial pleasure ground and stage for international festivals. From April 2003 to December 2004 Coalition Forces established a military base, known as Camp Alpha, on the site. Traces of the military presence constitute yet another chapter in Babylon's millennial history.

Presentation

Enhancing the visitor experience at Babylon requires revising interpretive frameworks and improving site presentation, a process to be implemented in three stages. Phase One, lasting one to five years, involves upgrading basic visitor facilities and localized infrastructure to support them, reopening the Nebuchadnezzar Museum and Greek Theatre, hardscape improvements (i.e. furniture and pathways), and the development of site signage. Phase Two (six to eleven years) focuses on improvements of utilities networks, new commercial and operations facilities, demolition of obsolete buildings and the implementation of new circulation designs. During Phase Three, (twelve to twenty years) a new visitor center will be built and a research centre established (in the last years Nebuchadnezzar Museum opened and some celebrations returned to the Greek theatre)

Visitor routes in the property

The primary route for visitors to be budgeted and installed in Phase One, will begin at the Marduk Gate, move east-west along Marduk Street, past the Greek Theatre to the Nebuchadnezzar Museum Sub-Area, looping through the Palaces Sub-Area and end in the Temples Sub-Area. A secondary visitor route, to be formalized in Phase Two, will encompass the former Palace of Saddam Hussein Sub-Area, the Warsaw Gate Sub-Area and nearby nature preserves. Another secondary route within the Ziggurat and Amran Sub-Area will connect to the Temples Sub-Area. In Phase Three, access points to a network of nature trails will be developed, requiring additional entrance and exit points into Babylon and related staffing, infrastructure, and budget.

Existing concrete and tiled paving will be removed but further study and design is required to determine the hardscape treatment for all visitor routes. Policies for protecting and preserving Babylon, climate conditions, security concerns, and the availability of resources will guide choices of finishes and signage. All constructed pathways should be reversible, unobtrusive and complementary to the archaeological remains and reconstructed monuments.

Way-finding signage

The primary (Phase One) and secondary visitor routes as well as other areas of visitation (Phase Two) will be equipped with Arabic and English way-finding signage. The following types of way-finding signage will be employed:

- Orientation signage at route intervals, including crossroads where secondary visitor routes leave the primary route. These will be vertical panels displaying the viewer's location keyed to a site map indicating all major landmarks, visitor routes and facilities on both the map and accompanying legend.
- Directional signage indicating landmarks, museums, and amenities. These will be vertical standing, waist-height signs providing directions.
- Fingerposts at crossroads indicating directions, often in combination with orientation signs.

Interpretive signage

Interpretive signage will be minimal, limited to waist-height, angled lecterns at every site and at each of the identified stops along the primary and secondary visitor routes. The lecterns, displaying Arabic and English text and images, serve less as an interpretive tool than signposts referring to numbered locations in the printed guidebook where more information is available. Brief descriptions should reflect the three interpretive themes. Advanced interpretive signage will be provided in indoor spaces such as the visitor center and site museums, complemented by multi-media presentations. The designs of these exhibit spaces are subject to further study by the SBAH and its partners.

Other interpretive media

The SBAH should support the publication of souvenir pocket guides (first in Arabic and English) containing detailed information that map Babylon's walking tours and are number-keyed to signage and site lecterns. These informative, souvenir publications will be sold on site and serve as prototypes for a series covering major archaeological sites in Iraq that can generate revenue for the SBAH. In Phase Two, depending on improved internet access, the SBAH should investigate digital media interpretive formats, including a website with pages for Iraq's major archaeological sites, pop-up interactive applications and a Babylon smart phone application.

Site Guides

Site guides need training to improve the content and style of presentations that should be geared towards interpretive themes rather than a recitation of facts and statistics. Guides should pass an examination in order to be licensed and identified as official site ambassadors. During Phase One, SBAH archaeologists will conduct tours of Babylon. In Phases Two and Three members of local communities and the Friends of Babylon (or similar stakeholder group) could be selected for training and employment as guides. Archaeologists will supervise, license, and

administer locally-contracted guides. People living inside the site boundary and primary buffer zone will be given priority employment. Archaeologists would remain integral for scientific lectures tied to specific themes, topics, and sites.

Visitor Infrastructure

This preliminary overview of visitor-related infrastructure must be developed alongside logistical considerations based on a carrying capacity study. The guiding principle will be to concentrate the visitor infrastructure and services mainly in ruins scattered around the site, along the east-west axis of Marduk Street to reduce the impact on archaeology and cost of utility lines. In Phase Two additional electricity, fresh water, and sewage systems will be installed beneath the street. Obsolete modern facilities and associated infrastructure farther afield will be demolished.

Visitor transport

In Phase One, while visitor numbers remain low, transport inside the Central Administration Area will continue to rely on private cars and buses. In Phase Two and Phase Three vehicular movement inside the Central Administration Area will be restricted. As visitor numbers increase, the large parking lots west and east of Marduk Gate will be employed. From the west parking lot, visitors may rent bicycles, walk or be shuttled via an electric or motorized shuttle along Marduk Street, the main access road. The SBAH may wish to also explore horse cart traffic along fixed paved routes. The shuttle will stop west of Marduk Gate (site entrance), Greek Theatre (shopping and restaurants), Hammurabi Museum (temporary visitor center), Nebuchadnezzar Museum, and the Babylon Conference Center. When the new visitor center opens and arrivals occur east of Marduk Gate, the shuttle train will start in the center's parking lot and pass through Marduk Gate into the Central Administration Area. The shuttle route may be expanded to a proposed ferry stop near the ziggurat and the Warsaw Gate Sub-Area.

Entry tickets

During Phases One and Two entry tickets will continue to be sold from the police station west of Marduk Gate. As funds become available, the location can be improved and equipped with a first aid station. A single entry fee for the Central Administration Area would cover access to the former Palace of Saddam Hussein. The current price of 20.USD for international visitors, compared with other regional tourist sites, is high. Considering Babylon's limited services 10.USD seems more reasonable at present. Following site improvements ticket fees can be adjusted accordingly. Special cultural events held at the Greek Theatre will be priced and sold separately. During Phase Three, ticket sales will shift to the new visitor center and entry made at Marduk Gate.

