The urban development of castles within the historical cities of Iraq (Case study Hit Castle)

Yasar Amer Ibrahim¹, Shatha Abbas¹
¹Baghdad University, College of Engineering, Architecture Engineering Department

Email: shatha.a.h@coeng.uobaghdad.edu.iq

Abstract. The study of historical castles has a great impact on the urban and urban development of historical city centers and has a great importance in forming the urban body of these cities. Because of its impact on the social, economic, political, cultural and tourism levels in addition to its physical and spiritual importance to successive generations that link them with the cultural and social heritage. Historic castles suffer from a state of neglect, deterioration, vandalism and transgression that is a result of successive periods as a kind of negative effects of wars that happened in the country in successive periods. The work on studies and researches specialized in developing historical castles is one of the responsibilities of the local and global level. Which contributes to strengthening the role of moral standing of the castles cities community tourist attraction and raise the country's economy. The choice of the historic castle of Hit to study in this research is due to its historical and urban depth. Which is the main seed in shaping the structure of the city of Hit with time, and what this city is witnessing today from an urban renaissance in Anbar Governorate. From seeing the studies and researches that dealt with the urban development strategies of the city, the research problem crystallized with (lack of architectural, urban and archaeological studies specialized in dealing with the method of urban development of the Citadel and the lack of clarity in determining its development strategy). The hypothesis of the research was formulated as (The urban development strategy of Hit Castle affects the integration of the castle with the surrounding urban fabric and its historical characteristics). Depending on putting theoretical terms on the development strategy by analyzing strategies for similar examples, and by comparing its terms and identifying its advantages and disadvantages, the optimal strategy for urban development is been chosen according to the index that will be extracted from the practical study of Hit Castle.

1. Historic castles architecture in the world
1.1. Castle definition
The castle in the language and term: The term (Qalaa) is linguistically taken from the verb (Qala) and it has several meanings, as it is mentioned in the Arabic language dictionaries: A great rock that is pulled off the mountain or the huge stone. The word (castle) also denotes the (Shiqa) or the (Qila). It is also said the (Qalaa) in the Arabic language is considered to be the weak man, if he was subjected to violence, he will leave, and will not stay stable. Also, it means an honorable fort.
The word also indicates the names of several places in Yemen, Al-Andalus, Morocco, the Levant, the Hijaz, Bahrain, and Iraq. Linguists have agreed that the Castle (Al-Qalaa) is the fort that is retained on the mountain, and this meaning applies to the subject of our research [1].

“A large building with high walls and tower that was built in the past to defend people against attack: a medieval castle and Edinburgh castle” [2].

### 1.2. Types of castles in the Ottoman era

The Iraqi castles built in this era can be restricted to:
1. Indoor castles (Edge Castle).
2. Castles built on mainlands and river roads.
3. Castles of local leaders and tribal rulers built in southern and northern of Iraq.
4. British occupation castles.

Among the historical studies in describing the historic Hit fortress, its characteristics and its location on the borders of the Euphrates River. Its type can be determined according to the types that were identified in the book (fortifications of Iraqi cities) Dr. Saadi Al-Darraj. Where he mentioned that the inner castles (Edge Castle) as the castles inside the Iraqi cities are among the most important buildings and its facilities are the most vital ones, and they are one of the important institutions that bring together the governor and his followers, and they also represent the purely military character of the city’s ruling authority. Therefore, it occupies distinct places and is built on hills or built on the banks of rivers to facilitate the task of communicating with them abroad and secure their defensive lines against danger. It is shipped with soldiers, supplies, weapons, and ammunition and provided with a bakery, a mosque and a place to the ruler establishment. Sometimes, it includes prisons and gunpowder stores, in addition to military base [3].

What strengthen our classification of the castle for this type is that Dr. Qahtan Muhammad Salih Al-Hiti said, “The government headquarters was through the historical roles of the city in the castle, it was the seat of the governor, and what strengthens our opinion is that the people of the city were calling the state the castle of Hit” [4].

For the purpose of comparison, the researcher has selected three local castles with similar environmental conditions, as shown in table 1.

| Table 1. A general comparison between three local castles |
|----------------------------------------------------------|
| **Hit Castle**                                            | **Kirkuk Castle**                                      | **Erbil Castle**                                       |
| Location: Hit is located at the west of Baghdad (190 km), latitude 33 degrees and longitude 42 degrees | Kirkuk is located north of Baghdad (280 km), latitude 35.28 degrees and longitude 44.24 degrees. | Erbil is located north of Baghdad, about (350 km), latitude 36.9 degrees, and longitude 44 degrees. |
| Position: The castle was erected on a semi-circular hill with a gradual decline, with the highest point reaching the river level 20m | The castle was erected on a semi-circular hill, which was gradually sloping and elevated from the surrounding lands by 18 m | The castle was erected on a circular hill characterized by its steep slope and rising from the surrounding lands by 36 meters, rising by about 415 meters above sea level. |
| The space: 72,726 m² | (Karkhini) It was mentioned by the traveler Yaqout al-Hamwi. According to the | (Orbelm) or (Arbelm) during the last Sumerian Empire. |

| The Naming: • (Du Del) during the Sumerian Empire. • (At) in Akkadian. | (Karkhini) It was mentioned by the traveler Yaqout al-Hamwi. According to the | (Orbelm) or (Arbelm) during the last Sumerian Empire. |
• (Ed) in Babylonian.
• (Dagira) in Syriac.
• (Zoukir) in Arabic.

researcher’s opinion, it is the present Kirkuk.

