

A geospatial study of the layout and extent of the eighteenth-century walled city of Hyderabad

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Abstract: Hyderabad and Golconda are prominent medieval cities in Deccan India, claiming significant roles in shaping the transformation of the region in the 20th and 21st centuries. This study focuses on defining the contours of Hyderabad's walled settlement, a fortified structure built around Hyderabad city, the capital of Hyderabad State after the fall of Golconda in 1687. The capital shift to Hyderabad occurred gradually even with the construction of Char Minar in 1591. The city became an important factor to understand the growth of Hyderabad in the Nizam and British eras. The core of the study is based on how different maps of the walled city dating from the 18th c. to 20th c. describe a picture of change in the settlement arena of Hyderabad. These maps signify the areas of development, which can be conjectured in present-day Google Earth. It also compares different maps to bring about the information on built features in the city and georeference them in today's setting so as to understand the spatial change in the arrangement of the city. The findings of the current work are used to conduct a detailed field survey to check and document remains that still exist and also the condition they are in at present. The study focuses on the sustainable development of a burgeoning urban sprawl of Hyderabad considering the cultural heritage of the area

Keywords: Hyderabad, Geospatial, Remote sensing, Charminar

1. Introduction

The cultural heritage setting of Hyderabad today shows two precincts, Golconda Fort Complex and Char Minar with associated structures. The construction of Char Minar in 1591 by Muhammad Quli Qutb Shah of the Qutb Shahi Dynasty marked the beginning of the shift of the capital from Golkonda to the new city of Hyderabad. Char Minar was constructed as a central point of the new city, built on a new road running north to south intersecting the already running road in the form of a trade route from east of Golkonda to Masulipatnam and other coastal towns of the kingdom (Sherwan, 1967) further east. The city followed a plan of a giant double cross being built on a gridiron system.

As the new capital began to thrive, there was a need to strengthen and consolidate the city of Hyderabad with a fort wall. The fortification wall was built at the end of the Qutb Shahi Dynasty, during the last days of Mubarez Khan in 1712, and completed by the first Nizam in 1740. This wall defined the city's limits as well as provided security to the city (Nayeem, 1987). The stretch of wall from Chadder Gate to Dabirpura gate was originally built with no turret parapets, but Asaf Jah I surmounted turret parapets later (Bilgrami, 1927). The circumference of the wall was 9 miles enclosing an area of 4.5 sq. Miles. The existence of the wall has been recorded till the end of the 19th century and there are reference of some remains even post-independence. The focus of this paper is to identify the original extent of the walled city and understand its transformations over time by comparing the maps made in three different centuries i.e. from 18th to 20th. The study also identifies the locations of the wall remains using satellite imagery and digitizes them using GIS. The present remains of the wall stretch along the areas Nashemannagar, Fateh Darwaza, Aliabad and Lal Darwaza, but with geospatial analysis, the current study identifies and documents the remains of the walls across various settlements of the city. The history of Hyderabad

city is recorded by Nizam and Colonial rulers, each using their own mapping techniques depicting a different shape and orientation of the city wall.

2. Origin of Hyderabad (Capital city of Hyderabad State)

The present city of Hyderabad is divided into two: south and north banks by the River Musi. The plain on the southern bank is in the shape of an elongated trapezium bounded by Mir Alam Tank, Koh-i-Tur (Falakhnuma Hill) and Sarurnagar tank in the south-west, south and east distance of 6.3 and 4 miles, respectively, from Charminar (Nayeem, 1987). This study focuses on this area and how it was developed historically with an inclusion of a fort wall at the periphery of Hyderabad City.

Hyderabad became a full-fledged state in the 18th century with the capital first at Aurangabad and then Hyderabad in 1763. The city of Hyderabad was founded in the last decade of the 16th century, later becoming the capital of Qutb Shahi Sultans of Golconda and Nizams of the state of Hyderabad till 1948. Leading up to the foundation of the city of Hyderabad, the plan to construct a new city was made in 1591. Muhammad-Quli Qutb Shah is said to have taken these plans further for the new city, as he was already aware of the large swath of land present at the south of the Musi River as his father had already constructed a bridge in 1578 on the Musi River to access the other side (Sherwani, 1967). Construction of Char Minar was completed in 1592 with four radial roads projecting from it: northern road stretch to Musi River at Afzal Bridge; southern till the present day Falakhnuma Castle (originally called as Koh-i-Tur); eastern towards the coast of the Bay of Bengal and western towards Golkonda.

3. Hyderabad city wall through maps

3.1 Map of 1772

The wall completed by the first half of the 18th century by which time Hyderabad’s population was 2,25,000; highest in India at the time. The first site plan of the new Hyderabad city is depicted in a 1772 map (Figure 1). Although the map is not to scale, it shows the entire walled extent with Char Minar as its central feature. It also shows structures such as Char Khaman, Mecca Masjid, and other religious and civic structures. The map suggests that in 1772 the central area near Charminar was densely populated with residential features, while the north and northeast parts were sparsely populated. The map gives road intersection layouts and street patterns that are identifiable with 20th-century maps and even today. It is quite clear that the fort wall was in good condition in 1772 with as many as 13 gates and many windows (Table 1). These gates are numbered on the map by S.P.Shorey, who has analyzed the original map and recorded his impressions (Shorey, 1993). The northwest quadrant shows the city where the Qutb Shahi Palace Complex was destroyed in 1687 and residential structures were built (Shorey, 1993). The new residential quarters were most probably built by reusing construction material from the old Palace. The largest house of the city was Charmahal where the French made their residence (Sarkar 1963).