Bathroom facilities

Public bathrooms will be added along Marduk Street based on the results of a carrying capacity study, their design and appearance consistent throughout the site. Existing bathrooms are sufficient for a small number of visitors, but additional ones should accompany the proposed visitor facilities in the Nebuchadnezzar Museum, Babylon Conference Center, and future Visitor Center sub-areas. The SBAH should explore contracting bathroom operations and upkeep to local communities.

Commercial operations

To develop effective commercial operations, the SBAH and Ministry of Tourism and Antiquities must first conduct carrying capacity studies, assessing needs and existing resources before planning or implementing interventions. Souvenir shops and food outlets should be outsourced to local businesses who would rent site facilities. The ruined gymnasium at the Greek Theatre and Nebuchadnezzar Museum courtyard could serve as handicrafts/food bazaars for locally-produced goods bearing a 'Made at Babylon' logo. The sale of souvenirs such as Babylon guidebooks, maps, and other informational media inside the Central Administration Area should remain the domain of the SBAH. The management plan calls for concentrating commercial operations along the Marduk Street axis and, where possible, demolishing abandoned facilities in areas of high archaeological value. It also endorses limiting the number of these facilities inside the Central Administration Area to encourage opportunities for private businesses in the surrounding communities.

Removal of military remains

Outside of the Warsaw Gate Sub-Area, in Phase One modern military remains will be dismantled and removed from the site (See BM04, 'Existing: Military Remains and Other Damage' map). This includes materials no longer in use, or proposed for reuse or interpretation, this phase has been completed and all of the waste removed. In some cases, such as Camp Alpha's guard towers, they may be relocated and reused based on discussions with the Iraqi Police. During the course of assembling the management plan military remains were relocated by the police or removed as part of the physical interventions of the Future of Babylon project.

Planning Interpretation and Presentation in Sub-Areas

Visitor-related improvements including applicable interpretive themes are outlined below by sub-area.

Summer Palace Sub-Area

Applicable interpretive themes: Human Interaction with the Physical Environment and Babylon's Significance in Human History

During Phase One, a small parking area with interpretive and way-finding signage will be installed by the Summer Palace. The ruin will be fenced pending investigations to determine the best course of action, whether further excavations or partial reburial. Other efforts should concentrate on preserving view sheds from the Baghdad-al-Basra Highway and preventing encroachments through enforcement of boundary and buffer zone regulations.

Greek Theatre Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History and Babylon in Recent History

Phase One begins with commercial feasibility and carrying capacity studies to plan the best course of action for the Greek Theatre Sub-Area, possibly as a stand-alone entity within Babylon. Having assessed the costs of upgrades and amenities to support the facility, it may be feasible to develop the Greek Theatre as a regional center for culture and entertainment operated by the SBAH in partnership with the Babil Governorate. In order for the Babil Governorate to invest in the project, the Ministry of Culture, Tourism and Antiquities and SBAH, the legal authorities over

the site, would have to formally grant the Governorate a share in its development and use. Since the Ministry of Finance controls all Ministry of Culture, Tourism and Antiquities' revenues, it must clarify the use of Greek Theatre income so that all profits serve the site, supporting its upkeep and operations and rehabilitating Babylon's other visitor services. In the end of 2017, the SBAH did some maintenances in theatre cubicle as well as processing dilapidated walls and athletics.

The Theatre's ruined gymnasium can act as an interface with the rest of the archaeological site by featuring a shopping bazaar and refreshment stand open year round around in its courtyard (Phase Two). The bazaar can be rented to members of the surrounding communities and cooperatives selling handicrafts and locally-grown products

Subject to the results of a carrying capacity study, the abandoned tourist village behind the Greek Theatre can be demolished during Phase Two. Since archaeological remains probably lie beneath it, removing the abandoned village would preserve unexcavated layers while demonstrating the value and priorities the SBAH places on the patrimony under its stewardship. Other structures along Marduk Street, especially those existing and proposed for the Babylon Conference Center and Nebuchadnezzar sub-areas, are better positioned as food and commercial outlets. The paved area behind the Hammurabi Museum, formerly used as a helicopter landing pad and tourist village parking, will also be removed. Parking lots on either side of the Greek Theatre and the large lot in Visitor Center Sub-Area are sufficient for now.

Museums Sub-Area

Applicable interpretive themes: Babylon's Significance

To help clarify plans for this key sub-area, the 'Visitor Facilities and Presentation Plan' map illustrates the interventions phase by phase. In Phases One and Two the Museums Sub-Area will be the hub of visitor facilities at Babylon. While visitor numbers remain low, existing parking lots between the Babylon Casino and temple group will continue to be used. In Phase Three the construction of a new visitor center near Marduk Gate will replace many services, allowing for demolition of redundant modern buildings, but the Nebuchadnezzar Museum, upgraded by the Provincial Reconstruction Team (PRT) in 2010, will remain the heart of this sub-area.

During Phase One, information services will initially be provided at the former souvenir shop in the Nebuchadnezzar Museum courtyard. The courtyard will contain an Iraqi Police post and also be used as a mustering station for tour guides. Partnering with an international institution such as the German Oriental Society and Berkamon Museum in Berlin will enable the SBAH to redevelop the Nebuchadnezzar Museum, currently housing a collection of random, outdated exhibits and models, to offer visitors better background on Babylon. The sub-area's primarily Neo-Babylonian monuments will be the focus for interpretation, but in the context of a larger historical timeline. Site administration offices will be based in the former excavation house behind the Nebuchadnezzar Museum.

In Phase Two part of the Museum courtyard will host portable vendor kiosks to allow local craftspeople to sell Babylon-made products and souvenirs, as in the Greek Theatre gymnasium.

The SBAH will staff an information desk at the temporary visitor center in the vacant Hammurabi Museum. Visitors can reserve guides there and meet them in the Nebuchadnezzar Museum courtyard. As visitor numbers increase, the Ministry of Tourism and Antiquities may wish to partner with the Babil Governorate to provide information services for other sites in the province and region.

The Hammurabi Museum's main space will display an informative video, a large site model (moved from the Nebuchadnezzar Museum), and a souvenir shop will be set up in an adjacent small room. When the Hammurabi Museum is no longer needed as a visitors' center it could be modified to function as a site museum interpreting Babylon's early history as it did in the past, and/or as a children's learning center set up in partnership with regional schools. Alternately, it could be demolished and its grounds excavated.

