

Expression of Interest

**FOR THE WORK UNDER OC (AMASR) to Preparation of "Photogrammetric Survey plan of the centrally protected monument/sites covering Protected, Prohibited and Regulated areas
ARCHAEOLOGICAL SURVEY OF INDIA, CHANDIGARH CIRCLE, CHANDIGARH**



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**GOVERNMENT OF INDIA
MINISTRY OF CULTURE
ARCHAEOLOGICAL SURVEY OF INDIA
CHANDIGARH CIRCLE**

Section-1
Undertaking and contact details

FOR THE WORK UNDER OC (AMASR) to Preparation of "Photogrammetric Survey plan of the centrally protected monument/sites covering Protected, Prohibited and Regulated areas ARCHAEOLOGICAL SURVEY OF INDIA, CHANDIGARH CIRCLE, CHANDIGARH for framing Heritage bye-laws of Centrally protected monument/site as per AMASR Act, 1958

Address for communication, are as given below: -

Contact Details:

Contact Person	The Superintending Archaeologist
Address for communication	O/o Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Bay No.51-52, Sector 31-A, Chandigarh 160030 Phone No: 0172- 2638246
	E-mail : circlecha.asi@gmail.com Circlechandigarh.asi@gov.in

UNDERTAKING

The expression of Interest has a motive to know the rates in local prevailing market of the work mentioned in page 3 so as to frame the estimate of the said work . This exercise by the ASI department does not give/provide any guaranty to provide or award of work in any manner.

Signature of authorized person of the firm/Proprietor

**Government of India
Archaeological Survey of India,
Chandigarh Circle
Bay No.51-52, Sector 31-A, Chandigarh -160030**

Dated: 06/11/2024

EXPRESSION OF INTEREST

On behalf of the President of India online tender in two bid formats (technical/financial) will be invited **FOR THE WORK UNDER OC (AMASR) to Preparation of " Photogrammetric Survey plan of the centrally protected monument/sites covering Protected, Prohibited and Regulated areas"**

From **Approved & registered firms/contractors of Central/State Government Department, PSU's for Photogrammetric Survey work to frame the estimate the quotation rates to complete the work are invited as expression of Interest from the firms.**

Name of office		District/ State	Last date for submission online EoI quotation rates	
Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Bay No.51-52, Sector 31-A, Chandigarh 160030		Chandigarh jurisdiction i.e Haryana and Punjab	14/11/2024 till 3.00pm	
Sl.No	Description and specification of items of work to be executed (complete work)	Rates per Acre including all taxes, GST etc.	Amount in figures	Remarks
1	Photogrammetric Survey of Archaeological Monument/sites using Drone, DGPS, Total station etc equipment across the jurisdiction of ASI, Chandigarh circle i.e Punjab and Haryana. (Aerial photogrammetric Survey of ASI limit/boundary on all the sides ;deliverables include ortho map and superimposed AutoCAD files with the help of photogrammetric expert, civil draughtsman, UAV operations, spotter, Surveyors, LIDAR operator etc.			
	Example- Ancient mound I, II, III, V, VI, VII, Rakhigarhi, Hissar, Takht-i- Akbari, Kalanaur, Gurdaspur, Maharaja Ranjit singh fort, Phillaur, Raja karan ka tilla, Thanesar, Theh gatti, Jalandhar, Ancient site at Banawali, Fatehabad, kos minars across Haryana and Punjab or etc.			

Signature of Proprietor/Firm

Instructions to the Bidder for quotation rates

Background and Scope

1.1 Introductions:

Archaeological Survey of India (ASI) intends to prepare Photogrammetric Survey Maps of all Centrally Protected Monuments/Sites covering the Protected, Prohibited and Regulated areas around the centrally protected monuments/sites in phased manner under the jurisdiction of Chandigarh Circle, as below:

1.2 Scope of work:

- I. Undertaking field survey of monument, studying/understanding their protected, prohibited and regulated areas for the purpose of preparation of Photogrammetric Survey Plans,
- II. Mapping/recording all structures on as per the parameters stipulated under clause 1.3 on the Survey Plans.
- III. Fixing Benchmark at one or more locations as per the site requirement,
- IV. Fixing reference survey points at one or more location,
- V. Delivering coloured Survey Plan in triplate in Hard copy as well in soft copy.
- VI. Aerial Photogrammetric survey of ASI Zone covering 300m from the protected limit from all sides,

1.3 Preparation of Survey Plan (Following parameters shall be adhered to and incorporated in photogrammetric survey plan):