3.2 Map of 1854

The map (Figure 2) was made by the British, which explains the focus predominantly on structures of the British colony. Along with Hyderabad, the map features Secunderabad and Golconda as well as mentions residential and official places of the British chiefs. The actual area of the Hyderabad fort is only about double that of the Golkonda fort, yet the Hyderabad fort is the central

feature on the map and the size is exaggerated to more than 4 times that of the Golconda fort.

Although it marks the wall boundary of Hyderabad, the shape and profile are different from what we find on the 1772 map. The wall boundary is marked as a neat and almost symmetrical unlike the shape marked 1772 map (Figure 1, for instance, no curves in the fort wall at the eastern boundary adjacent to the Purani Haveli) as well as on the 1914 Survey of India map of Hyderabad (Figure 3) which are closer to its actual asymmetrical shape. The interior settlements are shown as a four-part grid with Char Minar at the center also marking Mecca Masjid, Char Khaman and the Chowk area. The map label mentions ‘Burra Durree’ at the northernmost part of the map with Meer Alum’s Bazar east of the Purani Haveli. The map shows the ‘Meerjimlah Tank just outside the southeast corridor of the fort wall with adjacent bazaars and canals emerging from the tank. This map gives the name of gates and their positions with windows as well (Table.1). However, one of the gates seems to be mistaken to be a khirki as the other gates on the map are marked with double curves and khirkis are marked with a single dot. Point 2 is marked as ‘Dubbulpoor’ which is Dabeerpura gate, while point 3 is marked as ‘Kittiky’ for khidki with double curves as for other gates. The names of the gates are consistent with what is found in other sources. The map also shows River Musi and the bridge over it on the northeast part making the way towards Golconda. A total of 17 gates and windows were found in the 1854 map. The names of these 17 gates and windows are Chuddergaut, Dubbulpoor, Kittiky, Yakutpoor, Kittiky, Meerjimlah, Gowlepoor, Laul, Alleabad, Kittiky, Gagubunda, Fettez, Oomdabaur, Phool, Charmal, Chumpa and Dhilly

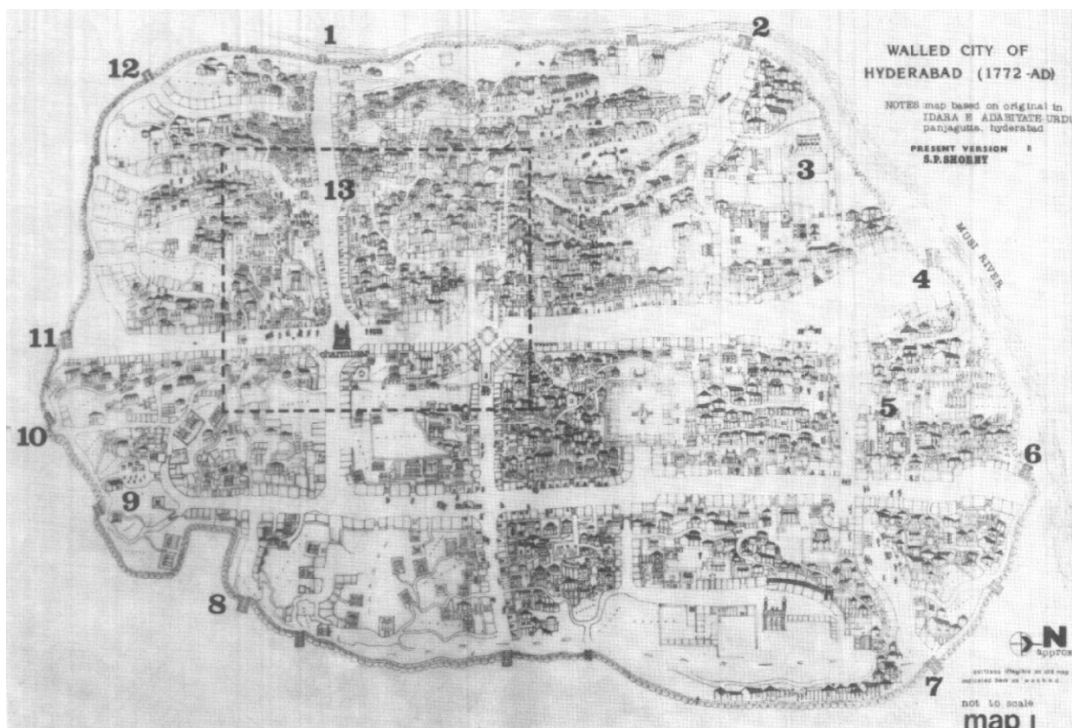


Figure 1. Walled City of Hyderabad (1772)

