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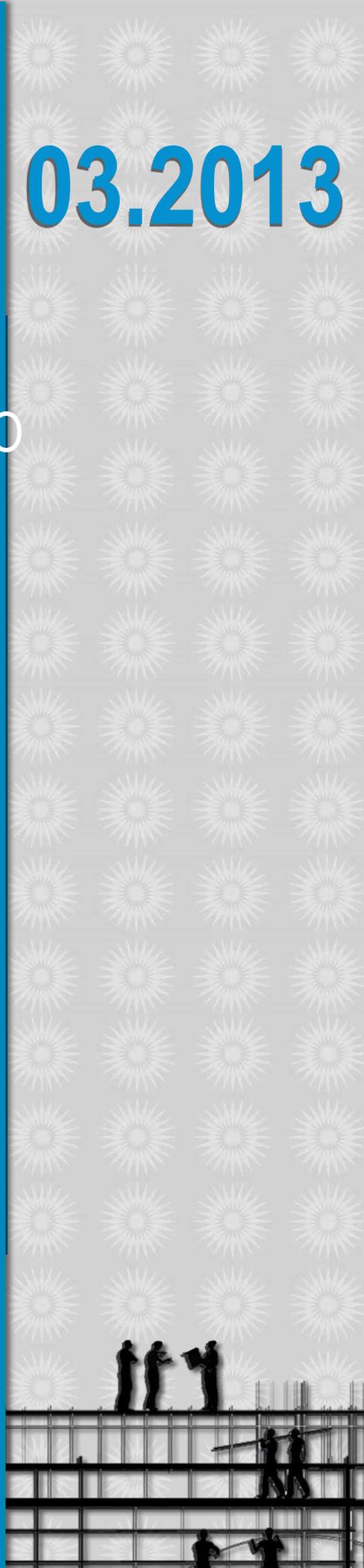


KIGALI

A RISING STAR IN AFRICA

**CONSTRUCTION PERMIT PROCEDURE**

ONE STOP CENTER



# CONSTRUCTION PERMIT PROCEDURE

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# 1. PRE-CONSULTATION

An applicant should request a Pre-Application Consultation meeting with representatives of the OSC (**not a compulsory step, however highly recommended before starting the plan, otherwise, the user is responsible for any changes required after any submission stage**). A Pre-Consultation Meeting must take place prior to the application submission. There are no fees associated with the Pre-Consultation process. The Pre-Consultation process allows for the applicant, City staff and relevant agencies to discuss matters pertaining to the application proposed.

## Purpose of a Pre-Consultation

The purpose of pre-consultation is to provide an opportunity for the applicant to review their development proposal with City Staff and other key Government Agencies, if applicable, to assist them in the verification of the feasibility of the proposed project in accordance to the Master plan and other relevant laws and regulations. This provides for early identification of issues, constraints and opportunities. Pre-consultation involves the applicant providing conceptual, descriptive and technical information on a development proposal. Topics for discussion may include land use policies and guidelines, zoning information, public consultation, engineering requirements, development review, and completeness of the application.

Pre-application advice is encouraged as it can:

- Verify the list of City and National planning requirements.
- Reduce the likelihood of submitting invalid applications;
- Help you understand how planning policies and other requirements affect your proposals.

Pre-Consultation also gives COK Staff the opportunity to:

- Clarify the application process to the developer;
- Agree on specific materials applicant will be required to submit concurrently with application
- Provide comments and identify key issues
- Meet and/or consult with relevant agencies,
- Identify materials and other support documentation required under the Planning Act for application to be deemed as “complete”,
- Agree on the general feasibility of the proposed project or on specific considerations agreed for the continuation of the project. The project will still be subject to detailed review on submission.

During the meeting with the pre-consultation officer developer should be fully prepared to provide basic description of the proposed project.

Applicant may:

- Obtain a preliminary assessment on the feasibility of the project according to the zoning guidelines;
- Discuss site problems such as roads, footpaths, watercourses, etc.;
- Obtain information about potential issues related to the project and its location such as noise pollution and traffic generation and other potential negative externalities that could affect the timely approval of the project. The City might suggest conditions to overcome these issues preventing the refusal of issuance of the construction permit;
- Request for a special site visit in order to identify connection points for water, electricity, sewer and optic fiber;

- Receive detailed information about the Environmental Impact Assessment requirements and procedure<sup>1</sup>.

***Pre-consultation does not imply or suggest any decision whatsoever on behalf of the City of Kigali. Furthermore, participating in Pre-Consultation does not permit the owner, proponent, client and/or consultants to undertake any construction or preparatory work on site without authorization nor gives any warranty on the final approval of the project.***

### **Pre-Consultation Meeting**

Upon request from the applicant a Pre-Consultation meeting will be scheduled within 7 working days.

Applicants are encouraged to attend pre-consultation meeting with preliminary knowledge of relevant regulations (Master Plan zoning reports and guidelines, Government Agencies regulation such as the ones provided by RURA, REMA, RCAA, RBS, etc).

At the conclusion of the pre-consultation meeting the applicant will be provided with a copy of the Minutes of Meeting with the resume of the comments provided and a detailed list of recommendation to be followed in the submission of the application.

According to the complexity of the project, more than one Pre-Consultation meeting may be advised to ensure the successful and timely conclusion of the approval process.

- ➔ ***It will be then required to the applicant to submit the development application in accordance with the agreed recommendation.***
- ➔ ***The agreements in the Pre-consultation Process will be evaluated during the approval process to ensure compliance to all relevant laws and regulations.***
- ➔ ***The City of Kigali – One Stop Center may require additional/supporting information and/or amendments to the project in the approval process.***

### **When a Pre-Consultation is required?**

- Large scale development (more than 1 ha), and/or 400 users;
- Draft Plan of Plot Subdivision/ Parcelation;
- Request for Amendments or Exceptions to the Official Zoning Plan;
- Development that are located in the following areas:
  - P1-P2-P3-P4 zones and:
    - Areas with a slope above 20%;
    - Plot adjacent to protected or sensitive areas (wetlands, forests, river shores, etc.);
    - Plot within or adjacent to green corridor or green connectors.
  - Plot along BRT corridor or adjacent main roads junctions;
  - Within Urban Design Sites and/ or Subarea Plans;

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<sup>1</sup> Refer to check list for pre-application for Environmental Impact Assessment

- Heritage Village (Quartier Commercial) or adjacent to other cultural, historical, archeological sites as identified by the City of Kigali or other national Authorities;
  - Public Facilities, projects of public interest or development adjacent to the public realm;
  - Where the proposed project could require approval from Rwanda Civil Aviation Authority because of height limitations or because within the Public Safety Zone;
- All the developments that require EIA or TIA.