• (Arabo-ilo) in the Babylonian and Assyrian texts meaning four gods.
• Erbil mentioned by the traveler Yacout Al-Hamwi.

Aerial shot

Figure (1A)  Figure (1B)  Figure (1C)

Site Plan

Figure (1D)  Figure (1E)  Figure (1F)

The Ingredients

The Trench

The castle is surrounded by a semicircle, the end of which is connected to the river and is located behind the trench.

It is not surrounded by a trench being surrounded by its own river, which is surrounded on three sides and takes its place.

Many Arab and nomadic geographers mentioned the existence of the trench and described it as a deep advance to the city walls.

The fence begins at the eastern door and extends in two ribs, up to the second arch, in which the high houses that stand as the wall of the wall reach the western door, and the distance between the two doors down to the river as well as the houses that make up the path of the wall.

The walls of Kirkuk Castle were confined to weak places, that is, the lowlands. As for the high areas, the facades of the houses were the place of the fence, where the two walls were taken into consideration to be thick.

The wall of the Erbil Citadel is represented by the exterior walls of the old houses that met on the edge of the archaeological hill, where the houses were two or more floors.

The Gates

The castle has two main entrances: The eastern door from the port side. The western door from the farmer’s side. The castle has another door on the side of the river called the Gate of Sinja.

The castle has four main entrances: Brick Door (Qabi Bricks), 1882 A.D. Stone door (Dash Qabu). BabAl-SabaBanat (YadaiQazlar). The Haloji Gate.

The castle has two main entrances: The southern entrance 1743 m. The Ahmadiyya entrance, which was established in the 1920's.
Tracks

The texture of the castle is formed starting from the main road, the ends of which are connected to the two main doors, forming two main nodes and in which the general activities of the castle are connected.

The fabric of the castle is formed by the connection of the tracks to the four gates, which are connected to the main alleys on which public activities are based, and in turn the narrow and twisted alleys branch from it to form the general fabric.

The fabric of the castle is formed from the southern door towards the north, where the main alleys are broader and upon which public activities are based and in turn they branch and feed narrow alleys in which the building blocks converge and form the general fabric.

Buildings

Commercial

Castle markets are distinguished by the trade of:
- bitumen
- leather
- grains
- paint
- weaving
- copper
- mourning
- carpenter
- barber
- handicrafts.

Commercial markets to meet the needs of the city.

Religious

Includes a group of heritage mosques, the oldest of which is the Al-Faruq Mosque, the Western Gate Mosque, the Neve Nafisa Mosque and some shrines.

It includes a group of heritage mosques, the oldest of which is the Mosque of the Prophet Daniel, the Mosque of Al-Arian, an old Chaldean church, and a set of shrines.

Residential

Residential floors on one or two floors

Residential floors on one or two floors

Building material

Doxiades – 1974

Haider Kamuna

Development Suggestions

Figure (1G)

Figure (1H)

Department of Antiquities and Heritage / Kirkuk Archeology Inspectorate – 1993
By comparing the three historical castles, physical indicators of the main components of the castle can be confined to the trench, fence, gates, tracks, and buildings of all kinds.

2. Hit Castle

2.1. Hit’s Naming

It has been called in the Sumerian language (doo-dol), and it means the word (wells of the shore of the river) referring to its natural wells of tar. The tar in the cuneiform line system was denoted by a combination of two cuneiform signs (Tu-ul-tu-ul) or (Tuttul), which means one (well) and the other (depth or the water of the depth).

He also mentioned that the name Hit in the Sumerian sources under the name of (Del-Dal) and (Del-Del) means wells or river wells. In Akkadian civilization, it was called (IT), and it means the Akkadian word (al-Qir). As for Babylonian, they called it “ID”, which means Qir. The name Hit was mentioned to the Greeks as close to this term in the journey of Herodotus, where a small river called the “IS” meets the Euphrates and launched its water that bears a Qir, like the one that was taken in the fortifications of Babylon, and the name is a part of the word Azar, which means Qir in Sumerian.