A blocked doorway in the south wall of the courtyard will be reopened, leading to a shaded green space that will serve as a picnic ground in Phase Two, re-landscaped respecting the presence of archaeology remains. A section of the Processional Way, washed away centuries ago, ran through this green space. Material treatments should be explored with a landscape designer to establish a visual continuum between the sections of Processional Way now exposed in the palaces and temple sub-areas.

Also in Phase Two, the fence line on the south side of the picnic grounds will be removed allowing unobstructed access to parking lots. Following a feasibility study, some of the modern buildings around the picnic grounds (former guard houses and leftovers from Camp Alpha) may be readapted to host a refreshment kiosk and a bathroom or new facilities added. Other abandoned and ruined structures will be relocated or demolished.

Warsaw Gate Sub-Area

Applicable interpretive theme: Babylon in Recent History

The SBAH's decision to preserve and interpret the Warsaw Gate, a watchtower erected for Camp Alpha, reflects a major departure from the traditional focus on Babylon's ancient past, and an expanded vision of the site's historical significance. Given the events that led to its construction, interpreting Warsaw Gate remains a challenge, and its meaning is likely to change in the coming decades as Iraqis evaluate Saddam Hussein's rule and the subsequent invasion and occupation.

Like the remains of historic battlefield sites elsewhere in the world, the Warsaw Gate, erected for temporary use, poses challenges for preservation. The rapidly disintegrating structures must be immediately protected and stabilized until their conservation and presentation can be funded and developed (Phase One). The Warsaw Gate is wedged between the Shatt al-Hillah Riverbank and Lake Saddam sub-areas, both potential nature reserves. Thus, the reflective nature of this area should be emphasized such that visitors here are respectful of the restrictions

protecting the birdlife found in nearby Lake Saddam natural resources. Having an interpreted attraction just ten meters from nesting and migratory sanctuaries poses conflicts to resolve before determining interventions for all three sub-areas.

The Warsaw Gate's preservation will benefit from further discussion to judge its representative significance, define conservation methodologies, and determine the consequences of its location. To this end, the SBAH has proposed holding a symposium to define action to be taken at Warsaw Gate, while outlining standards for dealing with post-conflict remains in other cultural heritage settings. The Babylon Sub-Committee of UNESCO's former International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq could participate beneficially in this gathering.

Palaces Sub-Area

Applicable interpretive themes: Babylon's Significance

The varied monuments in the Palaces Sub-Area, including the Lion of Babylon, are mainly bound by proximity, but the ensemble also illustrates an interpretive theme relating to the Neo-Babylonian royal presence that will guide its presentation. In Phase One, uniting these disparate forms through a common vocabulary of path designs, surface treatments, protective rails, lighting and interpretive panels, will set the tone for other archaeological areas. World Monuments Fund is currently developing design options at both the Lion of Babylon and Ishtar Gate. Another aim is to reduce the impact of modern elements, including the demolition of several structures. So far, four modern brick and cement buildings, mainly former guard shacks and excavation storage buildings have been removed. Ongoing interventions tied to US State Department grants will support conservation and presentation improvements at Ishtar Gate and the inner city wall, where work is underway. Additional funds would support further efforts to unite these monuments into a cohesive group as they existed before the 1980s interventions.

In Phase Two, the dilapidated Ninmah Temple, a nearly complete reconstruction, will be rehabilitated to present a recreated Neo-Babylonian temple. In the end of 2017, SBAH started some preventive works to maintain the building which still going on. Conservation measures will be taken to improve and preserve the ruined Northern Palace, which will be partially re-excavated to present evidence of the original building while limiting access points for visitors. Masonry repairs will take place at the Southern Palace, a modern reconstruction, and its system improved.

In Phase Three, the excavated inner city walls between the two palaces will be conserved. To the immediate north, there are at least four parallel walls, identified by the German excavations when small test pits were dug and later backfilled. These parallel walls will be partially excavated for both study and to clarify the sub-area's presentation to visitors, showing how the two palaces were positioned with walls running between.

Temples Sub-Area

Applicable interpretive themes: Babylon's Significance in History

This cluster of reconstructions showcases 1980's efforts to present the Nebuchadnezzar-era religious architecture to the public. Decisions regarding Nabu-sha-Hare Temple's conservation, which may be re-exhibited as a partial ruin, will affect the presentation and interpretation of

nearby reconstructions as well as the two Babylonian houses and Ishtar Temple. A consistent approach to the ensemble is necessary. Archaeological remains that were not reconstructed in the 1980s were reburied and/or covered with cement tile sidewalks, exacerbating drainage problems.

In Phases One and Two the SBAH will re-examine archaeological records and as part of conservation activities re-excavate the surrounding areas to improve drainage and better present and interpret standing structures for visitors. During this process the SBAH will explore the surrounding buildings, some partially excavated in the 1980s others not, as these may be the houses of priests who served and cared for the temples. If archaeological evidence supports this theory, the remains will be presented for interpretation accordingly. All of the sub-area's building interiors offer space for expanded interpretation through standing signage and other forms of media.

Ziggurat and Amran Sub-Area

The ziggurat will top many visitors' 'must see' lists and the Shrine of Amran ibn-Ali also attracts pilgrims to this sub-area, which is somewhat remote from other visitation zones. In Phase Two, the secondary visitor route that reaches the ziggurat, ancient bridge and Koldewey's excavation pit at Esagila Temple will be equipped with signage and appropriate hardscape treatments such as walkways and railings that respect the aesthetic of the area's rolling archaeological mounds.

In Phase One this sub-area requires fencing on the west side to stop new building encroachments. Access to and from the Shrine of Amran ibn-Ali will be outside of the Central Administration Area, and begin at the base of the hill where a new parking lot will be installed on the outskirts of al-Jimjmah (Al-Jimjmah Sub-Area). Of the two current roads to the site, the western one will be demolished and the other used for handicap parking. The Central Administration Area perimeter fencing will exclude the shrine, previously its entry and a cemetery to its south used by residents from al-Jimjmah.