### Required information

Required information will depend on the status of advancement of the project and should include:

- Detailed location of the plot (lease document, extract plan or any other information to locate the plot);
- Conceptual, descriptive and technical information.

Where possible the documentation should be sent in advance by Email to allow preparation of the meeting.

#### **CHECK LIST –APPLICATION FOR ENVIRONMENTAL IMPACT ASSESSMENT**

In accordance with the Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, and the Ministerial Order N° 003/2008 of 15/08/2008 relating to the requirements and procedure for environmental impact assessment all developmental projects shall be subjected to environmental impact assessment, before obtaining authorization for their implementation. Article 3 of the Ministerial Order N° 003/2008 of 15/08/2008 above requires the developer to submit during the pre-consultation a project description to the authority for Preliminary EIA assessment.

The preliminary assessment will be evaluated by the EIA review team at OSC to determine the necessity to require the full EIA study. The decision made after evaluation will be provision of ToR for full EIA, EMP or clearance for project implementation.

The Project description for Environmental Assessment shall include:

- Purpose, objectives and nature of project, including attributes such as size of project, design, activities that shall be undertaken during and after the establishment of the project, products and inputs, sources of inputs, etc.;
- Description of the proposed project site and its surroundings and alternative sites, if any, where the project is to be located;
- Description of all planned activities and all materials to be used;
- Description of how the proposed project and its location conform to existing laws, regulations and policies governing such project and the use of the site/area proposed for its location;
- Description of any likely environmental impacts that may arise due to implementing various phases/stages of the project and proposed mitigation measures thereto;
- Description of all mitigation and compensating measures to reduce, minimize or offset the negative impacts;
- Description of any other alternatives, which are being considered (e.g. siting, technology, construction and operation procedures, sources of raw materials, handling of wastes etc., decommissioning/closure and site restoration);
- Any other information that may be useful in determining the level of EIA required.

## 2. APPLICATION FOR CONSTRUCTION PERMIT

### CHECK LIST

This checklist will assist you in preparing plans for the submission of the Construction Permit (CP) application. By submitting complete and legible plans that clearly indicate and describe new development and any modification to existing buildings, you will help the City to issue your permit in a timely manner. All the documentation must be submitted in digital format (PDF A3-A4 format and A0 for the site plan).

- Application Form
- Land Ownership Documents
- Proof of Payments (Fees)
- Location Maps
- Site Analysis
- Design Report
- Environmental Impact Assessment Report or Clearance
- Site Plan
- Landscape Plan
- Geotechnical Data
- Architectural Data
- Structural Data
- Building Services:
  - Plumbing, Drainage, Storm water and Waste water Data
  - Electrical, Telecommunication and Mechanical Data
- Safety Measure Plan (Fire management, disaster prevention, etc.)
- Bill of Quantities
- Certifications
- Other Documentation <sup>2</sup>

#### **Note:**

- 1) The checklist is updated periodically; please ensure you are using the latest copy by downloading a new list each time you're applying for CP.
- 2) All drawings/ plans must be compiled by registered professional from a competent design consultancy firm, which is officially registered with the Rwandan Institution of Architects and Engineers Association (recognized International Professionals or Firms can be facilitated to be registered in the Institution).
- 3) All designs or Site improvement activities shall be done in conformity with the Rwanda laws, regulations and guidelines.

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<sup>2</sup> **IMPORTANT:** For projects discussed during pre-consultation, all additional documentation relevant to the project should be submitted with the requirements specified by OSC, if any.



## 2.1 Application Form

The application form is a document that helps the applicant to give the descriptive summary of the content of the project that is being submitted for assessment. This form also provides information on the professionals in charge of designing the project. The application shall be compiled in all its parts.

In the Construction Permit System during the filling of the Application Form the applicant will be required to upload the Land Ownership Documents (see the chapter “Land Ownership Documents”), without which it will not be possible to successfully complete the submission.

### **What does the application form cover?**

Despite the wide number of variations of presentation of projects, depending on the project type and its location, the application form will cover the same base information for all projects:

The application form will cover key data inclusive of which is:

- Name of the project and its details
- Developer’s name and contact
- Development data
- Plot data
- Plot location
- Project cost
- Other required information

## 2.2 Land Ownership Documents

In the Construction Permit System the Land Ownership Documents are directly requested in the Application Form.

Land ownership documents and all other support documents available shall submitted on A4 formats

- Lease contract or Land title based on cadastral map

**Lease Contract** is a the legal document by which an individual /firm can lease land from the government for a certain period of time depending on the land use for which he/she must pay a series of contractual, periodic, tax deductible payments as stipulated in the land law.

**Land title** is the legal document by which the land or property owner has full right of ownership in perpetuity.

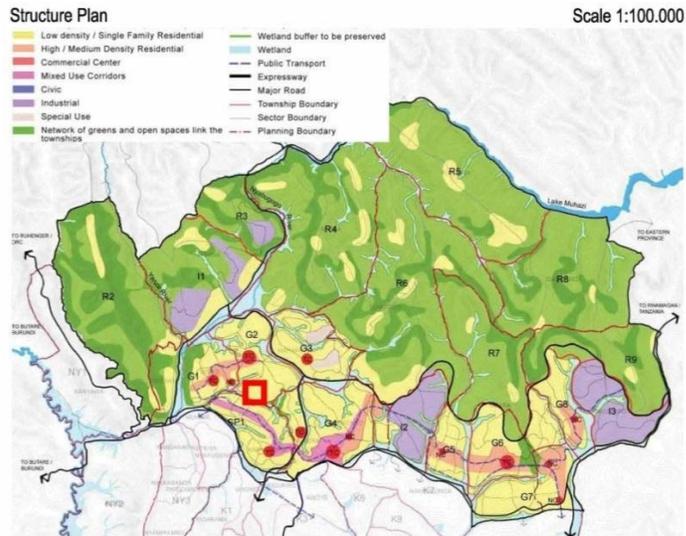
## 2.3 Proof of Payments

The Proof of Payments is the receipt of property tax payment for the current year. Refer to the Presidential Order n°25/01 of 09/07/2012 - Presidential Order establishing the list of fees and other charges levied by decentralized entities and determining their thresholds - Official Gazette n° Special of 27/07/2012