It was mentioned in the geography of Ptolemy (90-168 AD) in a reference to a town to the right of the Euphrates called (Ed Qara) and mentioned (Dakira) which is (Dokira) in Syriac, and (Zoukir) in Arabic. Also mentioned (ahi) or (ahd qira) in Aramaic, as well as the Nabataeans who called the word (hed) or (hd) and the letter "h" is the definition tool in the language as well as in Hebrew.

It was also attributed according to the linguists, the name of Heet refers to the bottom of the earth, as well as the Houta. While others named Heet because it is in an abyss of the earth, and it is also mentioned that the city was named according to the name of its builder: “Heit Bin Al Balandi” [5].

2.2. The morphology and composition of the castle

The castle of Hit, fortified and surrounded by a moat in the form of a semicircle, the end of which connects to the Euphrates River and fences from the inside with a stone wall that contains two gates, the western door and the eastern door. Al-Farouq Mosque now) and its minaret, which is the main element in the formation of the city.
Figure 2. Ministry of Water Resources, General Survey Authority, Baghdad, city map on 1/500 scale in 1951

Drawing on the maps of Cadastro at the Public Authority for Survey in Baghdad, the old Hit Castle consists of two provinces: District 59 East and District 3 West, and through high-resolution images, it was re-drawn with a computer (AutoCad) and linked the two provinces to produce a complete plan of the castle.

Figure 3. Source: The Researcher is re-drawn with a computer (AutoCad) according to Figure (2)

The Citadel of Hit was erected on a hill on the right bank of the Euphrates River and rises from the river by approximately 20 m. Historians describe that the ancient inhabitants of Iraq were constructing their homes on the rubble of old houses by leveling the land and adopting it as a basis for construction. By repeating the process over time, layers are formed in turn that work to form the high hill from the lands surrounding it. The ancient city of Heet (the castle) was rebuilt several times and up to seven layers and the castle may have passed through stages including Sumerian, Assyrian, Babylonian, Roman, Parthian and Islamic. Also, the height of the first layer that was built was determined by the fact that the origin
of the hill was natural or artificial, and there are many opinions of historians that the first layer was erected on a natural hill and the other opinion was that it was established on an artificial hill.

The correct opinion can be determined through field visits and interviews in the study area that the castle was erected on a natural hill. To explain this, there are several reasons. The first prerequisite for the construction of castles is the selection of the appropriate location, which facilitates the fortification process by taking advantage of the height and supervision of the surrounding lands and alerting to the notification through monitoring. The second is to protect from flooding seasons because the castle is located on the river.

The third is that the topography of the area is varied in height and contains many hills. Some of which were constructed on top of it and some that were not used as is the case in the mountain region. The site contains softening: the first hill (the current position of the Citadel). While the second is a long hill and a lower slope upward from the first, it is difficult to construct and fortify a castle, and it is now known as Al Qalqa. Some support our opinion, "The anxiety is the remains of the ancient city of Heet, whose age has increased to 4000 years, which has gone through many wars and devastating floods, and for fear of repeating this, the people resorted to building their city on a high hill and built a fence for them and dug a trench around which they flooded it with water."

We did not find any date for the construction of the current Citadel of Hit, but we can point out that the first to care about building city castles and fortifications are Assyrians (2000-612 BC), who fortified their cities with fences and trenches. The trench surrounds the castle in the form of a semicircle and the end of it is connected to the river.

The trench is fed with water from the river by means of cyclones from the side of the western door. We did not find there are precise diagrams that define the path of the trench, but the path of the trench can be determined based on aerial photos and in accordance with the information from interviews for older persons in the age and by collecting information from historical sources. There are two views in defining the path, the first is that the trench starts from the western door along the wall until ends on the other side of the castle on the eastern door.

As for the second opinion, the trench surrounds the castle with a circular path. It follows a distance from a slope of the hill dirt, then follows the wall of the castle (as the castle of Arbil). We can weigh the second opinion, because the trench passes through its semicircular path penetrating the two hills and ends with the river. There are several reasons to preponder this opinion. First is the presence of an aerial photo by the British showing the effect of the trench. Second reason some of the houses of the al-Qalqa area are placed after the expansion of the city by drawing borders explaining there is an obstacle or the effect of something preventing construction in it. Third reason the presence of the trench path adjacent to the wall this indicates the absence of stores for wholesale trade at the Eastern door.
The fence all the way to the western door, the distance between the two doors down to the river, as well as the houses that construct the path of the fence, and historical sources indicate that the castle was subjected to many invasions. Which caused the demolition of fences, and this means that the city walls were rebuilt several times and up to its last shape is a wall that contains pointed arches.

Figure 5. Trench Path – Source: The researcher determines the path of trench using AutoCad software.

By crossing the trench through two main gates located in front of the two gates, we did not find any mention of its details such as being mobile or fixed or its shape and its construction material except that it is located in front of the two gates to cross the trench. The entrance to the castle is through two main gates, the eastern door and the western door Known as the door of Sinja.