Tell al-Jimjmah Sub-Area

This sub-area requires immediate fencing in Phase One on the west, south and east sides until the al-Jimjmah Road can be relocated west of the site and re-connected to the rest of Babylon (*see Amran Entrance Corridor*). Previously excavated areas must be documented, cleaned, and reburied until the site can be further investigated, and if deemed appropriate, presented to the public.

Conference Center Sub-Area

Operated by the Babil Governorate, the conference center's large restaurant, a sub-contracted private operation, hosts wedding parties, governorate guests, families on the weekend and university student groups after exams. The governorate-run hotels in the complex cater mainly to visiting government employees and honeymooners (as per an al-Hillah tradition).

The Babylon Conference Center parking lot will be used once the large metal shed erected there in 2012 is removed in Phase One. The shed was

built for Babil Governorate functions, including trade shows, inappropriate events for Babylon that would be better staged and supported in al-Hillah.

Pending the results of a feasibility study, the SBAH envisions adapting part of the Conference Center buildings to create an international research and training center in a campus-like setting. The research center would include a conservation science laboratory to facilitate the SBAH's nationwide studies. The existing restaurant could serve research staff and the public. The conference center's two rundown hotels could be renovated as accommodations for the research center but should still retain some aspects which cater to local uses such as wedding functions. Unused buildings in the area would be demolished.

Future Visitor Center Sub-Area

The visitors' center scheduled for Phase Three will replace the former Hammurabi Museum building and be located east of Marduk Gate, adjacent to the site's main entrance and west of the utilities pipelines buffer zone. Historic sites worldwide feature visitor centers that can serve as examples. Utilizing alternative energy sources such as solar power in a manner sympathetic to Babylon's traditional, semi-rural context should be considered.

Visitors will arrive, park, and be greeted by staff at an information desk, where directions, tour and transport options will be offered. A site museum will serve to introduce Babylon to visitors before beginning their tour. A bookshop will sell a variety of Babylon-related publications and a full service cafeteria and coffee shop will be open during visitation hours. Once the visitor's center is operational, parking lots west of Marduk will be utilized for special events only. Automobile and bus parking will shift to the large existing lot north of the new visitor center.

In Phase Three, to lessen the impact of groundwater, the section of the Hawliyah Canal adjacent to the western section of the inner city wall will be drained, its concrete basin removed and its path left as a dry moat. WMF discussions with CEB in May 2013 resulted in a proposal to leave the canal sections on the north and south connected to Lake Saddam and Lake Tammuz.

Former Palace of Saddam Hussein Sub-Area

In the near term, Saddam Hussein's former palace is empty waiting the financial support in order to replace it into a national museum reflects the civilization of Mesopotamia. All relevant stakeholders agreed to exploit the palace as a museum but the expensive costs of rehabilitation will take a long time.

III.12 Risk Preparedness

Preservation practice involves developing a risk map for Babylon that identifies and prioritizes dangers to the overall site as well as to individual structures. Along with site-specific conservation manuals, this GIS-based map forms an integrated data set to guide interventions and future risk protection efforts. While risks to the archaeological site are the current focus, other operational concerns can be incorporated into the map as more information is collected. This map represents a first effort to a comprehensive risk management plan for the site.

In order to minimize risk factors at Babylon, the SBAH, Babil Governorate, al-Hillah municipality, and the communities within the site will be obliged to cooperate. The proposed inter-agency coordinating committee can act in concert with the appropriate ministries and local agencies responsible for protecting assets and providing services at Babylon while also petitioning international organizations for expertise. The International Committee of the Blue Shield (ICBS) should be consulted, as it sets standards for disaster preparedness and its member organizations ensure enforcement of the *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (The Hague Convention of 1954).¹²³

A summary of the risks to Babylon is as follows:

Weathering and Pollution

After centuries underground, earthen remains were excavated and left exposed to atmospheric conditions without maintenance or protection. Rain, wind, and dust storms caused uniform, differential or punctual surface erosion affecting the bases and tops of structures. Windblown sand erosion caused abrasion, crumbling, and granular disintegration of brick units. Disintegration and collapse of mud-brick units have also occurred due to sharp variations in temperature and humidity. Undercuts at the bottom of the walls are most often caused by rainwater run-off and rainwater splash from the ground at wall bases coupled with humidity rising from the soil. The inner city wall is the priority site suffering most from exposure, particularly the west half. On the east half, a modern capping of fired brick fortified with cement exacerbates weather damage by concentrating rainwater drainage flows that have washed away sections of traditional masonry.

Airborne chemicals and particulates also damage the site's built fabric. At Babylon, brick kilns have long polluted the environment while detracting from the visual setting. In the 1980s two kilns inside the site were closed. The remaining in operation within the primary buffer zone at New Qwaresh was closed in 2012.

Surface Flooding

Owing to Babylon's high water table and poor drainage, occasional heavy rains may cause partial and temporary flooding affecting the site's

¹²³ The Hague Convention of 1954, *Convention for the Protection of Cultural Property in the Event of Armed Conflict*, http://portal.unesco.org/culture/en/ev.php-URL_ID=35744&URL_DO=DO_TOPIC&URL_SECTION=201.html. ICBS consists of five non-governmental organizations working in this field: the International Council on Archives, www.ica.org; the International Council of Museums, www.icom.museum; the International Council on Monuments and Sites, www.icomos.org; the International Federation of Library Associations and Institutions, www.ifla.org; and the Co-ordinating Council of Audiovisual Archives Associations, www.ccaaa.org.

built fabric. A strategy for dealing with the more remote risk of high flooding entails further study and recommendations by CEB and other local entities, including the Ministry of Irrigation who is responsible for the Shatt al-Hillah water control systems. The inter-agency coordinating committee should: 1) learn more about Ministry of Irrigation policies regarding Shatt al-Hillah levels and its irrigation network, 2) use topographic mapping to identify high flood-risk areas and 3) define procedures for lowering the groundwater levels within the site.

Drainage and Erosion

Successive archaeological excavations have changed the site's topography, channelling and pooling water, causing infiltration, the largest case being German explorations at Esagila Temple north of the Amran ibn-Ali Shrine. Heavy rains wash away the soft accumulations of archaeological strata at the temple site, Summer Palace, and inner city wall. This is most obvious in gullies and the loss of material within structural cores.