- I. Contouring, preferably at one meter interval. It can vary depending of landscape if it is hilly plain terrain with cliffs then contour intervals can be increased. If the landscape is plain then it can be reduced to 0.5 meter.
- II. Fixing of Bench Mark on ground at one or more locations.
- III. Fixing reference survey points on ground at one or more locations,
- IV. Protected area of monument or site needs to be mapped in such a manner that all structures and features present within the area can be easily identified.
- V. Mapping of all structures within the area of the survey on the plan,
- VI. Mapping other features like tank, embankment, mud fortifications, remains of ancient structures, important land marks, building, etc. on the plan
- VII. Indicating roads and pathways on the plan,

- VIII. Indicating, garden area, green area, open areas, water bodies on the plan,
- IX. Indicating trees,
- X. Indicating sewer lines, open drains and water supply lines, rivers, streams, rivulets, etc.
- XI. Indicating portion of pond/river/sea/water body etc., if falls within the area of Survey plan.
- XII. The Survey Plan shall be gridded suitably considering size of the area covered under survey plan.
- XIII. Any other feature that is required to be incorporated in consultation with the Superintending Archaeologist, Archaeological Survey of India, Chandigarh circle, Chandigarh.
- XIV. Additional 10 to 20meter area beyond the exterior limit of regulated area shall be included in the survey plan for better understanding.
- XV. Apart from the above parameters, other information to be furnished in the photogrammetric map are specified as; height of all the buildings present in the prohibited, first regulated (100 to 200m) and second regulated (200 to 300m) areas direction wise; MSL & height of the monument; précised GPS coordinates of the monument; close 3D model / photography covering the protected, prohibited and regulated area of the monument; close 3D photography showing the condition of the monument and its premises; the common land use in the prohibited and regulated area of the monument direction wise; naming and demarcation of existing government, public, religious, and other buildings; demarcation of vernacular architecture if present; area calculation in square meters / acres of the land present under the protected, prohibited and regulated boundaries of the monument; demarcation of natural elements such as – water bodies, rivers, mountains, forest lands etc., if present; the forms of open spaces present; types of roads present – metalled, bitumen, cement concrete, earthen, paved etc.; total area in square meters covered under the roads and pathways present in the prohibited and the regulated area of the monument; total area of the land covered under the circulation pathways inside the protected limit of the monument.

1.4 Conditions to be observed during survey:

- I. Establishing precise and adequately timed Ground Control Points (GCP) using Total station with DGPS or The ROAV should be enabled with RTK kit for precise geographic location.
- II. Aerial Photography capture High Resolution $\leq 10\text{cm}$ or less GSD aerial imagery should be captured for the entire region. The photography shall be collected utilizing a direct digital aerial mapping.

- III. The digital aerial camera system must be equipped with GPS and Inertial Measurement Unit (IMU) systems. As ASI envisages completing the project as soon as possible, the preference shall be given to Aerial Photography with modern sensors and thereby minimizing the ground control without affecting quality of deliverables.
- IV. Photography shall not be taken when the ground is obscured by snow, haze, fog, dust or when cloud shadows shall appear on more than five per cent (5%) of the area in any one photo.
- V. The proposed approach to aerial photography acquisition should outline the respondent's intended flight plan including proposed date and time of photography, flight height, scale, flight lines, end lap and side lap, planned aerial equipment, materials, and relevant quality control procedures.
- VI. Crab must not exceed 5degrees between any two consecutive flights, nor more than 3degrees on anyone flight line. The aerial acquisition shall extend two exposures beyond the mapping limits to obtain full or the photo images and to reach pre-targeted ground control points, as necessary.
- VII. Full Analytical Aerial Triangulation (FAAT) techniques shall be used in conjunction with ground control to establish a consistent horizontal datum for the entire project area. The bidder should satisfy himself regarding:
 - a) Gaps in stereo coverage
 - b) Differentially corrected GNSS/GPS and IMU data of exposure stations.
 - c) Imaging of pre-pointed targets on aerial digital photographs.
 - d) Differentially corrected GNSS/GPS data of pre-pointed controls.
 - e) Image characteristics including ground sampling distance of aerial digital photography data
- VIII. Geo referencing & Creation of Ortho Photo, DEM Contours, for the entire project area should be created to support the generation $\leq 10\text{cm}$ GSD ortho photos. The contour intervals of the area surveyed should be at least 0.50m apart from the topographic, features captured during feature extraction in stereo mode stage (streams, drainage, embankments, raised field bunds, roads, railways, water bodies etc.),
- IX. Break lines shall also be captured comprehensively wherever slope changes are visible in stereo model due to complicated terrains or manmade structures. Proper use of hard and soft break lines shall be made in DTM editing.
- X. DTM points shall be captured automatically, semi-automatically or manually, as per the condition of the terrain and land use / land cover. It is required to produce digital colour

ortho-photo images for the entire Area of Interest (AoI) in exactly $\leq 10\text{cm}$ GSD native pixel resolutions.