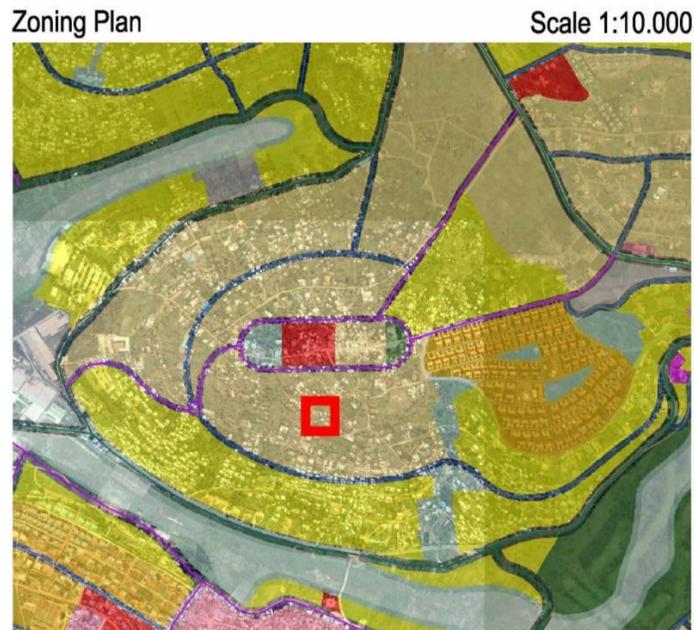
## 2.4 Location Maps

Starting from the documentation provided by COK in the website ([http://www.kcps.gov.rw/...](http://www.kcps.gov.rw/)) the plot should be localized in the following plans/ maps at the proper scale.

- 1) Location in the Structure Plan 1:100.000
- 2) Location in the Zoning Plan 1:10.000
- 3) Location on satellite images (Google Earth, Bing, etc) according to the most recent data available.



**Fig. 1 – Location in the structure plan**



**Fig. 2 – Location in the Zoning Plan**

## 2.5 Site Analysis<sup>3</sup>

The context will provide a set of external opportunities and constraints that should inform the design. Starting from the documentation provided by COK in the website the plot should be analyzed through:

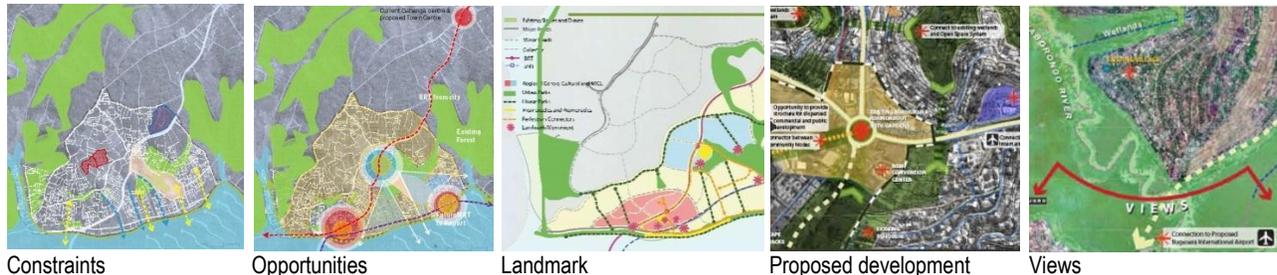
Site analysis at the regional and neighborhood scale (approx. scale 1:10.000)

- Wetland areas;
- Forest and other natural features;
- Protected areas;
- Slope analysis and contours;
- Existing and proposed infrastructure (power, water, sewerage, etc);
- Key nodes in the area (universities, markets, industrial sites, etc);
- Opportunities and constraints of the site with respect to the city level (proposed developments, view and vistas, landmarks, etc.);
- Other specific requests by COK

Site analysis at the plot scale (approx. scale 1:5.000 - 1:5.000 or 1:2.000 depending on plot size)

- Wetland boundary (if relevant);
- Topographic map and slope analysis;
- Existing and proposed road network;
- Existing and proposed infrastructure (power, water, sewerage, etc);
- Roads Right of way;
- Identification of the developable area;
- Opportunities and constraints of the site with respect to the neighborhood level (relationship to surrounding buildings and spaces, view and vistas, etc.);
- Other specific requests by COK

### REGIONAL SCALE



**Fig. 3 – Site Analysis at regional scale**

In general the site analysis should take into consideration location, neighborhood context, existing and proposed services (above and below ground), existing and proposed developments, size, land use, zoning, natural physical features, sensory (views to points of interest, locations of any significant odors, smoke or airborne pollution around the site, etc.), historical, archaeological and locally distinctive features, climatic factors.

<sup>3</sup> Since all projects are unique, additional information may be deemed necessary depending on the project's location, size, complexity and surrounding environment.

## NEIGHBORHOOD AND PLOT SCALE



- STEEP SLOPES:** structures may
- sit elevated on piers or columns for minimum disturbance of the ground plane
  - be terraced or stepped with the slope
  - be cut into the slope
- 
- point loads
  - adequate provision should be made for channeling of ground and surface water, and the use of plant materials, to prevent soil erosion
  - use of retaining walls is required
  - amount of cut should approximate amount of fill
  - structure is subject to above-normal earth loads
  - natural angle of repose for the soil type should not be exceeded

### Site analysis

Source: ACH21 The Building Site Prof. R.Luxemburg AACCC

Fig. 4 – Site Analysis at Neighborhood and plot scale

### Affects of slope on Building Design

## 2.6 Design Report

The design report is a document that shall essentially include:

- Project description
- Detailed report of the proposed design solution

### A- PROJECT DESCRIPTION

The "project description" is a short document which enables the applicant to explain the design solution and demonstrate the project conformity to the laws and regulations. The project description should address urban design, landscape and building design issues and clearly explain the development process, design options considered and the adopted development strategy. The project description should take the form of a concise illustration or series of illustrations, photographs of the site and surroundings and a written statement, however, it is not intended to duplicate planning application documents.