Ad hoc drainage systems added to the site during the twentieth century damaged many structures too. The piping found between the Babylonian houses serves to drain water from flat roofs onto flat, relatively non-porous modern surfaces. The water then either settles or overflows back into building foundations. At the inner city wall, where modern designs and materials contribute to the drainage problem, there is no outlet for runoff and large vertical gullies cut deep into the unbaked mud-brick masonry.

Despite relatively low amounts of rainfall, many archaeological remains and reconstructions will continue to deteriorate and collapse. The management plan recommends a policy of backfilling and mitigating actions where that is not possible, the exact solution dependent on a given situation. For standing structures improved localized drainage systems are a priority.

Rising Groundwater

Damage to Babylon's resources relates primarily to the composition of building materials and their relative porosity in combination with rising damp from the water table. Capillary action affects most of the foundations and wall cores, whether on a cyclic, temporary or permanent basis. The moisture carries salts that cause deterioration. Salt crystallization and its migration into the lower portion of walls chemically react to wash away masonry components, especially within specific micro-climates, and where ventilation reduces evaporation. The results can be seen in efflorescence, disaggregation, flaking, blistering on surfaces, and the visible loss of masonry units and coatings. The problem affects all parts of the site and appears most obvious in the lower brick layers at Ishtar Gate and Nabu-sha-Hare Temple.

Structural Settling

Unbaked mud brick's low tensile strength and brittleness makes it sensitive to settlement, particularly at the foundation level. The condition is exacerbated by pressures and weaknesses in homogeneity caused by groundwater saturation and backfilling. The results are visible in the displacement of masonry through settlement of walls (cracking, bulking, plumpness, and shifting of vertical planes) and in severe cases, total collapse.

Termite Infestation

Termites seriously threaten the safety of structures at Babylon. In the past, wood elements were treated and buildings regularly sprayed. The 2003-2004 military occupation of the site halted the annual treatments, which, owing to a lack of funds were never resumed. Consequently, the roofs of several reconstructed Neo-Babylonian sites began to collapse. The temples of Nabu-sha-Hare, Ishtar and Ninmah require immediate repair, and annual inspections and treatments must be budgeted for and resumed.

Vegetation

One of the Future of Babylon project's early tasks was to remove vegetation from priority sites. During the last twenty years, vegetation has flourished on and around archaeological remains owing to a lack of maintenance; shrubs cover large areas and mature palms and other trees grow inside monuments. Penetrating roots have provoked punctual degradation, displacement, and disruption of masonry structures and their foundations. Vegetation also creates micro-climates that foster humidity and further growth, especially in confined, shaded and unventilated spaces, contributing to the damage due to rising damp. Routine maintenance is required to control vegetation. This responsibility will fall to the new conservation department recommended in the management plan.

Fire-Related Risks

Although archaeological reconstructions contain wood ceilings, there are currently no fire-detection or -suppression systems at those locations. Fire extinguishers are presently stored only at SBAH offices, the two existing police stations and at the Babylon Conference Center. The nearest fire station is on Road 60, approximately four kilometres south of the site's center. Smoking is currently allowed on-site, with few adequate receptacles for related waste; given the dry summers, the potential for brush fire in some areas is high. A Fire Prevention Officer from al-Hillah in cooperation with the inter-agency coordinating committee can help set regulations to be enforced by security and site personnel.

Visitor-Related Risks

While large numbers of visitors have yet to return to Babylon, the site is open to the public with little control of movements, resulting in damage to some structures. Uncontrolled visitor access has led to the erosion and collapse of remains from trampling as well as vandalism (broken building elements and graffiti) and looting (theft of cuneiform-stamped bricks). Large groups of students invade the site on school holidays, climbing exposed archaeological remains, Ishtar Gate, the inner city wall, and mounting the back of the Lion of Babylon.

At present, looting appears to be minimal as the site is secured by police and in some cases, local residents.¹²⁴ In keeping with antiquities' protection laws, the SBAH must formalize and post regulations preventing theft and damage, and instruct security staff to detect and handle infractions. Other sections in this volume describe the need for perimeter fencing around the Central Administration Area and Summer Palace, and barrier and restricted area improvements in the presentation of sites.

¹²⁴ WMF interviews with SBAH site guards Ghoneim Dulani and Meky Farhood, 2012.

Residential, Commercial and Infrastructure-Related Encroachment

Illegal encroachments pose a significant risk to Babylon's preservation and must be monitored to track and predict development trends. Updated ownership data (See BM02, 'Existing: Property Ownership and Plots' map) and proposed zoning regulations (See BM10, 'Proposed: Land Use' map) provide the SBAH and other authorities a framework to control illegal incursions into the site. The boundary and buffer zone regulations detailed earlier in this volume provide guidelines on enforcement policies that should be met through a cooperative, proactive relationship between the SBAH, Babil Governorate, municipal administrations, and the Iraqi Police.

State infrastructure projects have also damaged the site, beginning with the 1920s' installation of a railway line through Babylon. Three oil and gas pipelines run through the site, the most recent installed in 2012. Malfunction, such as the natural gas explosion that occurred in the late 1980s, could cause irreversible damage to archaeological remains alongside the risks of leakage and soil contamination. A monitoring and maintenance plan should be prepared and implemented by the Ministry of Oil and Babil Governorate, those responsible for the 2012 installation. Emergency plans with local public service departments should be developed to protect the site and people living near the pipelines. Regulations restricting construction in the 300 meter pipeline buffer zone must be strictly enforced. Recently SBAH and the Ministry of Oil have agreed to process oil pipeline in two short and long plans. The first is to put controlled symbols inside and outside parts in the site, the second is transfer the pipe outside the city.

Illegal Dumping

Illegal dumping of refuse and toxins inside the boundaries is a growing problem. Deficient public services at Bernoun forces residents to dispose of household and commercial garbage along the village entry road; the Babylon Conference Center dumps its garbage near the Shatt al-Hillah, and chemical waste is dumped south of Amran Hill. Fencing the Central Administration Area will curb dumping there, but the Ministry of Tourism and Antiquities must take action to ensure that the Iraqi Police enforce the site boundary regulations, and that the Babil Governorate issues fines and if necessary, arrests offenders.