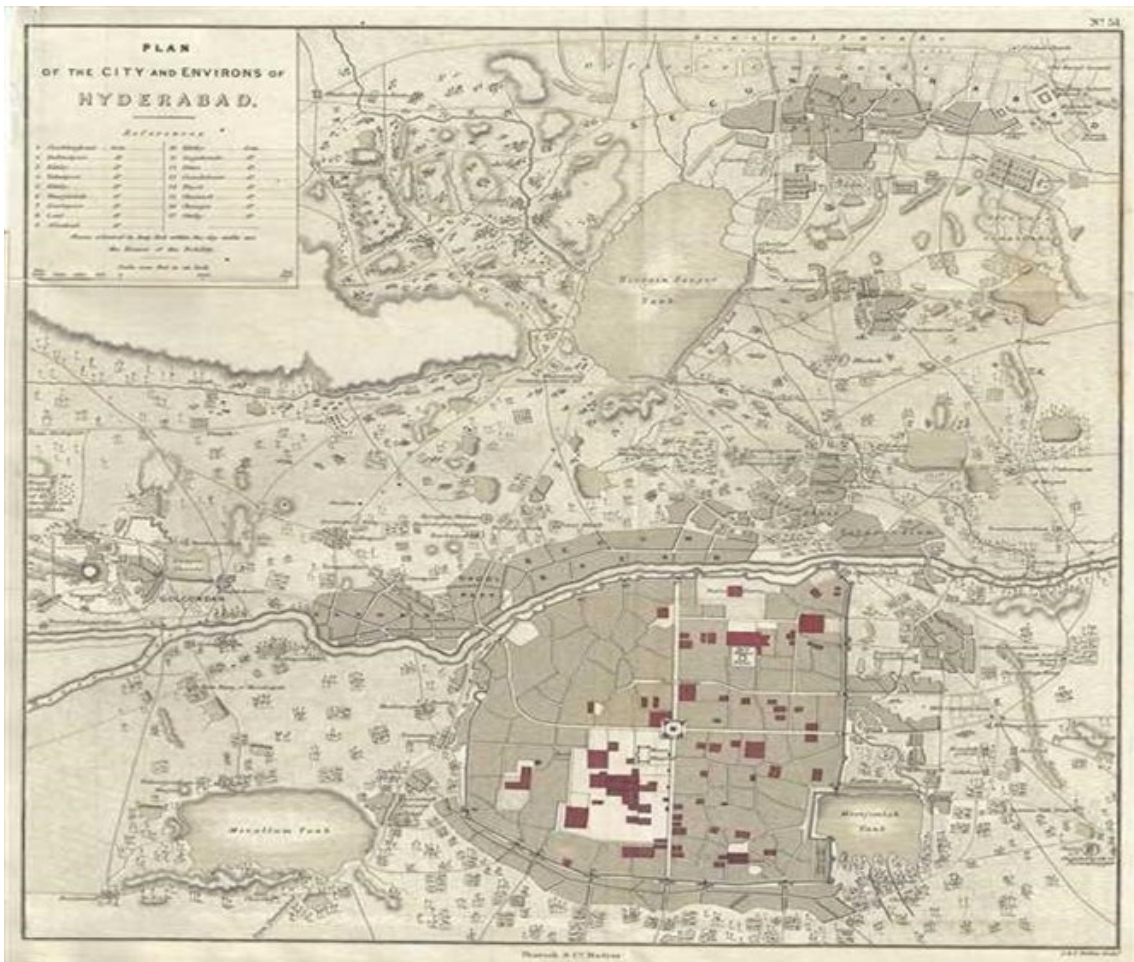


Figure 2. Plan of the City and Environs of Hyderabad; made by Cartographers J.B. Pharoah and J.C. Walkers for Atlas of Southern India, 1854.