2.3. Land Use of the Old City of Hit (The Citadel)

Table 2. Source: General Survey Authority, Baghdad, city map, scale 1/500 in 1951

| Use                     | Area (Hectare) | Percentage % |
|-------------------------|----------------|--------------|
| 1 Residential           | 4.99           | 55.6         |
| 2 Commercial and industrial | 0.15         | 1.8          |
| 3 Service                | 2.542          | 28.1         |
| 4 Open spaces            | 1.3            | 14.5         |
|                         | 8.982          | 100          |

2.4. Residential use
Residential use represents the largest proportion of the castle area, reaching 55.6% of the total area, which is divided into two places, the eastern gate and the western locality, and the residential houses are on one or two floors and are often composed of one floor.
2.5. Commercial and industrial use

The commercial use represents the most important jobs in the old city, being on the old trade line, where the position of the commercial markets inside the castle is represented by two main nodes on the two gates. Which connected to the main alley, which is the main artery of the castle, starting with the eastern door complex and passing through the Farouk Mosque and extending towards the western door knot, which includes trade markets. The singular where the trade of household and food items, cloth, meat and groceries, as there are outside the fence at the eastern gate. Wholesale stores are called (Al-Alawah) and the reason for their existence is due to the ease of storage and transportation where grain, dates and fodder are sold.

As for industrial use, the old cities include industrial activities by relying on what the area provides. While for the ancient city of Hit, their occurrence on the shoulders of the river contributed to agriculture and the abundance of palm and sesame trees. Which helped in the manufacture of molasses and sprinklers inside the castle. With the main alley what is known as paint. As well as flour industry, where the people of the city depend on the use of manual mills in the homes and the use of water mills to take advantage of the strong current of the river and the impact of the mill is still in the middle of the river opposite the western door has risen to this day.

The textile industries of the city, which are weaving and confining, as it is a traditional handicraft. Recently after the launch of youth campaigns to revive the heritage and the visit of tourists from the rest of the Iraqi cities to Heet. The families who inherited these professions from their fathers made buckets and rights and some pottery works in the pride of their heritage and preserving it from extinction. Outside the city wall, there are the eyes of the continent in which the city was famous. It was used in the construction of temples and ziggurats in the civilization of Wadi Al-Rafidayn and its use in the manufacture of shrubs, the means by which the bitumen is exported and is also used to cover residential rooftops to protect from climatic conditions. The utilization rate is 1.8% of the total land area.

2.6. Service use

Services and infrastructure where there is no electricity in that period, as for water, it was transported from the Euphrates River to the residential houses on the back of the animals. As for transportation, it is represented by alleys and the main streets in the castle where it is often tiled with ponds, including what is rocky or earthy, health services are represented with a simple health center located on the river. The educational services were represented by a school located on the western door called the Hashemite School for Boys established in 1918. The Great Khadija School for Girls was established from the eastern door. Inside the castle as for the graves and the burial of the dead, they were outside the wall containing shrines and built graves. The utilization rate reaches 28.1% of the total land area.

2.7. Open spaces

The open space is represented by the large arenas and nodes in which public activities take place in addition to some of the open space called (Arsa). Within the castle area there is an area planted within a grove directly overlooking the river rich in palm trees. There are also beach areas spread by river sand called (Sharia). Women perform daily washing and others, in addition to holding various religious and recreational activities, including swimming.
Figure 7. A diagram prepared by the researcher explaining the components of Hit castle.

Figure 8. A cross section showing topography - Source: Researcher modeling using Sketch Up software.
By studying the current reality of the castle after the initial expansion phase of the city, building several fields starting from the eastern door along the fence. Which are currently the main stores (Allawi, grain and dates stores) for the modern Heet market and building residential homes in the Qalqa locality. This stage requires the establishment of a service road over a path. The trench is almost due to the ownership of these pieces and shops (referred to as the first stage of expansion) of the private property recently when digging the foundations of one of these buildings found river sand is only evidence of confirmation of the path of the trench.

There is a visible and pointed part to the wall from the southwestern side. It is possible to trace the remnants of the path of the wall, knowing that the wall was previously reinforced, as in the picture, but not in an appropriate architectural form. Looking at the proximity of the apparent part of the wall to the current city wall and the ongoing societal movement, as it overlooks the current market and is one of the points of contact between the people of the city and the heritage of their ancestors. There is no trace of the remains of the gates of the fence and the location of the doors from the technical pictures and interviews that were conducted in the region for the elderly people who lived in the castle previously.

The location of the western door is determined by the western gate mosque and the eastern door is determined from the remains of the fence where it needs to be connected to the main road of the castle.