- XI. Ortho photo files must have no overlap and must be precisely edge matched and contrast and tone balanced so as to appear to be a continuous photographic image over the entire AoI. Upon completion of the aerial photography, and as soon as possible afterwards, the bidder shall provide with one or more sample digital image(s) in raw *.tiff format for overall image quality verification.
- XII. The images procured shall be tonal balanced, mosaic ked and feature enhanced for achieving the best result for the vectorisation. All ground positions determined shall be in the common reference system that is WGS84 Datum and UTM Projection. Final values shall be in meter and two places of decimal.
- XIII. As far as possible Differential Global Positioning System (DGPS) instruments shall be used for collection of Ground Control Planning (GCP), and all DGPS equipment must be set-in to GCS -World Geodetic System 1984 (WGS84) Datum uniformly.
- XIV. RAW and post-processed DGPS readings along with original source file for each location shall be submitted. As soon as the work is completed, in case to TS, original downloaded file and a *.CSV file must be submitted along with raw data clearly depicting the occupies station, back station and the co-ordinates in NEZ format.
- XV. Within 20 days the firm should communicate the work.
- XVI. Before finalizing it will be placed before the Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Chandigarh.

1.5 Derivable:

1.5.1 Hard Copy Maps:-

- I. The bidder shall submit key plan of the site in 1:1000 scale in Hard Copy. All plans, indicating the contour lines, demarcating all permanent features as mentioned above. Contour Plan with contour drawn at 0.50m interval for specific feature,
- II. All the maps and drawings should be prepared in digitized forms using Inkjet / Pen plotter and standard computer software like AutoCAD (latest version) on standard A0 size polyester base film,
- III. Contour maps of site:- The grids for the survey work shall be established in N-S & E-W direction (Corresponding to magnetic North) and the survey reference shall be spheroid WGS 84,
- IV. The bidder shall submit three coloured hard copies and two soft copies in CD/DVD/pen drive of all draft reports for review and approval,

- V. After approval, specified prints of all the final maps on polyester base film / high quality paper along with two sets in soft format in a CD/DVD shall be submitted.
- VI. Ortho map, 3D point cloud and superimposed AutoCAD files.

1.5.2 Drawings: -

- I. All drawing shall be prepared on AutoCAD. The AutoCAD drawings shall have different layers for different features as mentioned above and in consultation with the Officer-in-Charge.
- II. X, Y, Z Coordinates of all spot/ground points shall be provided in *.CSV file as directed by Engineer-in-Charge with point numbers and feature coding as per list of codes given by Engineer-in-Charge.

1.5.3 Softcopy Maps:-

- I. All the raw data generated through Photogrammetric Survey/Differential Global Positioning System (DGPS)/Total Station Survey (TSS) should be processed to provide the output,
- II. All the raw and processed data in forms becomes the property of ASI and must be handed over to ASI. All electronic data should be copied in a Hard Disc Drive / DVD and given to ASI,
- III. All drawings should be submitted in AutoCAD format i.e. (*.dwg).

• SUBMISSION OF quotation rates

Bidder should log into the website and must fill his rates in acre in his letter head/signed copy and send via email i.e circlecha.asi@gmail.com, Circlechandigarh.asi@gov.in or may be send in hard copy to O/o Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Bay No.51-52, Sector 31-A, Chandigarh 160030 or for any query may be contact on Phone No: 0172-2638246.

3. Calculation of Surveyed Area:

- I. Since the areas of the above said centrally protected monuments / sites may be of not well defined and irregular, the payment will be made on the basis of area calculated from the final drawing.
- II. The area calculated by the successful bidder on the above basis may be submitted to the experts from an external agency for verification. The decision arrived at by the independent expert will be final and binding on either side.
- III. The payment will be released after the completion of the work in all respect. Part payment will be considered on the recommendations of the Expert Committee / evaluation of the data generated by the Department officials. The quantum will be decided by the ASI and there will be no negotiations on this aspect.