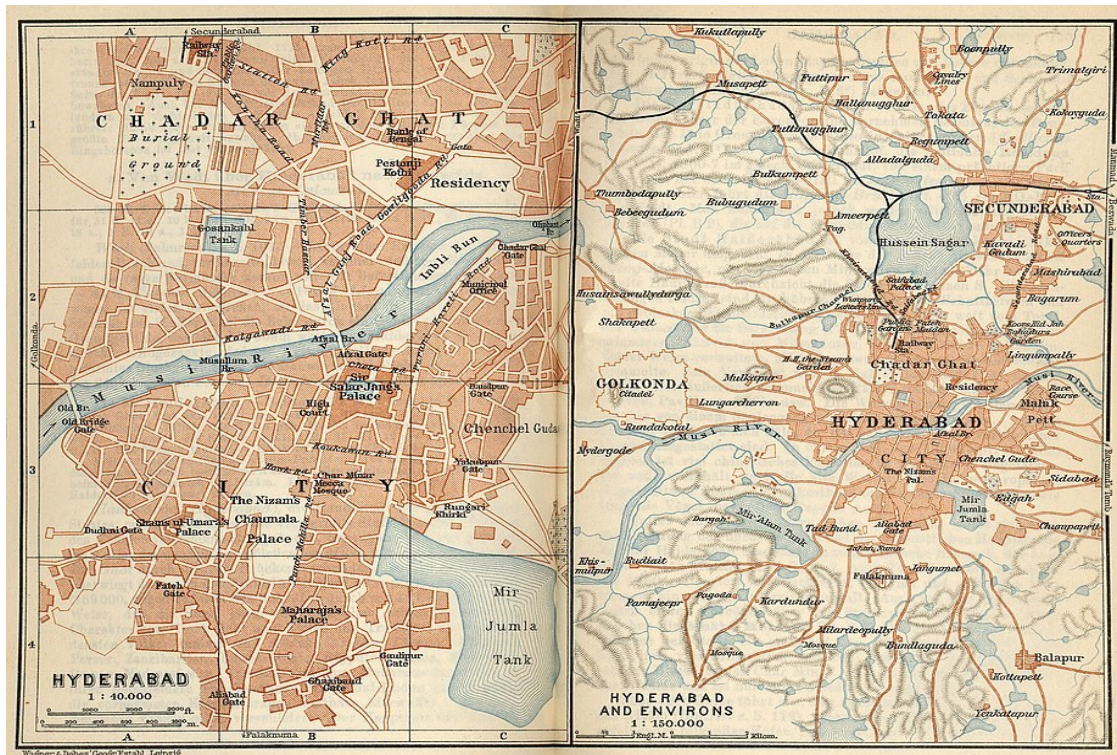


Figure 3. Hyderabad and Environs (1914)

Table 1. List of gates as mentioned by Bilgrami

S.no	List of gates	Status
1.	Purana Pul Darwaza	Surviving (State Protected)
2.	Dabeerpura Darwaza	Surviving (State Protected)
3.	Chaderghat Darwaza	Demolished
4.	Yakutpura Darwaza	Demolished
5.	Aliabad Darwaza	Demolished
6.	Champa Darwaza	Demolished
7.	Lal Darwaza	Demolished
8.	Gowlipura Darwaza	Demolished
9.	Fateh Darwaza	Demolished
10.	Doodhbowli Darwaza	Demolished
11.	Dilli Darwaza	Demolished
12.	Mir Jumla Darwaza	Demolished
13	Afzal Darwaza	Demolished

3.3. 1914 Hyderabad map

The map (Figure 3) gives a clear demarcation of the fort wall. This map is georeferenced to identify the exact extent and layout of the fort wall. A major chunk of the north fort was destroyed by the Musi River flood in 1908, yet this map shows the boundary wall of the north portion also. There are two additions (two bridges) in the connectivity of the city with the other side of the River Musi: Mussallam Bridge and Afzal Bridge.

4. Geospatial analysis and field survey

The Google earth imagery of the fort (Figure 4) is compared with Corona satellite image of 1979 (Figure 5). The comparison shows that adjacent to river Musi, there was a part of the fort that existed in 1979, whereas the same area in Google Earth shows localized development leading to encroachment of the fort as well as a thick growth of vegetation. Our field survey in 2021 showed that there are only ruins of the fort in that area. There are other areas that show that urbanization has led to a loss of fort extent. The image also shows that the Mir Jumla tank was composed of agricultural parcels in 1979, hence urbanization has happened subsequently. The image shows a palaeochannel surrounding the south of the fort connecting Mir Jumla tank in the east to the point in the west where drainage from Mir Alam enters the river; this channel may have also served as a moat as an extra line of defense for the new

capital. A paleochannel that drains water from Saroornagar Lake to the river is also identified. Figure 6 is an FCC (False color composition) Multispectral image (IRS-P6-LIS4) dated December 2008. It also shows that Mir Jumla tank had natural drainage toward the river Musi, while two other lakes; (Mir Alam and Saroornagar lake built in 1806 and 1624, respectively) also have natural drainage channels suggesting the role of such tanks in the development of Hyderabad. Such distinction can also be seen in IRS-1D-LIS3 dated November 2002. Figure 7 Shows a digital elevation model of the landscape of the fort and its environs (Cartosat 10m DEM from <https://bhoonidhi.nrsc.gov.in/bhoonidhi/>). This was generated to study the landform on which the fort was built. The fort was on the south of the river Musi, the northern boundary of which spreads between two streams that enter the river, therefore the fort was wedged in between these two streams. The elevation also shows that a strategic location surrounded by a river in the north, two drains in the east and west, and an elevated area in the south was selected for laying out the new city of Hyderabad. It also shows that the Mir Jumla tank was created by building a bund capturing the drainage from the higher elevation in the south towards the river in the north. A slight elevation of the bund is also detectable in the DEM. The drainage channel coming from Mir Jumla Tank to Musi River can be traced in the elevation profile north of the tank, which is also marked in the Pharaoh Map of Hyderabad, 1854.