A project brief should include:

- Description and justification of the project (objectives, size and use data, capacity, catchment area for relevant commercial or public facilities projects), added value, if any, to the neighborhood or to the city (public realm, services for the community, sustainability, etc);
- A written, drawn and photographic account of the site and its surrounding locality analyzing: the context will provide a set of external opportunities and constraints that should inform the design.
- The policy background, identifying all relevant policies, design guides, standards and regulations and in the case of developments in areas with local area plans shall show compliance with the relevant urban design and architectural principles and guidance; (*fig. Detailed Urban Design - Local Plans*).

The compliance with the master plan zoning and the standard provision (parking, landscaping, etc).

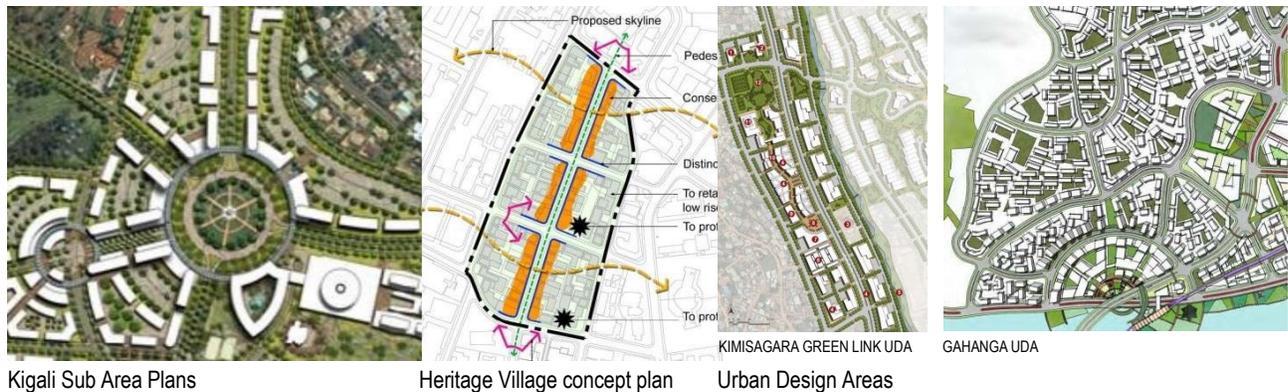
Design solution: a written statement illustrated with drawings, diagrams, photographs, perspective views, axonometrics, physical models, virtual models and other forms of representation as necessary, and should include<sup>4</sup> (see the example of design concept illustration below):

- Design concept;
- Design proposal;
- Accessibility: vehicular and pedestrian circulation, parking; Universal Access (access for people with disability/ mobility impaired);
- Environmental considerations;
- Landscape concept;
- Management and Maintenance;
- Safety and security;
- Internal organization;
- Phasing, if relevant;
- Benchmarking, where considered.

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<sup>4</sup> Since all projects are unique, additional information may be deemed necessary depending on the project's location, size, complexity and surrounding environment.

In the case of urban scale developments, the brief should include an explanation of the urban structure, including approach to circulation and accessibility, landscape, development blocks, land uses, density, urban grain, visual context, built form and phasing plan.



**Fig. 5 – Detailed Urban Design - Local Plans**

## B- DETAILED REPORT OF THE PROPOSED DESIGN SOLUTION

The detailed report is a document that shall support the drawings and gives a motivated detailed description of the proposed project in all its parts, explaining all the architectural, structural, landscape, services and utilities solutions. The detailed report should take the form of a written statement, with concise illustration or series of illustrations of details. It is the natural continuity of the project description and is not intended to duplicate specialist application documents (landscape, geotechnical, structural reports), however shall contain the reference to them and give a general view of the whole project.

## EXAMPLE OF DESIGN CONCEPT ILLUSTRATION

The design solution shall be described through conceptual drawings that may include:

- Conceptual drawings that explain the relation with the existing and planned context:
  - Illustrative plan, including the concept landscape plan
  - Massing concept
  - Sketch – perspective views
  - Relevant Cross Sections
  - Relevant Elevations
- Floor Plans with indication of the internal organization
- Elevations and sections of the building



Illustrative Plan

Massing Concept

Sketches



Cross sections

**Fig. 6 – Examples of Conceptual Drawings**

Refer to Best Practice in the <http://www.kcps.gov.rw/Example of Best Practice>

## 2.7 Environmental Impact Assessment Report or Clearance

The application should include complete Environmental Impact Assessment Report as per the EIA Terms of Reference that was provided at the pre-consultation with the OSC. For projects that do not require a full EIA, provide a copy of clearance letter. This is in accordance with the Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, and the Ministerial Order N° 003/2008 of 15/08/2008 relating to the requirements and procedure for environmental impact assessment.

## 2.8 Site Plan

### General Requirements:

- Title block and revision block
- North arrow
- AO/A1 format;
- Adequate scale clearly specified and scale bar
- Key Plan indicating general location of the development with respect to the City street network
- Legend

All plans submitted shall be legible

Scale and measurements shall be provided in metric system

### General Design standards:

- The landscape shall be preserved in its natural state insofar as practical. The City of Kigali encourages applicants to avoid grade changes and the removal of native vegetation and soil.
- The proposed building shall be in harmony with the prevailing character, height and scale of other buildings in the neighborhood if existing, or in alternative, with the proposed future character provided by the Master Plan.
- The proposed building shall be in harmony with building materials, screening, lighting, utilities and other architectural features in the neighborhood, or in alternative, with the proposed future character provided by the Master Plan.
- The site plan shall maximize the convenience and safety of vehicular and pedestrian movement within the site and in relationship to adjacent ways.