The castle does not have a fourth door as it is circulated by some researchers because the door on the southern side of the city is called the stair gate or the wall of the fence. But it is an outlet opened at a later time after the trench dried up and the fence was destroyed and some of the castle's sons went to the locality of Al Qalqa due to the population increase and was constructed with cement. By the state. We did not find pictures that clarify the formation of the eastern door and details except for pictures of the entrance to the western door from inside the castle.
It have been exposed to changes in roads and spaces through previous governments to deliver services without knowledge and planning that led to changes in roads and areas, including the construction of a large water tank and what requires work to change to establish this tank in the fifties and for the purpose of extending water establishments to residential homes. Which led to excavation and change in Part of the alleys and roads. Also, the leaks in the water establishments and the sanitary drainage of the houses in the castle led to the damage and the fall of these houses in the eighties. The government created a road parallel to the Euphrates River called the Corniche Street. Which required the demolition and removal of all houses and stores located within the path of the road, and this is considered the first try to destroy urban fabric of the city[6]. The buildings on both sides of the Corniche Street are private property spaces for people who have used them to construct different buildings that obscure the identity and spirit of the area.

Due to the fall of some floors and sheds, and the fact that some families rebuilt their role, which led to changes and the closing of a section of alleys in a way that does not fit with the expression of the architectural castle through the introduction of modern materials and the use of models that distort the general view and from field visits it shows that there are no sheds present today but can Knowing its architectural details through the old photos of the city's heritage. Its location was determined by its names mentioned by Sheikh Rashad Al-Khatib, field visits and interviews for elderly people from the original castle residents.
Due to the societal expansion taking place in the city of Hit and the increase in requirements and services (electricity, water, sanitation, educational, and recreational) for families. Which led to the move of most families to more service areas, and this led people to leave the old houses because they did not match the requirements of the new life. Likewise, increasing the number of members of the same family is one of the reasons for the transfer, and given the need of individuals to modern transportation means (a car) that requires greater spaces for the role and in turn the city planning completely. The role owners demolish and construct the role with designs that do not fit with the expression of the castle and distort the general appearance.

Table 3. Properties and Components of the Castle

| Properties | Material and societal values | Challenges or incentives |
|------------|-----------------------------|--------------------------|
| 1. Trench: | ▪ Defensive function
▪ It was mentioned in the historical sources in the Islamic conquests, where Umar bin Malik instructed Al-Harith bin Yazid 637 AD "If they responded, let them go out. Otherwise, they made their trench by ditching its doors from what follows." [7]
▪ Sheikh Rashad Al-Khatib also stated that the castle "was before and after the occupation years, fortified and surrounded by a ditch in the form of a semicircle connects to the river, the first side is called the western door and the other the eastern door." [8] | Bury the trench and construct a road on either side of the modern city market
After the initial expansion phase of the city, building several cells starting from the eastern door along the fence, which are currently the main stores (Allawi and grain and dates stores) for the modern heat market and building residential homes in the locality of Al-Qalqa, which is the stage which requires the construction of a service road over the path of the trench almost
Given that these plots and stores (referred to as the first phase of expansion) own the private property Recently, when excavating the foundations for one of these buildings, river sand was found, which is evidence of the confirmation of the path of the trench. |

![Figure (2a)](image-url)
As founded in the 1952 Cadastro maps drawn a part of the trench path.

![Figure (2b)](image-url)

![Figure (2f)](image-url)
2. The fence:
▪ Defensive function
▪ Behind the ditch, Šur Hit, which has two doors closed at night, to block the road against invaders.[9]
▪ He described the remains of the wall and the trench by a committee dispatched from the Directorate of Antiquities in Baghdad in 1944 AD The wall was built with stones and stucco and has two doors, the first is located in the southeast, and its

![Figure (2c)](image-url)
There is a visible part that pointed to the fence from the southwestern side. It is possible to trace the remains of the wall of the fence, knowing that the wall was previously reinforced, as in the
cities, they often find it surrounded by a thick, high wall that is known at that time as a military munitions.

The path of the fence was investigated at its beginning and ending from a historical source and from interviews with elder people.

The fence begins at the eastern door and extends into two ribs, leading to the second curve where the high houses stands as the wall of the fence right up to the western door and the distance between the two doors down to the river, as well as the houses that make up the path of the fence, we can notice the path in Figure (2g).

Where the fence was supported by pillars built of stones and gypsum, as a correction of what was stated in the description of the aforementioned committee.

3. Gates:
Tire includes two main gates, the eastern door from the port side, and the western door from the farms side.

The entrances to these doors have been standing until recently, showing the features of durability, strength and durability, and their upper arches have been destroyed [13] Figure (2m)

There is no trace of the remains of the gates of the fence and the location of the doors from the technical pictures and interviews that were conducted in the area for the elderly people who lived in the castle previously, where the location of the western door is determined by the western gate mosque and also the eastern door is determined from the remains of the fence where it needs to be connected to the main road of the castle.
There is a third door that descends from the castle towards the Euphrates River and is known as the Gate of Sinja

- The eastern door was entry and exit to and from the city's port. As for the western door, entry and exit to and from the agricultural areas and orchards
- The door of the Sinja is the door to enter the city from the side of the river, and the Sinja by opening Faskoun, Sinja of Libra, what is weighed in it, and we do not believe that the name Bab Sinja in Heet is taken from Sinja of Libra, and the Haitians adopted this word to refer to the countryside, that is, those coming from the countryside.