ANNEXURE

GENERAL TERMS AND CONDITIONS OF THE CONTRACT

- 1.1** In the contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires.
- a) "WORK" means Preparation of "Survey Plans of Centrally Protected Monuments / Sites covering Protected, Prohibited and Regulated Areas within the jurisdiction of Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Chandigarh as defined in the scope of work in Chapter - 1 of Instructions to Bidders".
 - b) "ASI/DEPARTMENT" means the Archaeological Survey of India, represented by the Superintending Archaeologist, Archaeological Survey of India, Chandigarh Circle, Chandigarh.
 - c) "TENDER/ BID" means the price offer to the Department for the execution and completion of the valuation assignment works and the remedying of any defects

therein in all accordance with the provisions of the contract, as accepted by the Letter of Acceptance-Award letter.

- d) "BIDDER(S)" means the person or persons, firm, corporation, consortium or company who submits the BID for the subject services/assignment.
- e) "CONTRACTOR / SURVEYOR" means the persons or firm or company whose tender has been accepted by ASI and the legal personnel, representatives or the successors of such firm or company and the permitted assigns of such persons or firm company.
- f) "LETTER OF ACCEPTANCE" / "AWARD LETTER" refers to the letter communicating the formal acceptance of the bid by the Employer.
- g) "AWARD PRICE" means the sum named in the bid/proposal submitted by the successful bidder with any modification thereof or addition thereto or deduction there from as may be made under the provisions contained in the proposal document.
- h) "OFFICER-IN-CHARGE" means any official of the ASI, Chandigarh Circle deputed by the Superintending Archaeologist, Archaeological Survey of India Chandigarh Circle, Chandigarh.
- i) "CONSULTANCY SERVICES/SERVICES/ASSIGNMENT" means the services to be provided by the Valour's as detailed in this bid document and under Terms of Reference brought out in Section - III of this document.

Note:

- a) **Singular and Plural:** Words importing the singular also include the plural and vice versa where the context so requires.
- b) **Headings:** The marginal headings or notes in these General conditions shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof of the contract.
- c) **Protected Area:** Notified area of the monument or site or as specified by ASI.

- d) **Prohibited Area:** Every area, beginning at the limit of the protected area of the protected monument or site, as the case may be and extending to a distance of 100 meters in all directions.
- e) **Regulated Area:** Every area, beginning at the limit of prohibited area in respect of every protected monument or site and extending to a distance of 200 meters in all directions.

(Signature of the Authorized Signatory and Seal)

LEGEND

Sl. No.	DESCRIPTION	SYMBOL
1	Revenue Boundary	
2	Protected Boundary	
3	Prohibited Boundary	
4	Regulated Boundary	
5	Boundary of area under ASI	
6	Structures in the Protected area	
7	Other State Protected Monuments	
8	Gate of the Monument	
9	State Boundary	
10	District Boundary	
11	Tehsil/Block Boundary	
12	Village Boundary	
13	Contour Line	
14	Water Bodies	
15	Eco Sensitive zones	
16	Green Spaces (gardens, parks, landscaping)	



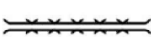













Sl. No.	DESCRIPTION	SYMBOL
17	Open land/field	
18	Agricultural Land	
19	Forest Area	
20	Forest Boundary	
21	Plot Boundary	
22	Boundary Wall	
23	Fencing	
24	Building-Residential	
25	Building-Commercial	
26	Building-Industrial	
27	Building-Educational	
28	Building-Public / Semi Public	
29	Health Services	
30	Vernacular/Traditional	
31	Slum Area	
32	Army/Cantt. area	

LEGEND

Sl. No.	DESCRIPTION	SYMBOL
33	Under Construction Land	
34	Temporary Construction	
35	National Highway	
36	State Highways, Expressway, Bypass, Ring Road, Major City Roads	
37	BRTS	
38	Paved Area/Road	
39	Earthen Road	
40	Bridge across river	
41	Under pass	
42	Flyover	
43	Subway	
44	Foot over bridge	
45	Tunnel	
46	Railway Track	
47	Metro Line	
48	Cycle Track	

Sl. No.	DESCRIPTION	SYMBOL
49	Railway Station	
50	Bus Terminal	
51	Airport/Airstrip	
52	Metro Station	
53	Port/Harbour	
54	Parking	
55	Footpath	
56	Public Toilet	
57	Police Booth/ PCR	
58	Street Light	
59	Electrical Pole	
60	High Tension Towers / Transmission tower	
61	Electric Sub-Station	
62	Electric Power Plant	
63	Transformer	
64	Water Supply Line	