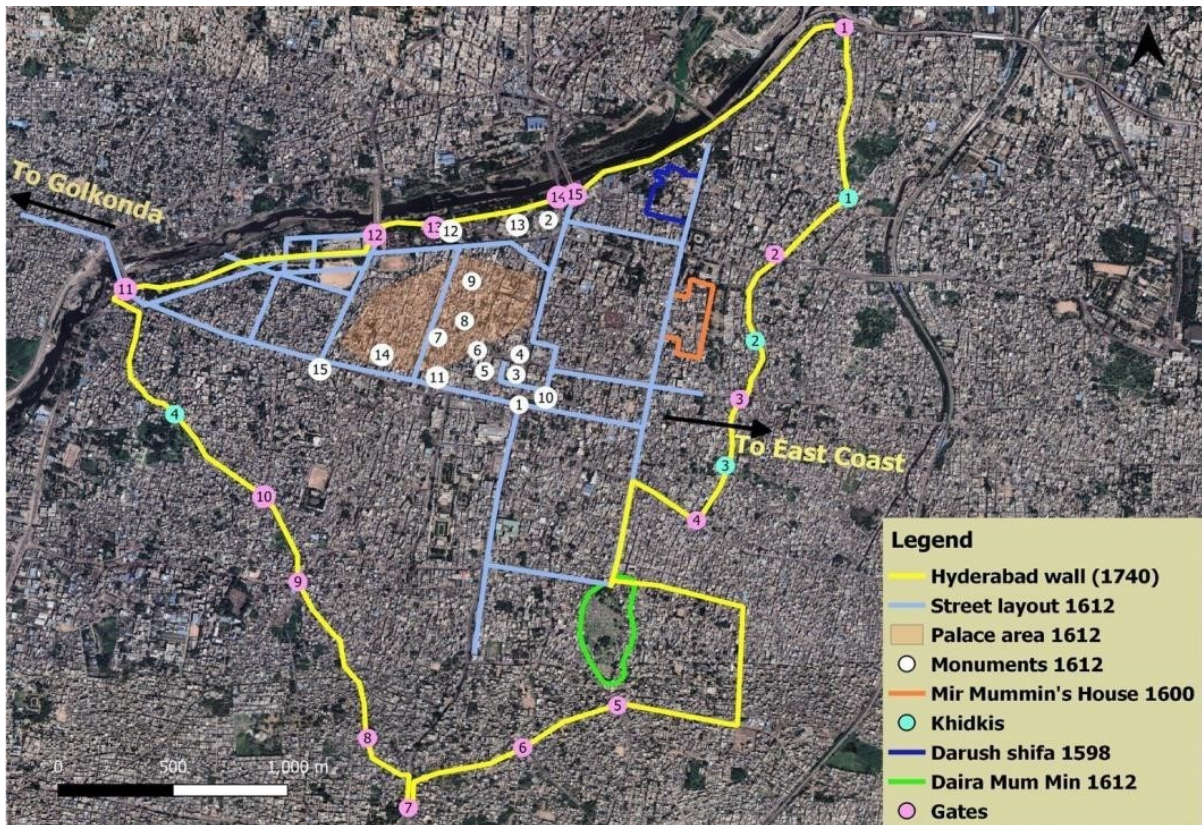


Figure 4. Historical features of fortified Hyderabad georeferenced and presented on Google Earth imagery