It is believed that the door of the Sinja opened instead of the secret tunnel (the door of the secret), which is likely to exist, as is the case in most Assyrian castles, and its purpose is to link the castle to the river for use in the necessary cases to bring water and supplies at the time of the long siege or used to deliver supplies and perhaps escape at the time of distress. [14]

There are no pictures that show the formation of the eastern door and details except for pictures of the western door entrance from inside the city.

4. Roads and spaces:
   Alleys: The alleys of the castle are of a human scale. As all alleys within the castle's urban fabric are designed for human movement and the known means of transportation at that time (camel, horse, and cart)

The alley that connects the eastern door with the western door through the Citadel Mosque (Al-Faruq Mosque) is represented by the main trail (the main market), which includes many local and upcoming crafts and industries.

Through studying the current reality of the castle, I was exposed to changes in roads and spaces through previous governments to deliver services without knowledge and planning that led to changes in roads and areas, including the construction of a large water tank and the work that requires changing to establish this tank in the fifties.

For the purpose of extending the water foundations of the residential houses, which led to excavation and change in some of the alleys and roads.
There is also a gradual increase in privacy in the formation of the urban fabric, where the alleys are divided: public alleys, semi-public alleys, and private alleys.
Public alleys: represents the main artery that penetrates the castle in a direction parallel to the river, where it connects the eastern door on one side and the western door on the other side and connects the castle to the outside world.
The semi-public alleyways: represented by the annular alley whose ends are tied at the eastern and western doors consisting of two main nodes, which in turn connects the main artery with the residential stores in a way that provides privacy away from the public activities of the castle.
It also nourishes a network of narrow, twisted alleys that arise from it and flow into the blocked ends.
Private alleys: This is represented by unopened arteries that are blocked on three sides. Often these arenas are inhabited by a group of families who are related by kinship.
Where it is narrow between a meter and two meters and twisted up and down with the height of the land and its slope and paved with the bitumen in which the city is famous.
These alleys were called by their families.
The sheds: These are arches or arches that carry rooms over them, or they may be a bridge that connects a housing unit to another on both sides of the alley, the height of the shed reaches 4 m, and that is when it is on a public or semi-public road, while we see that the height of the shed in the alleys that are of a special or semi-character especially up to two meters, and in general, the height of the shed on average ranges between two and a half meters and between the three.

- Its alleys are distinguished by the presence of many porches above the alleys, which are called by its builder, and which are built for the purpose of expanding the residential houses.
- The sheds work to show the formations of shadows or give entryways for movement as well as entryways for alleys, and these axes may be negative or positive and according to the rank of the alley that follows.
- The presence of such forms works to impart a higher privacy beyond that, as it acts as a precursor to that alley and does not encourage strangers to enter it.

In the above picture, a tape appears between the day and the Corniche Street, and these are private property spaces for people who have used them to construct different buildings that obscure the identity and spirit of the area.
Due to the fall of some floors and sheds, and the fact that some families rebuilt their role, which led to changes and the closure of part of the alleys in a way that does not fit with the expression of the architectural castle through the introduction of modern materials and the use of models that distort the general view.

There are no sheds presently, but its architectural details can be known through the old photos of the city’s heritage. Its location was determined by its names mentioned by Sheikh Rashad Al-Khatib, field visits and interviews for elderly people from the original inhabitants of the castle.

5. Public building:

Markets

Markets are represented as an element intertwined with the urban fabric, and it is a space where the facades of space can be easily distinguished by passers-by and perceived as a specialized space. The main markets can be identified as being the main artery of the castle, and it extends on the sides of the shops that serve the castle and is considered permanent to meet the needs of the residents.

The market is the lifeline of the castle, and the locations of the shops are indicated in blue, according to the scheme.

The main road connecting the eastern door to the western door is the main market of the castle.
Castle markets are distinguished by the trade of bitumen - leather - grains - paint - weaving - yolk - mourning - carpentry - barber - handicrafts

Due to the first expansion to the city, which prompted Al-Ahly to transfer business and craftsmanship to new stores and markets, which led to the gradually weakening of the old market movement.

Through the historical sources and the description of travelers and interviews for the residents, the location of the port and the sea in the area of Skala was determined according to the attached plan.

The old picture of the marina

In view of the development of land and water transportation means for the city of Heet with the cities and villages nearby, where a bridge was established over the Euphrates River, which led to weakening the effectiveness of the port and led the people to exploit the port site by the people for residential and agricultural purposes to meet the requirements of the city's expansion.