LEGEND

Sl. No.	DESCRIPTION	SYMBOL
65	Water Pumping Station	
66	Water Treatment Plant	
67	Culvert	
68	Over Head Tank	
69	Hand Pump/Tubewell	
70	Well	
71	Drain	
72	Main Sewer Line	
73	Sewage Treatment Plant	
74	Temple	
75	Mosque	
76	Church	
77	Gurudwara	
78	Cemetery	
79	Petrol Pump	
80	North Symbol	

[illegible]

SITE PLAN SHOWING THE PROTECTED, PROHIBITED AND REGULATED AREA OF (MONUMENT NAME), (DISTRICT), (STATE)



LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Protected Boundary		Army/Cantt. Area	
Prohibited Boundary		National Highway	
Regulated Boundary		State Highway	
Boundary of Area under ASI		Expressway	
Protected Monument Footprint		Bypass	
Other Centrally Protected Monuments		Ring Road	
State Protected Monuments		Major City Road	
Building - Residential		BRTS	
Building - Commercial		Railway Track	
Building - Industrial		Footpath	
Building - Educational		Cycle Track	
Building – Public/Assembly		Village Road	
Under Construction Land		Earthen Road	
Temporary Construction		Paved Area	
Contour Line		Metro Line	

SITE PHOTOGRAPHS

AREA STATEMENT

AREA OF LAND UNDER PROTECTED BOUNDARY (A) = ____ Sq.M/ ____ Acre
AREA OF LAND UNDER PROHIBITED BOUNDARY (B) = ____ Sq.M/ ____ Acre
AREA OF LAND UNDER REGULATED BOUNDARY (C) = ____ Sq.M/ ____ Acre
TOTAL AREA = A+B+C = ____ Sq.M / ____ Acre

SITE COORDINATES

S. NO.	LATITUDE	LONGITUDE
PB 1		
PB 2		
PB 3		
PB 4		

TBM DETAILS

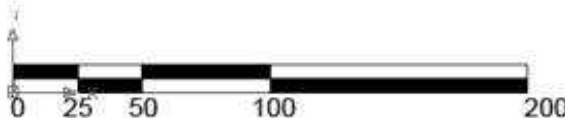
S.No	East	North	Elevation	Code
1	319044.2	1505287.853	198.281	RTK205
2	318913.206	1505533.075	200.310	RTK22
3	319265.88	1505512.210	203.243	RTK23
4	319359.103	1505331	201.311	RTK24

OTHER DETAILS

- Height of the Monuments: ____ m
- All dimensions are in meters unless otherwise specified
- Contour interval ____ m & spot level ____ m x ____ m on grid
- Surveyed Date : ____ / ____ / ____
- Drawing No : 2/4
- Utm Projection: Epsg:32643 - Wgs 84 / Utm Zone 43n

SCALE

1:1000@A0



CLIENT



Archaeological Survey of India
Name of the Circle,
Address of the Circle

SURVEY CONSULTANT

* This is a representation of the Standard Format and the information to be shown in the Survey Plan. Additional information may vary according to the monument and its context

SURVEYOR

SUPERINTENDING
ARCHAEOLOGIST

REGIONAL DIRECTOR

Standardisation of Site plans for the Preparation of Heritage Bye-laws

Site plans are essential in facilitating the preparation of Heritage bye-laws. The purpose of a Site plan is to document the entire existing setting around the Centrally Protected Monument as well as to demarcate the Protected, Prohibited and Regulated boundaries.

Significance of a Survey/Site Plan in the preparation of Heritage bye-laws:

- (i) In understanding the context and setting of the monument.
- (ii) In understanding the on-scale extents of the protected, prohibited and regulated boundaries.
- (iii) In identifying the pressures and pattern of development on the monument and subsequently give guidelines for the same.
- (iv) In analyzing the skyline and views and vistas of and from the monument.

Rule 21 and the First Schedule of AMASR Rules, 2011 elaborates on the requirement of a Site plan.

The First Schedule [Rule 21 (1)]

Parameters for the Preparation of Site Plans

While preparing a site plan for the protected, prohibited and regulated areas, the following parameters shall be adhered to and incorporated:

- (i) Mapping of all structures in the protected area;
- (ii) Mapping of all structures in the area under control of the Archaeological Survey of India and acquired area; structures outside the protected area;
- (iii) Clearly indicating protected area and area acquired or transferred to the Archaeological Survey of India;
- (iv) Mapping of all structures in Prohibited and Regulated Area on plan;
- (v) Other features like tank, embankment, mud fortification, remnants of ancient structures, etc to be shown;
- (vi) Roads and pathways;
- (vii) Open area;
- (viii) Sewerage pipelines, big open drains with more than one meter width, canals, etc;
- (ix) Water supply lines, water works, etc.