### Basic requirements:

- Property lines (according to the extract plan);
- Outline of existing (if any) and proposed buildings and structures;
- Dimensions (overall length, width, height), location and use of all existing and proposed buildings; use of all remaining lands of site;
- Adjacent streets and any easements; the access road level shall be clearly indicated;
- Road reserve to comply with the full right of way (ROW);
- Footprints of buildings and other structures on the abutting lots (see figure);
- Land uses on adjacent lands;
- Distance between buildings and property lines (setbacks);
- Parking lots, indicating parking spaces (with provision for the disabled);
- Driveways;
- Pedestrian arrivals and routes;
- Landscaped areas;
- A clear indication of the proposed addition or alteration (if any);
- Summary of the area covered by each existing or site improvement (including Existing development);

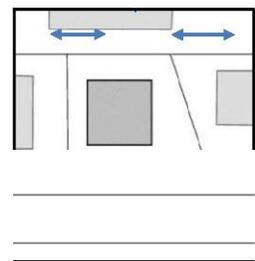


Fig. 7 – Scheme representing footprints of buildings on the abutting lots

- Service drawings showing any existing service and proposed points of connection, including any sewer, storm water drain;
- Any service areas: loading Docks, Outdoor Storage areas, Refuse Storage Areas, Collection areas and other facilities and enclosures for the storage of garbage, waste;
- Any existing and intended point of access from any streets;
- A site information chart providing information as to how applicable requirements of the zoning by law are to be satisfied (e.g., parking, building floor area, landscaped area, number of units, etc.).

### Specific Site Plan Requirements<sup>6</sup>

The "detailed information" shall include all the civil and external works (external walls, fences, landscape provisions, etc.). The purpose of the site plan is to clearly describe all the works that are planned within the plot with a clear reference to any specific detailed drawings (landscape plan, drainage plan, etc.).

- Facilities to provide access to and from the land such as ramps, curbs and traffic direction signs;
- Off-street vehicular loading and parking facilities, either covered or uncovered, access driveways, (including driveways for emergency vehicles) and the surfacing of such areas and driveways;
- Exterior building, pylon, ground and any other exterior signage;
- Type, height, and location of utilities on the municipal road allowance, where relevant (e.g. street lighting, apparatus or equipment relative to the access).;
- Location of natural features, including trees, which are existing on the subject lands or in proximity on adjacent lands;
- The location, height and length of all new and existing perimeter walls/fences. In addition, illustrate the location, height, length and type of all proposed retaining walls.
- Walkways, including the surfacing thereof, and all other means of pedestrian access;
- Facilities for the lighting (including floodlighting) of the land, or of any buildings or structures thereon;
- All barrier free design requirements in accordance with the Rwanda Building Control Regulation.

The site plan shall include the indication of the materials and color, when required, of all paving and structures. Any additional description may be included in the design report.

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<sup>6</sup> Since all projects are unique, additional information may be deemed necessary depending on the project's location, size, complexity and surrounding environment.

## 2.9 Landscape Plan

Landscaping should be used as a major visual element to unify the proposed building, existing streetscape and the surrounding environment as an entity and functionally for directing the circulation of pedestrian and vehicular traffic. It must mitigate the visual impacts of parking areas, loading docks, garbage containers, storage areas, etc.

The landscape plan must be designed as such to create the image of well-developed buildings in an appropriately landscaped area. An aesthetically pleasing view from the street is essential.

Guidelines outlined represent principles for landscape design:

- Encourage excellence in landscape design in consideration with the distinct character of this community and the natural features of the landscape.
- Preservation of existing trees, woodlots and features wherever possible.
- Diversity of plant material and naturalizing wherever possible in appropriate areas.
- Ensure integration with storm water management features.
- Preserve the heritage of such resources as archeological sites and landscapes of historical significance.
- Enhance the public perception of a proposed development in terms of aesthetic quality, comfort and convenience of pedestrians and screening of less attractive elements of the development (screening of parking, service & storage areas, privacy areas, etc.). This may be accomplished through the use of landscaped islands and buffer planting strips.
- Contribute to the overall city image.

It is the applicant's responsibility to engage a qualified Landscape Architect or Landscape Designer to prepare a landscape plan which is in context with the neighboring and local environments.

### 1. Landscape plan requirements

- Maps at proper scale showing adjoining properties and streetscape
- Natural and man – made features such as berms, swales, ponds and ditches;
- Overland and subsurface drainage patterns and flow paths
- All paved surface areas, i.e. parking, driveways, walkways, bicycle parking;
- Existing and proposed fencing and screening;
- All fencing, berm and retaining wall details;
- All existing trees to be preserved
- Existing trees to be removed;
- Existing and proposed buildings with entrance and exit points;
- Public transport access
- Maintenance strategies proposed – methods and frequency
- Existing and proposed streets and sidewalks;
- Grading or alteration in elevation or contour of the land (existing and proposed topographic contours and grades);
- Drainage plan (provisions for the disposal of storm, surface and waste water from the land and from any buildings or structures thereon).
- Planting plan (private and street trees)

### 2. Landscape Report

(a report to provide background and context to the Landscape Concept Plan)

The landscape issues statement will show:

- Design principles, roles and functions for each proposed open space
- Any broad strategic planning considerations
- Any local planning considerations (eg Plans of Management)
- Any enhancement of neighborhood character
- Conservation and restoration of indigenous trees/ wetlands buffers/forests
- Text to provide context and detail to the landscape plan

**➡ No tree cutting or site alteration shall be undertaken while the City's decision on a site plan application is under review and pending.**

For minor developments, which are not identified in the below list, landscaping features may be shown on the site plan drawing and described in the design report.

#### **LIST OF THE DEVELOPMENTS THAT REQUIRED A FULL LANDSCAPE PLAN:**

- Large scale development (more than 1 ha)
- Development that are located in the following areas:
  - P1-P2-P3-P4 zones and:
    - Areas with a slope above 20%;
    - Plot adjacent to protected or sensitive areas (wetlands, forests, river shores, etc.);
    - Plot within or adjacent to green corridor or green connectors.
  - Heritage Village (Quartier Commercial) or adjacent to other cultural, historical, archeological sites as identified by the City of Kigali or other national Authorities;
  - Building of public interest or development adjacent to the public realm;
- All the developments that require EIA.

## 2.10 Geotechnical data

Geotechnical investigations are performed by geotechnical engineers or engineering geologists to obtain information on the physical properties of soil and rock around a site to design earthworks and foundations for proposed structures and for repair of distress to earthworks and structures caused by subsurface conditions.