The existing Al-Farouq Mosque is a modern building and the lighthouse was maintained in 1945.

Western Door Mosque
Alsaray Police Station
Khadija Alkubra Girls School
The Hashimiyah Boys School
in the church. Their countries.

- It is a small room in which the prayer is built. It is said that it was built in the time of Harun al-Rashid.
- A place where the righteous people are buried, and it is considered a place for practicing rituals for those who live, blessed by them
- Mosque of the Western Gate The second mosque of the castle is located next to the western door and named after the door
- The police station was established in the period of the British occupation of Iraq

Figure (3m)

- The first school for girls in the city
- The first school for boys, where the castle and the mullahs were once in their turn, where the Arabic language, religion and Arabic calligraphy are taught to them

Makam Alarbaeen Wali is present as a building and dilapidated, and until the period before 2003, the women of the city used to go to the shrine for medicine and other religious rituals.

Makam Alsit Nafisa is still standing the shrine until this time with some minor maintenance work for it.

The Bab al-Gharbi Mosque is located as a site, but it is a modern building for prayer. The Serail police station has no trace of it. But it is worth noting lately in the light of the deteriorating security situations, we find security detachments taking place for them to control the crossing of the modern Heet Bridge.

Due to the societal expansion taking place in the city of Heet and the increase in the requirements and services (electricity, water, sanitation, educational, and recreational) for families, which led to the move of most families to more service areas, and this led to the people leaving the old role because they do not match the requirements of the new life.

Also, the increase in the members of one family is one of the reasons for the transfer.

Given the need of individuals for modern means of transportation (car), it requires greater areas for the role, and in turn, the city should be fully planned.

6. Residential:
The residential houses are as in other traditional cities, a coherent urban fabric that accesses the floor through the narrow alleys that are surmounted by the sheds, the facades of the floor are closed or interspersed with small windows, small floor spaces between 20-100 square meters are almost characterized by the presence of a blackness on the ceiling to enter lighting from the ceiling, as well as for natural ventilation purposes, it is constructed with Nora and stone, the house is covered with palm trunks, and the roof is covered with bitumen to protect from natural conditions.

Figure (3n)

- Sheikh Rashad Al-Khatib described "its houses of carved rocks and abundant rooms overlapping with each other and almost more are free from windows except from openings at the top of the ceiling (Al-Sowama) Whose name is from the sky, as it is the only outlet through which the people of the house see the sky and from it it enters the sun and moon light, and it is the source of renewed air. [16]"
The role owners demolish and construct the floor with designs that do not match the expression of the castle and distort the general appearance.

Many roles were destroyed in wars.

The walls are built between 40-80 cm thick using the local materials, where the rude stone was used in the construction of the load-bearing walls and used to connect the stones with the inflorescence material, which is produced from limestone widely found in Heet as clay is used and often the construction of peasant houses in it is only used in Refine the walls from the outside. The castle walls are characterized by a few and small holes.

They were used in the entrances to the residential floor, which ranges in height from 2 meters, often pointed arches, and these arches were used in the buttons for storage in the walls of the rooms.

The residential floor is roofed flat, where the flat roof consists of tree trunks so-called fog as a bridge, followed by a layer of palm fronds and another layer that reflects it in the direction and after that a layer of mats that are also manufactured locally and then a layer of mud that is covered with bitumen as a surface.
3. Development Suggestions

1. Reviving the trench, where its path was determined from historical sources, personal interviews and site visits that turned out to be buried and commercial stores were built on top of it. This is done according to the path and by relying on the remains of the fence that is present currently. Creating green spaces to replace commercial buildings that connect the old with the modern and give space to absorb the castle from afar.

2. Rebuilding the fence with its original path, relying on its remains, with the same material and shape, and fixing the boundaries of its connection to the trench.

3. Rebuilding the eastern door and the western door with their original locations and building the two bridges that connect to the two doors over the trench for crossing purpose.

4. Closing the new street and making it for pedestrians uses only, and to complete the sub-alleys that heads to the river.

5. Reviving the main market of the castle, starting by restoring the existing shops and rebuilding the destroyed shops in the same way as the old form, roofing, and the street with all its main details of paving and lighting.

6. Determine the paths of alleys and land ownership, according to the plans that was drawn by Cadestro at 1952, paving its streets, and draining water with modern methods.

7. Maintenance and restoration of the Farouk Mosque, considering the materials and colors used in maintenance.

8. Reviving the river activities on the side of the river from the castle side, starting from the beaches of the river and reviving the “Shouka Naour”.

9. Creating the heart of the castle at the top of it, by fixing borders, as in the proposal submitted, to become the main lung of the castle and to take the attention toward the alley that connects the main road and the ring road which is mediated by the green area.

10. Reviving The port area and the riverside wharf by creating activities such as cafes, restaurants and boat harbor, and connect the port with the castle from the riverside.