The Second Schedule [Rule 22]

Parameters for Heritage Bye-Laws

The heritage bye-laws shall be framed on the basis of the site plan prepared for each of the prohibited and regulated areas of the protected monuments and the following parameters, namely -

- (i) Architectural, historical and archaeological value of the monument.
- (ii) Sensitivity of the monument (eg. developmental pressure, urbanization, population pressure, etc)
- (iii) Visibility from the protected monument or area and visibility from the regulated area
- (iv) Land-use to be identified
- (v) Archaeological heritage remains other than the protected monument(s)

- (vi) Cultural landscape
- (vii) Significant natural landscapes that form part of cultural landscape and also helps in protecting the monument from environmental pollution
- (viii) Usage of open space and constructions
- (ix) Traditional, historical and cultural activities
- (x) Skyline as visible from the monument and from regulated areas
- (xi) Vernacular architecture
- (xii) Development plan as available by the local authorities
- (xiii) Building related parameters; height, floor area, usage, façade design, roof design, building material, colour, etc
- (xiv) Visitor facilities and amenities

Components of a Site plan

I) Revenue map as the base of the site plan:

As per Rule 21 [2]: the demarcation of the protected monument and protected area shall be undertaken in consultation with concerned revenue officer on the basis of revenue map duly mentioning revenue plot numbers and schedule thereto.

Rule 21 [4]: The site plan shall be prepared following the notified protected limit of the protected monument or the protected area, the duly authenticated revenue records and the revenue map furnished by the District Collector or District Commissioner as the case maybe.

Mapping of the site plan on the Revenue map as the base is crucial in rationalizing the boundaries of the protected, prohibited and regulated areas. It clearly indicates the status of the plots falling in these areas.

II) Administrative Boundaries: Village boundary, tehsil boundary, district boundary, state boundary, etc

III) Grid lines: usually in latitude and longitude or coordinates for precise location reference.

IV) Notified Protected Boundary:

The site plan should accurately demarcate the notified protected limits along with mapping of all the structures in the protected limit of the monument.

V) Mapping of the Protected Monument:

Rule 21 [7]: The mapping of protected monument and protected area shall comprise of plan and section of each structure, pathways, landscaped area, open spaces, trees, other features like tank, well, embankments, fortifications, remnants of ancient structures and such other features including caves and rock-shelters as may be deemed fit that form part of cultural landscape of the protected area.

The overall height of the monument or other structures in the protected area should be mentioned. A cross section of the monument and its protected limit, mentioning the height or depth of the structure (in case of sub-terranean structures) is important to understand the skyline of the monument and its relationship with that of its surroundings.

VI) Boundaries of the Prohibited and Regulated Areas:

The Site plan should accurately demarcate the boundaries of the prohibited and regulated areas. Since this is the most important aspect of a site plan, it is essential that these boundaries are clearly visible amongst all the other elements shown in the plan. Standard colours should be used for the same, as mentioned in the Legend attached.

VII) Area of the Protected, Prohibited and Regulated Areas:

The site plan should mention the quantified area covered by the protected, prohibited and regulated areas individually and collectively in standard SI units. ($A+B+C = D$)

VIII) Geographical Setting and Natural Features

- (i) **Terrain: Contours** - Mapping of contours is essential to understand the topography and terrain of the protected monument/area as well as its surrounding (ex. hilly or mountainous terrain will have denser contours as opposed to a flat land). On a more site specific level, contours are required in understanding the drainage in and around the site.

Contour Intervals: The vertical distance between adjacent contour lines, which indicates the steepness of the terrain. Smaller intervals are used in steeper areas, while larger intervals are used in flatter areas.

*Spot levels between the contour lines is not required.

- (ii) **Hydrography:** Depiction of water bodies, including seas, oceans, rivers, lakes, ponds, and wetlands, with depth contours and flow direction when applicable.
- Shore line along sea-front and ocean front, ghats and other riverfront developments to be marked on the site plan.
- (iii) **Eco sensitive areas:** Eco-Sensitive Areas (ESAs) are designated regions that are ecologically fragile and require special attention and protection to conserve their unique environmental and ecological characteristics. Ex. National parks, bird sanctuaries, bio-diversity parks, botanical gardens, mangroves, zoo, etc.
- (iv) **Green and Open Spaces:** Representation of different types of vegetation, such as forests, grasslands, shrub lands, and cultivated areas, etc.