While the geotechnical report content and format will vary by project size, all geotechnical reports should contain certain basic essential information, including:

- Summary of all subsurface exploration data, including subsurface soil profile, exploration logs, laboratory or in situ test results, and ground water information;
- Interpretation and analysis of the subsurface data;
- Specific engineering recommendations for design;
- Discussion of conditions for solution of anticipated problems; and
- Recommended geotechnical special provisions.

Geotechnical investigation report with conclusion and recommendation, describing clearly the bearing capacity to be used, shall base on the following test:

- In situ based test
- Laboratory based test
- Geological analysis

Test	Project category	A: n° of levels ≤ 2	B: 2 ≤ n° of levels ≤ 7	C: 7 ≤ n° of levels ≤ 20	D: n° of levels ≥ 21 tall building
1. In situ based test 2. Laboratory based test 3. Geological analysis		N/A	1	1 or 2	2 and 3

Example of soil test is listed below:

### 1. In situ based test

- A Standard Penetration Test (SPT)** is an in-situ dynamic penetration test designed to provide information on the properties of soil, while also collecting a disturbed soil sample for grain-size analysis and soil classification.
- Dynamic Cone Penetrometer (DCP)** is an in situ test in which a weight is manually lifted and dropped on a cone which penetrates the ground. The number of mm per hit is recorded and this is used to estimate certain soil properties. This is a simple test method and usually needs backing up with lab data to get a good correlation.
- A Cone Penetration Test (CPT)** is performed using an instrumented probe with a conical tip, pushed into the soil hydraulically at a constant rate. A basic CPT instrument reports tip resistance and shear resistance along the cylindrical barrel. CPT data has been correlated to soil properties.

### 2. Laboratory based test

- a. **Direct shear test** determines the consolidated, drained strength properties of a sample. A constant strain rate is applied to a single shear plane under a normal load, and the load response is measured. If this test is performed with different normal loads, the common shear strength parameters can be determined.
- b. **Triaxial shear test** is a type of test that is used to determine the shear strength properties of a soil. It can simulate the confining pressure a soil would see deep into the ground. It can also simulate drained and un-drained conditions.

### 3. Geological analysis

Geophysical methods used in geotechnical investigations to evaluate a site's behavior in a seismic event. By measuring a soil's shear wave velocity, the dynamic response of that soil can be estimated.

## 2.11 Architectural Data

The architectural data shall include:<sup>7</sup>

- Dimensional floor plans in scale 1:100/ 1:200, for each floor if different from the others, from the underground floor to the roof with indication of uses, dimension of all the spaces;
- Transversal and longitudinal sections in scale 1:100/ 1:200 with indication of all the floors (at least 2 orthogonal sections). The sections shall contain internal heights, railings, openings, existing and proposed land profile with indication of plants, underground floors. The section shall include level, gradient and storm water drainage of any adjoining road. Section cutting area should be highlighted in the floor plans and highlighted in a Key-plan.
- External elevations of each side (all sides) in scale 1:100/ 1:200, extended to the facades of adjacent buildings regarding location and size of opening, frames or other significant elements in relief. The elevations drawings of facade along any public realm must be provided. Elevations shall indicate exterior materials, colors and finishing;
- Details of parts that are considered critical or complex or that is not possible to understand from the other detailed drawings.

A detailed elevation study will be requested for specific cases (e.g. Heritage Village, building along streetscapes, etc.) with visual simulation of the project integrated in the existing context.

The elevations must include any visible mechanical/ electrical or telecommunication equipment and any screen solution, when necessary.

Floor plans, sections and elevations shall be at the same scale.

Roof plan shall indicate falls, gutters, rainwater heads and downpipes.

The floor plans shall be consistent with the structure drawings.

In case of multiple buildings proposal all the drawings shall indicate a key plan indicating the building object of the drawing.

The access for people with disability/ mobility impaired shall be demonstrated, when necessary, in all the drawings.

A full description of the architectural elements shall be included in the detailed report.

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<sup>7</sup> In case of a building addition all the drawings shall include the existing building and proposed addition clearly identified.

## 2.12 Structural Data

The aim of design is the achievement of an acceptable probability that structures being designed will perform satisfactorily during their intended life. With an appropriate degree of safety, they should sustain all the loads and deformations of normal construction and use and have adequate durability and resistance to the effects of misuse and fire.

For the submission, a professional has to make sure that he has evaluated, analyzed and reviewed the foundation design based on soil investigation report and structural design for the safety of the building and its surrounding structures such as a retaining, etc. The following document will be submitted:

### 1. Structural calculation notes:

- Definition of building structure.  
Framing/system, structural parameters of material, code of practice, software (if any), loading, soil parameters based on soil investigation report (if any);
- Structural analysis.  
Only critical key-elements/members will be analyzed.  
Note: Structural design has to be done in accordance to para-seismic and wind design.
- Structural design  
Only critical key-elements/members analyzed will be designed (Roof of span more 8m, slab, beam, column, foundation, staircase, lift shaft, bearing wall).
- Conclusion and recommendation.  
Summarized table of reinforcement decided to be used in designed critical elements in reinforced concrete frame and dimensions of designed elements in a structural system to be used.

### 2. Structural drawings:

The following structural detailing will be presented: floor plans of adopted system (*structure layout*), different views of a used computer model if any, foundation plan, longitudinal and section views of structural elements with reinforcement for reinforced concrete system.

**NOTE:** The structural calculation notes and the structural drawings involve also structures out of the main structural system (e.g. retaining wall with a height exceeding 3 meters)

## 2.13 Building Services<sup>8</sup>

The Applicant will be required to submit a detailed report of the building services which will cover the subsections highlighted under this chapter. The report will include drawings, building and material specifications and calculations. For the submission, the relevant professional is required to have carried out a detailed evaluation to ensure the services provide proper building functionality, safety of the building, environment and building users. The following components will be checked under building services:

### 2.13.1 Plumbing, Drainage, Storm water and Waste water Data

- 1 Detailed Plumbing and drainage drawings. This is the type of technical drawing which shows the system of piping for fresh water going into the building and waste going out, both solid and liquid;
- 2 Detailed design of Storm water management system. This is the type of technical drawing which shows the selected facility design to meet the pollution reduction, retention, flow control, and/or disposal requirements for the project.
- 3 Detailed design of Waste water management system. This is the type of technical drawing which shows the selected facility design to address the treatment and disposal waste water.