Animals

Uncontrolled movement of grazing livestock causes surface degradation, and wild animals burrow in gully washes in unbaked mud-brick masonry, undermining the structures' integrity. These activities are not often immediately apparent but their impact can be sudden and severe. Within the site, depressions left from previous excavations are now overgrown hollows where livestock buffalo trample brick remains. Exploiting crevices caused by erosion, animal burrowing was problematic at the inner city wall until the Future of Babylon project temporarily in-filled holes and blocked access. Further action by the SBAH must take place through frequent site inspections, repairs, and fencing.

Armed Conflict

The *Convention for the Protection of Cultural Property in the Event of Armed Conflict* should be considered part of Babylon's risk mitigation

strategy. Given the results of the site's recent military occupation, these principles were clearly ignored by signatory countries. The SBAH and Ministry of Tourism and Antiquities should further dialogue with the international organizations that safeguard monuments, including UNESCO and the members of the International Committee of the Blue Shield. Nominating Babylon to the World Heritage Site list will bring additional international support should it once again be placed at risk.

Part 4. PROGRAM FOR ACTION

The Program for Action outlines and prioritizes the steps needed to both activate the property management.

The successful implementation of the management plan requires effective and transparent communication, a solid management structure, stronger existing affiliations, and the development of new, sustainable partners within a revised and enforceable legal framework. Long-term

implementation relies on strengthening the capacity of stakeholders and increasing their participation as well as increasing the ability to source funding. With national partners on board, Babylon can attract international support ranging from in-kind contributions to large-scale funding and expertise. Many tasks in the priority list seen below can be funded as stand-alone projects contributing to an overall whole.

Activities during Phase One, 1-5 Years

Priority Tasks for Enhancing Human Resources:

- Reorganize the existing site management framework by proposing the new structure of administration independent emanates from SBAH Babil Inspectorate and reporting directly to the Director General of Excavation and Investigations and the Minister of Culture, Tourism and Antiquities. This includes nomination of a Babylon Site Manager.
- Invest in advanced training for the new Babylon property Manager and members.
- Compose an operations manual respective of the new management structure.
- Temporarily locate site and museum operations in the old excavation house in the Museums Sub-Area.

Priority Tasks for Developing Cooperation and Partnerships:

- Form an inter-agency coordinating committee for Babylon property.
- Increase training for Iraqi Police and SBAH site guards to better secure the site and respond to visitor needs.
- Establish monthly meetings between the inter-agency coordinating committee, the Babylon Community Association (BCA), and the Babylon Tourism Business Contact Committee (BTBCC) to build stakeholder partnerships and help to seek continued support for Babylon's preservation.
- Register the Babylon Community Association and Friends of Babylon as official non-government organizations to serve the greater interests of Babylon. With legal status secured, set about appointing a board of operations, organization by-laws and fundraising policies and activities.

- Expand dialogue with community representatives at Sinjar and al-Jimjmah through the Babylon Community Association and explore shared concerns and problems between residents and the inter-agency committee. Present a list of priorities to the Ministry of Culture, Tourism and Antiquities and Babil Governorate officials for approval. Pursue Government of Iraq and Babylon Investment Council financial and implementation assistance; when funds are not available obtain their consent and support to seek outside help.
- Partner with the Babylon Community Association and experts in social development to structure community incentives around education, infrastructure, and employment.
- Support the re-establishment of International Council on Monuments and Sites in Iraq (ICOMOS-Iraq) using Babylon as a case study for assistance and cooperation.
- Request assistance and formalize an agreement with the Berkamon Museum in Berlin and German Oriental Society to restore SBAH Babylon archives. Encourage their participation in remodelling exhibits at the Nebuchadnezzar Museum as first steps to rebuilding a working partnership at Babylon.
- Recruit the British Museum to improve visitor programming connected to the Nebuchadnezzar and Hammurabi museums.
- Establish a memo of understanding between the SBAH and CRAFT for research exchange and training support regarding GIS database development for Babylon.

Priority Tasks for Reinforcing the Legal Framework:

- Distribute the approved management plan to the appropriate local authorities including the Hillah planning authorities.
- After the basic design of Al-Hillah city (number 740m) was doubted by the government, it has been working on marking boundary by install visible signs and signboards along the boundary. All stakeholders agreed, announced and acknowledge the present nominated boundary. The primary buffer zone will also be marked with concrete beacons at extended intervals.
- As part of registering the site boundary and its definitions, take steps to legalize land use zoning with the relevant government agencies to control private development inside the site.
- Install fencing for the Central Administration Area to demarcate the visitor area, and around Summer Palace Sub-Area to prevent illegal entry.

- Begin acquiring all private properties located inside the Central Administration Area and continue until completion in the subsequent phase.
- Settle question of authority over the Greek Theatre, Babylon Conference Center, and former Palace of Saddam Hussein between the Ministry of Tourism and Antiquities, the SBAH, and the Babil Governorate. Signed memos of understanding should be produced for each facility defining governmental authority, usage, and access.

Priority Tasks for Defining a Site Planning Methodology:

- Define and document recommendations for each zoned sub-area use including base site plans, full drawing sets of existing structures, bills of quantities, and budget outlines. This will continue in Phase Two.
- Conduct a condition assessment of modern buildings before rehabilitation or demolition.
- Begin demolition of modern commercial structures ruled obsolete.
- Compile an updated property ownership database and map based on the management plan property study.

Priority Tasks for Protecting and Conserving:

- Complete baseline documentation, conservation plans, drawing packages, and stabilization works for Ishtar Gate, Nabu-sha-Hare Temple, the inner city wall, Ninmah Temple, and Ishtar Temple.
- Upgrade presentation of the Babylon Lion as a pilot project for defining hardscape improvements throughout the Palaces and Temples sub-areas.
- Complete conservation activities at Ishtar Gate and Nabu-sha-Hare Temple as per management plan property intervention measures.
- Undertake basic conservation measures at the inner city wall and reintegrate it with Ishtar Gate in the Palaces Sub-Area.