IX) Built fabric:

As mentioned in the First Schedule; all built structures should be mapped on the site plans. The size and shape of existing buildings and structures including houses, garages, sheds, and any other significant features should be noted.

- (i) **Building footprint and plot boundary:** It is important to mark both the plot boundary/ compound wall and the building footprint to understand the relationship of the built and open spaces, setbacks, etc.
- (ii) **Building use:** While mapping the built structures, information regarding the building use such as residential, commercial, institutional, industrial, etc. Major land-uses falling in the vicinity of a CPM may be identified and designated

specific colours in the legend which can be used to denote them in the Site plan. This information is important to understand the type of activity around the CPM, thus important for the bye-laws.

Refer **Annexure I** for legend for common building usages.

- (iii) **Building height:** All the structures mapped in the Site plan should mention their height. This information is essential to understand the skyline around the monument and analyse the view points of and from the monument.
- (iv) Centrally Protected Monuments in close vicinity with one another and overlapping Prohibited or Regulated Areas shall be considered as a cluster and it is suggested they be prepared in a single site plan.
- (v) **State Protected Monuments and Listed Heritage Buildings:** Any other state protected monument or listed heritage building by the local authorities, if any, in the prohibited or regulated area to be denoted on the site plan as designated in the legend.
- (vi) **Vernacular/traditional architecture:** Denoting vernacular/traditional architecture and settlements, if any around the monument, specifying the material and style in the legend, ex. kath kuni architecture is the vernacular building style of the hills of northern India.
- (vii) **Temporary Constructions:** Temporary structures refer to constructions and buildings that are designed for short-term use. Generally materials such as tin shades, asbestos sheets, tarpaulin and tensile membrane roofs, etc.
- (viii) **Slums/ Informal Settlements:** A residential area with substandard housing that is poorly serviced and overcrowded.
- (ix) **Under Construction:** Ongoing construction projects to be marked on the site plans.
- (x) **Army/ Cantonment Area:** Defence/ military areas, compounds and campuses.

X) Transportation:

- (i) **Roads:** national highways, state highways, expressways, by-pass, ring roads, major city roads, earthen roads, paved roads, etc.
- (ii) Flyover, foot-over-bridge, tunnel, bridge across river, BRTS, etc
- (iii) Railway tracks, metro tracks, tram tracks, cycle tracks, etc
- (iv) Railway station, airports, metro station, harbour, port, bus stands and bus terminals

XI) Public amenities and Infrastructure:

- (i) **Parking:** The layout of parking areas, including parking spaces, aisles, and any necessary handicap-accessible spaces.

- (ii) Footpaths and Pathways
- (iii) Public toilets, police booths, kiosks etc
- (iv) street lights, benches, amphitheater, open gyms, etc
- (v) **Electrical:** electrical pole, transformers, high tension tower/transmission tower, electric substation, etc

XII) Water Supply, Drainage and Sewage: Information about storm-water management, including catch basins, culverts, and drainage channels to prevent flooding and manage water runoff.

- Over-head water tanks and other water storage chambers.
- Hand-pumps/ tube-wells, wells
- Sewage lines, Sewage Treatment Plans and other solid waste management techniques.

Guidelines for Presentation of Site Plan

a. Legends and Symbols: A legend or key that explains the symbols, colors, lines and abbreviations used in the site plan to represent various features and characteristics.

- i. Standard colours of red, yellow and green may be used to demarcate the protected, prohibited and regulated areas respectively.
- ii. Standardised legend for symbols to be used in site plan. The same is enclosed in **Annexure I** for reference.
- iii. All the categories in the legend must be divided into separate layers in AutoCAD and PDF for convenience in reading and analysis of the site plans at the time of preparation of the HBL.

b. Measurement and Units:

- i. Standard SI units to be followed for measurements (km, meters, sq meters, etc)
- ii. A graphical or bar scale for measurement to be provided in the format of the Site plan as the plan may be reproduced at a smaller or larger scale in the final bye-laws.

c. Contours:

- i. The contour interval should be determined by the slope of the terrain. For ex. in steep areas, with dense contours, the contour intervals should be more so as to avoid overlapping of layers, as opposed to flat terrains.
- ii. The layer of the contours must be of lower line-weight and under all the other layers.
- iii. The contour lines must be visible under the hatching of the built structures to clearly understand the terrain of the land.
- iv. Contour lines to be consistent and continuous throughout the Site Plan.

d. Other Guidelines:

- i. The line-weight (line thickness) of the boundaries of the Protected, Prohibited and Regulated areas to be thicker than other lines in the plan, so that this demarcated area stands out.
 - ii. Height of all the built structures should be mentioned on the footprint of the structures shown in the Site Plan.
 - iii. The hatching of built structures should not be solid but as depicted in the legend. It must be of lower line-thickness and in the suggested colour for the specific typology of the building.
 - iv. Text size should be legible in print.
- New technologies like orthomosaic mapping and drone should be encouraged in the preparation of the site plans.

e. Standardised Format

In order to bring uniformity in the contents, format and style of the Site Plans prepared by the different circles of ASI, the following is proposed:-

Refer Annexure II

SITE PLAN SHOWING THE PROTECTED, PROHIBITED AND REGULATED AREA OF (MONUMENT NAME), (DISTRICT), (STATE)																																																																	
	LEGEND <table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>SYMBOL</th> <th>DESCRIPTION</th> <th>SYMBOL</th> </tr> </thead> <tbody> <tr> <td>Protected Boundary</td> <td></td> <td>Army/Cantt. Area</td> <td></td> </tr> <tr> <td>Prohibited Boundary</td> <td></td> <td>National Highway</td> <td></td> </tr> <tr> <td>Regulated Boundary</td> <td></td> <td>State Highway</td> <td></td> </tr> <tr> <td>Boundary of Area under AD</td> <td></td> <td>Expressway</td> <td></td> </tr> <tr> <td>Prohibited Monument</td> <td></td> <td>Railway</td> <td></td> </tr> <tr> <td>Other centrally Protected Monuments</td> <td></td> <td>Tram Road</td> <td></td> </tr> <tr> <td>State Protected Monuments</td> <td></td> <td>Major City Road</td> <td></td> </tr> <tr> <td>Building - Residential</td> <td></td> <td>Grass</td> <td></td> </tr> <tr> <td>Building - Commercial</td> <td></td> <td>Railway Station</td> <td></td> </tr> <tr> <td>Building - Industrial</td> <td></td> <td>Canal</td> <td></td> </tr> <tr> <td>Building - Educational</td> <td></td> <td>Cycle Track</td> <td></td> </tr> <tr> <td>Building - Public Assembly</td> <td></td> <td>Village Road</td> <td></td> </tr> <tr> <td>Unclassified land</td> <td></td> <td>Barren Road</td> <td></td> </tr> <tr> <td>Temporary Construction</td> <td></td> <td>Paved Area</td> <td></td> </tr> <tr> <td>Contour Line</td> <td></td> <td>Water Line</td> <td></td> </tr> </tbody> </table>	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	Protected Boundary		Army/Cantt. Area		Prohibited Boundary		National Highway		Regulated Boundary		State Highway		Boundary of Area under AD		Expressway		Prohibited Monument		Railway		Other centrally Protected Monuments		Tram Road		State Protected Monuments		Major City Road		Building - Residential		Grass		Building - Commercial		Railway Station		Building - Industrial		Canal		Building - Educational		Cycle Track		Building - Public Assembly		Village Road		Unclassified land		Barren Road		Temporary Construction		Paved Area		Contour Line		Water Line	
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* This is a representation of the Standard Format and the information to be shown in the Survey Plan. Additional information may vary according to the monument and its context.

The site plan should be plotted on a suitable scale and sheet size as may deem fit. The format should mention the following points:

1. Name and location of the Monument
2. North symbol to be present mandatorily in all of the site plans which is essential for understanding the site's relationship to cardinal directions.
3. Grid lines
4. Geographical coordinates of the monument on all edges of the protected boundary
5. Benchmarks (Tbm) coordinates
6. Area statement: Quantified areas within the Protected, Prohibited and the Regulated boundary (A+B+C = D)
7. Scale
8. Legend
9. Site Photographs
10. Survey date
11. Surveyor/Agency name to be mentioned.
12. All site plans to be duly signed and stamped by the concerned officials. Soft copies (PDF) of the Site plan to have digital signatures.
13. Any other site specific relevant data and information.

It is felt that a well prepared site plan shall not only ease the preparation of HBL in a time bound manner but also iron out any potential ambiguities.