11. Using the Ferry-ship as a floating restaurant on the Euphrates river that overlooks the castle from the side of the river.

4. Recommendations

1. The shops that are built over the trench were built with stone and plaster materials. Their owners are currently demolishing them for two reasons. First for their deteriorating construction condition and second for optimal exploitation to increase income. The researcher recommends the intervention of the decision-makers and those with specialties not to grant permission to build and purchase lands from their owners. This is for the public interest and to compensate them with material value or their equivalent and to revive the trench as in the proposal.

2. According to the field visit, there are remnants of the fence and known borders, making sure of its path from the sources. The presence of parts supported by pillars of stone and plaster, the fence of the trench is currently a dump of waste, rubble for the owners of the floor above the castle. The researcher recommends the intervention of decision-makers to remove the excess and not to tamper with the archaeological area and pay attention to cleanliness the place to reflect the most beautiful image for the new generation.

3. There are some shops on the main road of the castle are in good condition and the other is dilapidated. The researcher recommends not to grant building permits and buying stores on the road and compensating their owners.

4. The field visit made clear that there is existence of pieces of the urban fabric from the side between the river and the Al-Faruq Mosque by a paved road. The researcher recommends the completion of the sub-alleys that were cut towards the river and removing the excess.
5. Al-Faruq Mosque needs maintenance for the lighthouse to maintain it, as the last maintenance for the lighthouse was in 1945.
6. On the other side of the river, on the one hand, soil piles on the river side are paved, and the people of the city are calling for paving the side from the side of the castle.
7. From the field visit, at the top of the castle, large parts of the fabric were demolished, and most of the residents construct the floor without controls, which leads to future problems and distortions.
8. In the last days, after cutting the modern Hit Bridge because of the country’s conditions, the people of Hit returned to use the ancient rivers as a type of transportation between the two sides of the river, and now it exists without exploitation. The researcher recommends maintenance and exploitation, as in the design proposal submitted by him.

References:

[1] Dr. Imad Abdul Salam Raouf, 2005, A City from a Country, Al-Hekma Magazine, No. 39, p. 148
[2] Oxford dictionary.
[3] Dr. Saad Ibrahim al-Darraji, 2018, fortifications of Iraqi cities in the Ottoman period and their most important military installation, Baghdad, Studies, p. 345.
[4] Dr. Qahtan Muhammad Salih al-Hiti, 2019, The Old Hit - Castle, Fence, and Trench, Al-Hiwar Al-Medawani, No. 6224.
[5] Dr. Imad Abdul Salam Raouf, 2005, A City from a Country, Al-Hekma Magazine, No. 39, p. 148
[6] Dr. Thaer Mahmood, 2018, Utilization of urban sustainability approaches to deal with ancient cities: a case study of Hit Castle, Iraq, MATEC Web of Conferences, p. 162.
[7] Dr. Imad Abdul Salam Raouf, 2005, A City from a Country, Al-Hekma Magazine, No. 39, p. 148
[8] Rashad Al-Khatib Al-Hiti, 1966 CE, Hit in its Old and Modern Framework - Part One, Baghdad, Asaad Press, p. 29.
[9] Dr. Qahtan Muhammad Salih al-Hiti, 2019, The Old Hit - Castle, Fence, and Trench, Al-Hiwar Al-Medawani, No. 6224.
[10] Dr. Saad Ibrahim al-Darraji, 2018, fortifications of Iraqi cities in the Ottoman period and their most important military installation, Baghdad, Studies, p. 61.
[11] Al-Sharif Al-Idrisi, 2002, Nuzhat Al-Mushtaq in Penetration of Horizons, Volume 1, Cairo, p. 656
[12] Countries of the Eastern Caliphate, translated into Arabic by Bashir Francis and Korkis Awad, Al-Resala Foundation, p. 90
[13] Rashad Al-Khatib Al-Haiti, 1966 AD, Hit in its Old and Modern Framework - Part One, Baghdad, Asaad Press, p. 29.
[14] Dr. Qahtan Muhammad Salih al-Hiti, 2019, The Old Hit - Castle, Fence, and Trench, Al-Hiwar Al-Medawani, No. 6224.
[15] Ahmed bin Dawood Al-Dinouri, Al-Akhwar Al-Twal, Ministry of Culture and National Guidance, Cairo, p. 87.
[16] Rashad Al-Khatib Al-Hiti, 1966 CE, Hit in its Old and Modern Framework - Part One, Baghdad, Asaad Press, p. 29.
[17] Rashad Al-Khatib Al-Hiti, 1966 AD, Hit in its Old and Modern Framework - Part Two, Baghdad, Asaad Press, p. 115.
[18] Dr. Qahtan Muhammad Salih al-Hiti, 2019, The Old Hit - Castle, Fence, and Trench, Al-Hiwar Al-Medawani, No. 6224.