Priority Tasks for Managing Natural Resources:

- Designate nature areas at the Lake Saddam and Lake Tammuz preserves and take the necessary steps to protect them with fencing, signage, and programming.
- Engage Nature Iraq to carry out a study of the natural ecosystems of this sub-area and nearby Lake Saddam Sub-Area before decisions of preservation and interpretation are decided.
- Conduct additional biodiversity assessments seasonally to survey seasonal migrations and wildlife movement.

Priority Tasks for Managing Water Resources:

- Form an exploratory committee to address groundwater issues at Babylon. The committee may include SBAH representatives, Ministry of Water Resource, community leaders, farmers, and members of the Babil Governorate in consultation with hydrologists. International expertise could be consulted to define large-scale but viable methods of reducing groundwater and protecting archaeological remains.

Priority Tasks for Improving Infrastructure:

- Undertake a comprehensive carrying capacity study of existing infrastructure to estimate current shortcomings and future needs through the BTBCC and under UNESCO's WH+ST guidelines. The study will provide a baseline for designing infrastructure and visitor support improvements at Babylon.
- In the Central Administration Area upgrade existing electrical, lighting, fresh water and sewage systems in partnership with the Babil Governorate and associated ministries by centralizing systems parallel to and under Marduk Street.
- Construct two smaller pullover-parking areas proposed at the Northern Entrance Corridor for the Summer Palace and Ziggurat and Amran Sub-Area.

Priority Tasks for Interpretation and Presentation:

- Upgrade the Greek Theatre with facilities to host large crowds.
- Undertake a study of existing structures in the Museums Sub-Area, and where called for, reuse or demolish partially ruined and ruined buildings.

- Study programming for the Nebuchadnezzar and Hammurabi museum buildings in the context of a larger interpretation plan for the site. As part of this the Nebuchadnezzar Museum will be upgraded with new displays and interpretation along a narrative constructed around archaeological investigations undertaken at Babylon.
- Remove all military remains deemed unnecessary for interpretation from the Central Administration Area.
- Upgrade and reuse the existing parking lot between the former casino and temple group in the Museums Sub-Area while visitor numbers remain low.
- Install the primary visitor route for visitors with surface treatments and interpretive signage.
- Re-organize interpretive programming for increased tourism at Babylon and require professional licensing for site guides.

Priority Tasks for Risk Preparedness:

- Secure the boundaries of the Central Administration Area with Iraqi Police vehicular patrols along the site boundaries and emergency response.
- Through partnerships with government experts and outside consultants prepare a comprehensive risk preparedness strategy including refining related management plan maps to identify procedures for dealing with flooding, armed conflict, fire, and other related disasters.
- Implement tighter control of visit movement in archaeological areas through enhanced access restriction systems and better site guard policing.
- Consult with a fire prevention officer from al-Hillah to set emergency procedures, regulations, and install adequate fire prevention equipment for all facilities in the Central Administration Area. This should be done in cooperation with the inter-agency coordinating committee.
- Revive seasonal inspections and treatments for termites at all reconstructed monuments.
- Establish and budget for routine inspection and maintenance programs for all archaeological areas and monument reconstructions, funding must support a vegetation control programming as well.

- Begin developing a comprehensive risk management planning strategy.

Activities during Phase Two, 6-11 years

Priority Tasks for Developing Cooperation and Partnerships:

- Continue the Development capacity building opportunities through training programming from UNESCO, ICCROM, ICOMOS, sites, centres and important international museum.
- Secure additional funding for restoration and conservation activities at priority sites from other international sources with the goal of moving those sites stabilized during Phase One into restoration.
- Add the strategies of national Finance within annual budget in order to continue preservation and restoration of the property and its management.

Priority Tasks for Reinforcing the Legal Framework:

- Continue follow up the legal claims was done by the archaeological department of Babil for the new scouters inside the boundary or the buffer zone .
- Implement incentive programs for inhabitants inside the boundary and buffer zone.

Priority Tasks for Defining a Site Planning Methodology:

- Regulate boundary and buffer zone uses.

Priority Tasks for Babylon's Archaeological Potential:

- Based on survey and assessments undertake a study of where reburial of exposed archaeology might occur. Detailed documentation and study of these remains must preclude any intervention including reburial.

Priority Tasks for Protecting and Conserving:

- Extend intervention policies used at Nabu-sha-Hare Temple to adjacent reconstructed structures in the Temples Sub-Area.
- Complete conservation activities at Ishtar and Ninmah temples plus advanced interventions at the inner city wall.

Priority Tasks for Managing Natural Resources:

- Demarcate Shatt al-Hillah nature trails along both riverbanks, one connecting Road 60 to Annanah and on the east from the Babylon Conference Center Sub-Area to the Summer Palace Sub-Area and Northern Entrance Corridor.
- In partnership with local environmental NGOs, coordinate with governmental sectors to enforce existing laws restricting construction, encroachments, dumping of garbage and toxic waste, free-roaming livestock, agricultural expansion, hunting and fishing at Babylon.
- Work with these same NGOs and government agencies to develop new regulations protecting Babylon from other threats identified in the biodiversity survey and subsequent assessments.

Priority Tasks for Managing Water Resources:

- With the water task forces' findings, define future groundwater control policies for Babylon. Draft documentation necessary for petitioning financial and professional expertise to alleviate the impact of groundwater.
- Conduct studies to measure agricultural water usage, identify preferred low consumption crops and investigate methods for improving agricultural output in archaeological sites in cooperation with Babil University, the Ministry of Water and the Babylon Community Association.

Priority Tasks for Improving Infrastructure:

- Halt installation of open-end cesspools as listed in the boundary and buffer zone.
- At the Amran Entrance Corridor reroute the Jimjmah Road to unify the archaeological site.
- Improve the Bernoun Road with a traffic roundabout placed at the intersection of the primary site entry road south of the Summer Palace.
- Improve the East Babil River Road with a new bridge running over the river and taking into account the proposed Nissan Fitness Park.
- Generally improve and widen the Annanah-Sinjar Road.
- Upgrade site entrances at the North Entrance Corridor and South Entrance Corridor.
- In conjunction with implementation of the Hillah Master Plan, begin feasibility studies for activating a ferryboat service between al-Hillah, Babylon, and nearby communities.