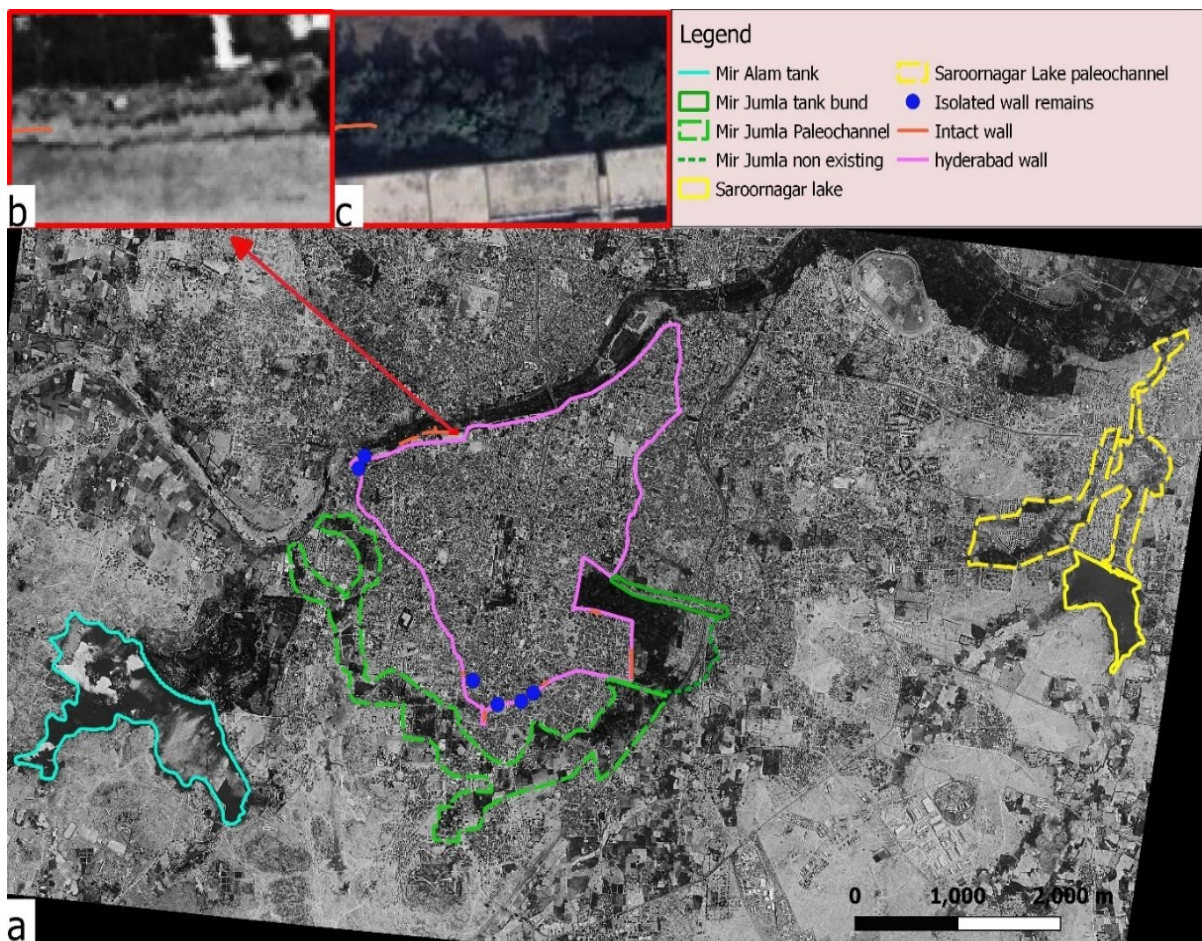


Figure 5. Change in landscape seen through Corona satellite image (1979/05/08): a) Corona satellite image of Hyderabad; b) remains of fort in 1979; c) Broken and encroached wall (of same area as in b) in Google Earth.

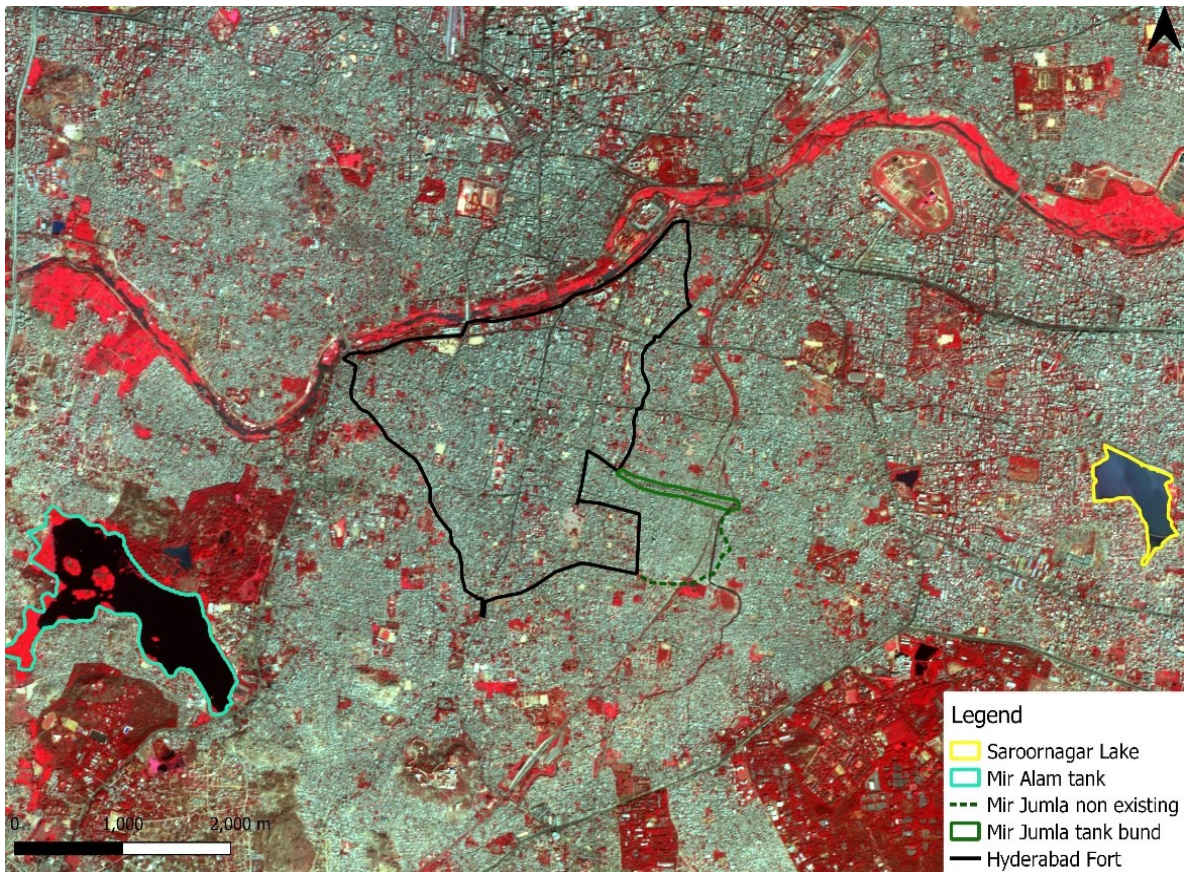


Figure 6. False Color Composite (FCC) from the Multispectral image (IRS P6/LISS IV) dated December, 2008 showing the extent of Hyderabad