### 2.13.2 Electrical, Telecommunication and Mechanical Data

- 1 Detailed Electrical and telecommunication systems drawings: This is the type of technical drawing that shows information about power, lighting, and communication for the construction project. Any electrical working drawing consists of "lines, symbols, dimensions, and notations to accurately convey the engineering's design to the construction workers who install the electrical system of the project. A complete set of working drawings for the average electrical system in large projects usually consists of:
  - A plot plan showing the building's location and outside electrical wiring;
  - Floor plans showing the location of electrical systems on every floor;
  - Power-riser diagrams showing panel boards;
  - Control wiring diagrams;
  - Schedules and other information in combination with construction drawings eg. Fixture installations.
- 2 Detailed Mechanical systems drawings: This is a type of technical drawing that shows information about heating, ventilating, and air conditioning. These drawings are a set of detailed drawings used for construction projects and are based on the floor and reflected ceiling plans of the architect. After the mechanical drawings are complete, they become part of the construction drawings, which will be used to apply for the construction permit.

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<sup>8</sup> In case of a building addition all the drawings shall include the existing building and proposed addition clearly identified.

## 2.14 Safety Measure Plan

- 1 Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, alert those in a structure to the presence of an uncontrolled fire in the event one occurs, better enable those threatened by a fire to survive in and evacuate from affected areas, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing, and those that are taught to occupants of the building. Threats to fire safety are referred to as fire hazards. A fire hazard may include a situation that increases the likelihood a fire may start or may impede escape in the event a fire occurs. Fire safety is a component of building safety and all building will be required to provide the following mitigation measures:

### Fire Protection Plans Checklist

- Air-conditioning system where needed,
  - mechanical ventilation (if any),
  - emergency lighting,
  - emergency power supply,
  - emergency warning system,
  - emergency exit doors,
  - exit signs,
  - fire control room,
  - fire detectors,
  - fire extinguishers,
  - fire hydrants,
  - smoke alarms and smoke control systems,
  - Sprinkler system,
  - Emergency evacuation plan and assembling point,
  - Sign with general guidance on building safety and emergency numbers. Eg. Police, Fire Department etc.
- 2 Building Security refers to a set of precautions that are taken to prevent or reduce the likelihood of crime such as theft and terrorist threats. Separate floor plans indicating the point of the location for the following security items below must be submitted along with or integrated in the design drawings:
    - CCTV cameras and Security office,
    - walk through and hand held metal detectors,
    - luggage scanners,
    - alarms on emergency exit doors,
    - Police Post where deemed necessary,
    - Sign with general guidance on building safety and emergency numbers. Eg. Police, Fire Department etc.

## 2.15 Bill of Quantities

The Bills of Quantities is required for projects seeking an exoneration certificate from RDB in accordance with Law n° 26/2005 of 17/12/2005 relating to investment and export promotion and facilitation.

The Bill of Quantity is a document drawn up by a quantity surveyor providing details of the prices, dimensions, etc., of the materials required to build a large structure, such as a factory, commercial, apartment and is compulsory for the project required the exoneration certificate in RDB.

## 2.16 Certifications

These are certifications provided by the property owner and registered professionals in charge of designing the project, certifying the completeness of the project, compliance to the Master Plan and other relevant regulations and laws as well as the quality and durability of the project. A list of the submitted documents must be attached to the certification.

Refer to the chapter “Attachments” for the templates for the certificate and list of documents.

## 2.17 Other Documentation

Specific documents may be required by COK based on the proposed development eg.

- Traffic Impact Assessment
- Acoustic Impact Assessment
- Erosion Control Plan
- Other documentation as specified in the Master Plan and other relevant laws and regulation

### TRAFFIC IMPACT ASSESSMENT

Type of Development	Scale of Development
<u>Residential</u>	
i) Landed properties / Condominiums / Executive HDB housings	i) 600 or more units
ii) HDB housing	ii) 800 or more units
<u>Retail</u>	
Shopping centres	>= 10,000m <sup>2</sup> GFA
<u>Commercial</u>	
Office developments	>= 20,000 m <sup>2</sup> GFA
<u>Industrial</u>	
i) General industries	i) >=50,000m <sup>2</sup> GFA
ii) Warehousing/Distribution	ii) >=40,000m <sup>2</sup>
iii) Science park/High tech park	iii) >=40,000m <sup>2</sup>
<u>Educational</u>	
i) Primary school	i) >=2,000 students
ii) Secondary school	ii) >=2,000 students
iii) International school	iii) >=2,000students
iv) Junior college	iv) >=2,000 students
v) University, polytechnic, ITE campus	v) TIA required
<u>Medical</u>	
Hospitals	>= 200 parking spaces
<u>Hotel</u>	
Business & tourist	>= 600 rooms
<u>Recreational</u>	
Exhibition centre & major tourist attractions	>= 200 parking spaces

*Drawn from International Standards*

### 3. GIS LAYER

AVAILABLE ON THE WEB-SITE

DOCUMENTATION PROVIDED BY COK THROUGH WEB APPLICATION  
Construction Permit Assessment/MIS

- Aerials/images
- Contours
- Slope analysis
- Existing land use
- Wetlands
- Existing Forests
- Natural drainage patterns
- Heritage sites
- Zoning: short term
- Zoning: long term
- Special development control areas (UD sites and Sub areas plan boundary)
- Land Use Plan: short term
- Land Use Plan: long term
- Road ROW/CL / road hierarchy
- BRT Corridors/ buffer
- Water lines
- Water Treatment Plans/sub Stations
- Sewage Treatment Plans
- Sewage system
- Obstacle limit surface (airport)
- Airport Risk areas (to be checked with RCAA)
- Electrical lines and Sub stations

## 4. REGULATIONS, LAWS AND OTHER REFERENCES

Refer to Regulation and Laws in the website <http://www.kcps.gov.rw/Legal>

Refer to Kigali Master Plan online plan viewer: [http://www.kcps.gov.rw / Kigali Master Plans](http://www.kcps.gov.rw/Kigali%20Master%20Plans)