Priority Tasks for Interpretation and Presentation:

- Reopen the Hammurabi Museum as a visitor orientation center.
- Reuse sports area (art hall) at the Greek Theatre, and put some kiosks for fast food and drinks.
- Employ the large existing parking lot west of Marduk Gate as visitor numbers increase.
- Remove the paved area behind the Hammurabi Museum, formerly used as a helicopter landing pad.
- Implement the structural estimate of tourist village at the Greek Theatre Sub-Area. Determine the building that could be reused or raised.
- Establish a community microbus terminus and pilgrimage parking area for the Amran ibn-Ali shrine in a large new lot north of al-Jimjmah.
- Initiate shuttle train service to transport visitors along Marduk Street, the main east-west access road.

- Construct hardscape treatments and surfaces for the secondary visitor routes. Limited signage will also be installed.
- Investigate digital media opportunities for interpreting and presenting Babylon to the public.
- Shift site guide duties from SBAH staff to training and licensing local community residents and members of the Friends of Babylon.
- Produce a draft concept in partnership with international experts for a new visitor center. Circulate design proposals to government stakeholders for funding and partnership.
- Conduct a study and designs to determine reuse of the former palace of Saddam Hussein to be a museum and surrounding structures in the sub-area to determine other uses.

Priority Tasks for Risk Preparedness:

- In cooperation with the Ministry of Water resource use topographic mapping to identify high flood-risk areas and set flood zone emergency guidelines with associated roles and responsibilities for government agencies.
- Halt livestock grazing inside the Central Administration Area and all vulnerable archaeological zones.
- Enforce the site boundary regulations and coordinate with the Iraqi Police towards eliminating illegal trash dumping inside the boundaries.
- Complete the comprehensive risk management strategy and begin implementation.

Activities during Phase Three, 12-20 Years

Priority Tasks for Enhancing Human Resources:

- Convert the Babylon Conference Center to a national research and training center for SBAH staff, visiting scholars, and technicians.
- Relocate management headquarters to new visitors center

Priority Tasks for Defining a Site Planning Methodology:

- Purchase selected private properties outside of the Central Administration Area to protect viewsheds and increase public access to Babylon, such as development of Nissan Park. (See 'Priority Tasks for Managing Natural Resources' also under Phase Three)

Priority Tasks for Babylon's Archaeological Potential:

- Restart new excavations at locations to be determined through risk assessments and further scientific study based on SBAH priorities.
- Excavate and conserve the remaining sections of the inner city wall between the palaces to unite the ensemble into a holistic presentation.
- Open the former sites of demolished buildings in the Museums Sub-Area to archaeological investigation following the Babylon Conference Center's renovation as a research center and the construction of a new visitor center.

Priority Tasks for Protecting and Conserving:

- Rehabilitate the southern palace complex and conserve the northern palace ruins for improved visitor experiences.
- Stabilize and conserve newly excavated sections of the inner city walls between the palaces.
- Based on survey and assessment priorities undertake stabilization and conservation measures of exposed archaeology and heritage sites deemed important for further scientific study and visitor presentation such as the ancient bridge piers, the Saddam Hussein portrait sign, and Summer Palace Sub-Area.

Priority Tasks for Managing Natural Resources:

- Extend the nature trail system established in Phase Three to other designated routes inside the site boundaries.
- Construct Nissan Park, a nature preserve and fitness area, in the southeast corner of the site boundaries.
- Increase environmental awareness in local villagers by designing and implementing outreach programs that promote responsible stewardship of natural resources in cooperation with local NGOs. Raise government and public stakeholders' awareness through involvement in Babylon conservation programs.

Priority Tasks for Managing Water Resources:

- Implement groundwater control projects throughout the archaeological site and adjacent land, the exact projects to be defined by previous study undertaken by CEB. Consider backfilling parts of the Hawliyah Canal.
- With optimal crop water consumption determined, begin migrating area farming to low water consumption and shallow root cash crops.

Priority Tasks for Improving Infrastructure:

- Consult local al-Hillah planning authorities and traffic department regarding proposed changes to the road hierarchy, the design scheme for improving four arterial roads, and the schedule for upgrading Babylon's access corridors.
- Connect the communities of al-Jimjmah and Sinjar to the al-Hillah municipal sewerage system.
- Upgrade the Jimjmah Commercial Corridor with pavement treatments, hardscape street elements, and building facades to attract commercial development.
- Upgrade the four traffic corridors to divert through traffic around the Central Administration Area starting with those directly impacting it (in the following order): the Bernoun Road; the East Babil River Road; al-Jimjmah Road; and finally the Annanah-Sinjar Road.
- With improvements to the arterial road network, site access corridors and the return of rail service, revise public transportation routes in the area. In tandem, develop the Future Railway Station Connecting Corridor, a pedestrian and bicycle trail to the new Babylon visitor center near Marduk Gate.

Priority Tasks for Interpretation and Presentation:

- Erect a new visitor center outside of the Central Administration Area northeast of Marduk Gate and reactivate the adjoining large existing parking lot.
- Utilize the parking lot west of Marduk for special events only. Automobile and bus parking will shift to the large existing lot in the Future Visitor Center Sub-Area.

Priority Tasks for Risk Preparedness:

- In cooperation with the Ministry of Water Resource use topographic mapping to identify high flood-risk areas and set flood zone emergency guidelines with associated roles and responsibilities for government agencies as part of the larger risk management strategy.

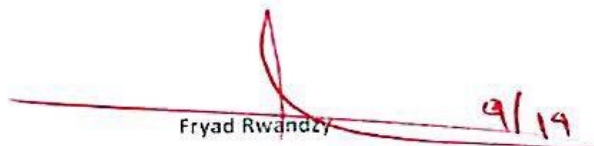
Review and Revision of the Management Plan

The management plan should be reviewed annually based on performance measures correlating with the tasks targeted in the twenty-year implementation plan. The SBAH is responsible for steering this process through annual reviews and associated reports produced by the inter-agency coordinating committee, assisted by members of the community, an internal evaluator working with UNESCO, and external international evaluators familiar with the project.

A more substantial evaluation should be planned at five-year intervals through a series of workshops with stakeholder groups where the medium- and long-term policies identified in Volume II are addressed and revised in the context of political and environmental changes.

Signature

Date: 19. SEP. 2018



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Minister of Culture & Tourism and Antiquities



Raad Alawi
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