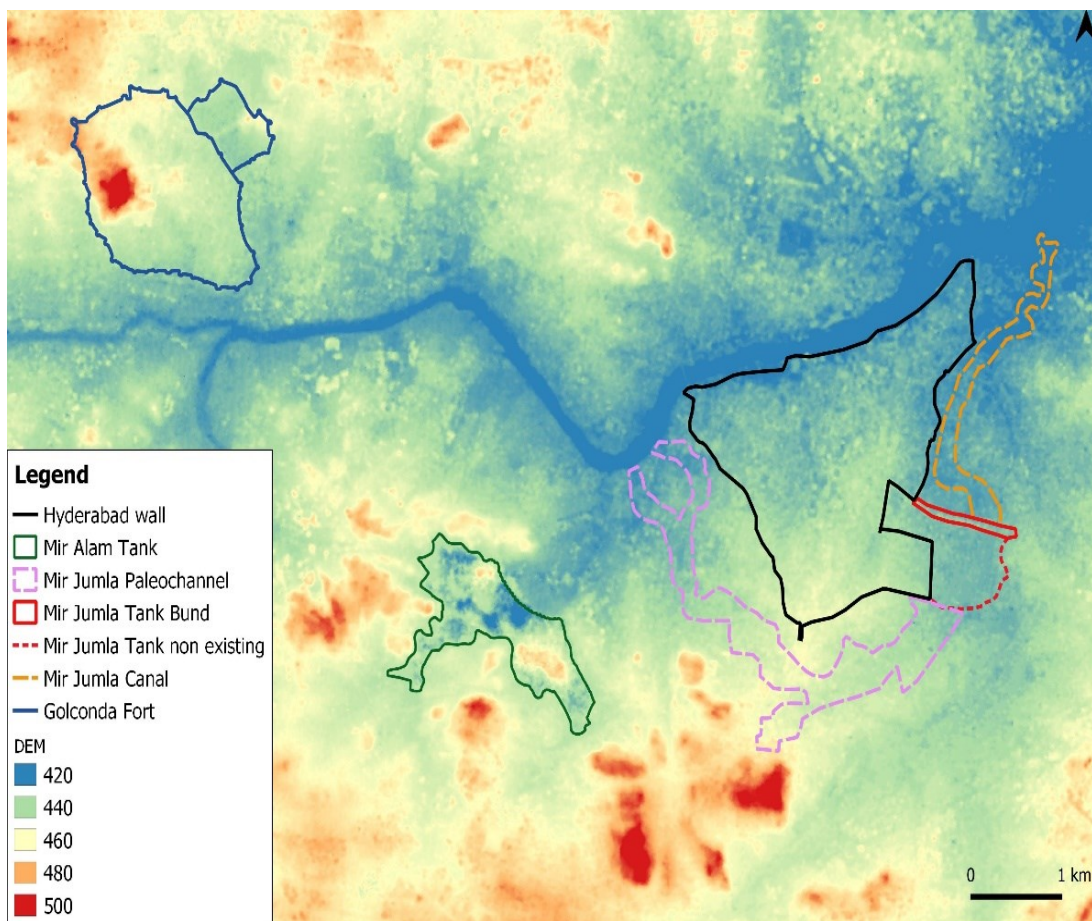


Figure 7. Terrain comparison of Golconda Fort and Hyderabad

It is used to draw a comparison between the terrain in the vicinity of Golconda Fort and Hyderabad Fort. The landscape of Hyderabad provided several advantages: proximity to the river, drainage, and water supply, and well-protected strategic location. These formed a perfect blend of multiple elements to shift the capital to this new location.

Map of 1914 was used to georeference the Hyderabad Fort in order to identify the present locations of the wall. As the perimeter of the fort covers an approximate length of 12 km, it covers grounds where rampant urbanization can be observed which have impacted the heritage value of the fort (Figure 8). Following the georeferenced locations of the fort, the Northern stretch of the fort can be seen going adjacent to the River Musi from Muslim Jung Bridge to Chaderghat road. On ground construction of this wall looks very different compared to other remnants of the fort as it appears relatively recent, therefore it can be deduced that this portion was rebuilt after the Musi flood of 1908. The entire fort portion along the river is intact and adds to the cultural value of the city. As we go clockwise the next noticeable remnant of the wall is found at the southeast part of the fort near Daira Mun Mumin. Almost one kilometre stretch of the fort is present in the underdeveloped dwelling of Gowlipura. The wall is used as part of houses in a few cases, whereas some portions of

the wall stand intact with minimum disturbances (Figure 9). Going further south, the wall continues with scattered smaller remains at Sardar Patel Road, and often become part of many houses. One of the prominent bastions of the wall remains adjacent to a residential complex (Figure 10 (D)). Moving further south towards Aliabad, a notable stretch of approx. 90 meters of wall length is found just near the main market. Aliabad market shops are reused spaces, which originally were parts of entry of the forts or archways having 12-15 ft. width. These were khidkis and major entry points for the cavalry.

There are no parts of the wall as we go further from southwest towards north as built up residential spaces have left no marks of the old city wall. Between Purana Pul and Muslim Jung Pul, in the north of the fort near the ghat area, a major chunk of the wall remains are still present. These remains are reused by the inhabitants, mostly unaware of the structure's historical significance. The wall covers compounds of the Police Transportation Organisation and Modern Government Maternity Hospital as well. The identifiable length of the wall remains in different forms such as completely intact, broken, and renovated, adding up to 3-3.5 km which amounts to a lot of urban heritage space given that Hyderabad is one of the major cities of the country.