### PLANNING AND BUILDING CODE

- Kigali Conceptual Master Plan - OZ Architecture - 11/2007
- Kigali Sub Areas Plan (Kinyinya, Rebero, Kimihurura, Masaka) OZ Architecture - 11/2010
- Detailed Master Plan Report for Nyarugenge - Surbana - 2/2010
- Detailed Master Plan and Urban Design Report for CBD1, CBD2 and Kimicanga – Surbana 2/2010
- Detailed Master Plan and Urban Design Report for Kyninia - Surbana 2/2010
- Detailed Master Plan Report for Gasabo/ Kicukiru - Surbana – 2013 **in process**
- Zoning and Urban Design Guidelines Report for Nyarugenge, Kicukiro and Gasabo
- Detail Urban Design for Gisozi-Kimironko and Gahanga areas.
- Rwanda Building Control Regulations - Rwanda Housing Authority/ Ministry of Infrastructure -2nd edition 2012
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### ENVIRONMENTAL IMPACT ASSESSMENT

- Organic Law N° 04/2005 of 08/04/2005, determining the modalities of protection, conservation and promotion of environment in Rwanda
- Ministerial Order n° 003/2008 of 15/08/2008 relating to the requirements and procedure for environmental impact assessment
- Ministerial order n°004/2008 of 15/08/2008 establishing the list of works, activities and projects that have to undertake an environment impact assessment
- Law N°16/2012 of 22/05/2012 determining the organization, functioning and mission of the National Fund for Environment (FONERWA)

### OTHER GUIDELINES

- “Child Friendly Schools Infrastructure Standards and Guidelines” Primary and Tronc Commun schools - Rwanda Ministry of Education – 5/2009
- Guidelines for construction of petrol stations – RURA **in process**
- Short Term Plan of Tree Planting in Kigali City - RNRA – 09/2011
- Urban and Peri-Urban Forest Management in Kigali City - RNRA – 09/2011
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### OTHER LAWS

- Official Gazette n°22 bis of 31/05/2010 - Instruction of Kigali City council setting prices for land lease and related
- Presidential Order n°25/01 of 09/07/2012 - Presidential Order establishing the list of fees and other charges levied by decentralized entities and determining their thresholds - Official Gazette n° Special of 27/07/2012
- Law n. 01/2007 of 20/01/2007 - Relating to protection of Disabled persons – Chapter VI, art. 25
- Law No.15/2010 of 7/05/2010 - Creating and organizing condominiums and setting up procedures for their registration - Official gazette no. special of 14/05/2010
- Official Gazette no 19 of 10/05/2010 - Ministerial order determining the modalities of land sharing
- Law no.18/2007 of 19/04/2007 - relating to expropriation in the public interest -

- Law no.40/2010 of 25/11/2010 – establishing the Rwanda Housing Authority and determines its responsibilities, organization and functioning
- Law no. 24/2012 of 15/06/2012 - relating to the Urban planning of land use and development in Rwanda
- Law No. 10/10/2012 of 02/055/2012 governing Urban Planning and Building in Rwanda – Official Gazette NO. SPECIAL OF 30 May 2012
- Law No. 26/2012 of 29/06/2012 - governing the professions of architects and engineering and establishing the institute of architects and the institute of engineers in Rwanda
- Organic law n° 53/2008 of 02/09/2008 - establishing Rwanda development board (RDB) and determining its responsibilities, organization and functioning
- National land Policy 04/06/2009– MINIRENA
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#### REFERENCE STUDIES

- Housing Market Demand, Housing Finance, and Housing Preferences For The City Of Kigali – EU – 06/2012

# 5. ATTACHMENTS

<b>SELF CERTIFICATION – CONSTRUCTION PERMIT – City of Kigali – One Stop Center</b>	
<p>This serves as a certification of the project and all additional relevant supporting documents submitted by the applicant (project/property owner and design professionals).</p> <p>A list of the submitted documentation related to the project is herein attached and endorsed.</p>	
<p><b>Identification Data</b></p> <p>Full Name of Applicant: .....</p> <p>Registration number No: .....</p> <p>Name of Firm (if any): .....</p> <p>Applicant address: .....</p> <p>Email Address: .....</p> <p>Mobile Tel. .... Office Tel. .... Fax No: .....</p>	
<b>Owner, if different from applicant</b>	
<p>I hereby certified that I have ownership of the subject property and authorize the design Team below to submit this project on my behalf</p>	
	Signature & Name
<b>Architectural Consultant</b>	
<p>I certify that the information in this application relating to the Architectural Data, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the Architectural design meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional architect in Rwanda.</p>	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Geologist / Engineer Consultant</b>	
<p>I certify that the information in this application relating to the Geotechnical Data, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the Geotechnical report meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional geologist/ engineer in Rwanda.</p>	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Engineer Consultants</b>	
<b>Structural Data</b>	
<p>I certify that the information in this application relating to the Structural Data, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the design is structurally adequate and safe and meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional engineer in Rwanda.</p>	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)

<b>Water, plumbing and drainage data</b>	
I certify that the information in this application relating to the Water, plumbing and drainage Data, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the Water, plumbing and drainage design meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional engineer in Rwanda.	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Electrical, Telecommunication and Mechanical Data</b>	
I certify that the information in this application relating to the Electrical, Telecommunication and Mechanical Data, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the Electrical, Telecommunication and Mechanical design meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional engineer in Rwanda.	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Safety Measurements Plans</b>	
I certify that the information in this application relating to the Safety Measurements Plans, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the Safety Measurements Plans meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional engineer in Rwanda.	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Environmental Consultant (EIA Report)</b>	
I certify that the information in this application relating to the Environmental Impact Assessment Report, as indicated in the attached list, are true and correct to the best of my knowledge. I further declare that the EIA Report meets all the standard requirements, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to environmental professional in Rwanda.	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)
<b>Supervision Consultant<sup>9</sup></b>	
I certify that I'm qualified as Construction Supervisor and I'll supervise all the construction works ensuring the compliance to the approve project, in accordance with all mandatory specific laws and regulations. I understand that any false or misleading information may result in failure to obtain the Construction Permit, or subsequent punitive measures applied by law to a professional engineer in Rwanda.	
Signature & Name of professional & Stamp	Name & Address of Professional Firm and Stamp (if any)

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<sup>9</sup> In case it has not yet established a Supervision Consultant, a certification may be submitted before start the Construction Works, upon receipt of the Construction Permit.