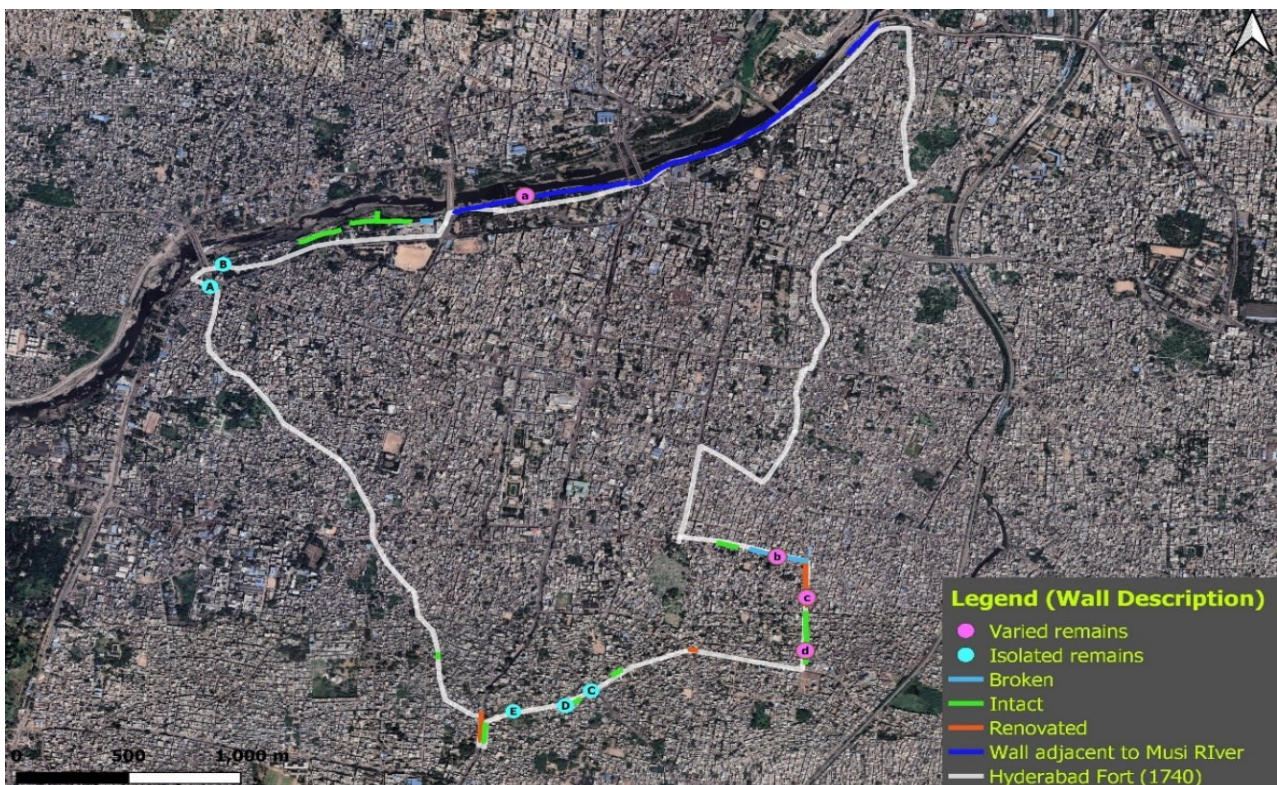


Figure 8. Documented field survey of Hyderabad Fort of 1740



Figure 9. Varied wall remains a) Wall adjacent to Musi River b) Renovated c) Broken and renovated d) Intact



Figure 10. Isolated wall remains in different parts of Hyderabad. (A) Deteriorated portion inside a warehouse. (B) Fort found at the back of a residential quarter (C) Broken wall leading to a main road intersection (D) Intact bastion, part of wall. (E) Part of wall going through a cemetery

4. Conclusions

The three maps that have been compared here show the different approaches of map making with varying accuracies. The information obtained from these maps and spatial analysis by georeferencing them gives a clear idea as to where the erstwhile fort wall lay. Geospatial analyses using Corona Satellite imagery, IRS-LIS IV and DEM shows the importance of the landscape for which the new capital of the State of Hyderabad was selected. It also

shows a depiction of tanks that were associated with the construction of the new fort area in Hyderabad.

The present record says that the remaining part of the fort wall was brought down post-independence for development due to the growing population, undermining the importance of this centuries-old structure. The field survey conducted in the present study documents the remaining portions of the fort in accordance with its remaining features. It follows the common scenario of least developed areas having the most prominent remnants

of the fort, thereby suggesting that infrastructural development and urbanization have caused a great deal of damage to this heritage structure. The finding of features such as bastion in a residential space with no protection either by the state department or the ASI shows the gap in the protection measures taken for heritage structures. Since at present the remnants are not in one stretch but in scattered bits in a dense urban setting, it would be challenging to create a heritage management plan based only on the protection status of the scattered physical remains. However, the evidence on the ground suggests that the identification and recognition of these heritage spaces can foster a sustainable form of urban planning and development.

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