

WATER TRANSMISSION PLANNING GUIDELINES FOR DEVELOPMENT PROJECTS

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POWER & WATER PLANNING DIVISION
WATER TRANSMISSION PLANNING DEPARTMENT



Table of Contents

1. Introduction	3
2. Development Project Water Master Plan Submission Requirements	4
2.1 Domestic Water Demand	4
2.2 Per Capita Consumption Rates	4
2.3 Non-Domestic Water Demand	5
2.4 Yearly Water Demand Phasing	6
3. Development Project Water Network	6
3.1 Connection Points (Tie-In Points)	6
3.2 Network Design Requirements	6
4. Sustainable Development	7
5. Additional Requirements	7
5.1 Lead Time	7
5.2 Plots And Corridors	8
5.3 BOOSTER STATIONS/ZONING	8
6. Stamping of Project's Sign-Off Sheets (SOS)	8
6.1 Third Party Sale of Land/ Residential Units SOS	8
6.2 Water Infrastructure Master Plan SOS	8
7. Submissions	8
7.1 Ma'lem Dubai (Water)	8
7.2 Contacts	10
8. The Approval Process	10
9. Annexure	10
9.1 Development Project Master Plan Submission Checklists	10
Annexure - 1	11
Development Project Master Plan (Domestic) Submission Checklist	11
Annexure - 2	12
Development Project Master Plan (Non-Domestic) Submission Checklist	12
Annexure - 3	13

Stamping Project's Sign-off Sheets (Sale of Land/ Residential Units).....	13
Submission Checklist	13
Annexure - 4	14
Stamping Project's Sign-off Sheets (Masterplan)	14
Submission Checklist	14

1. Introduction

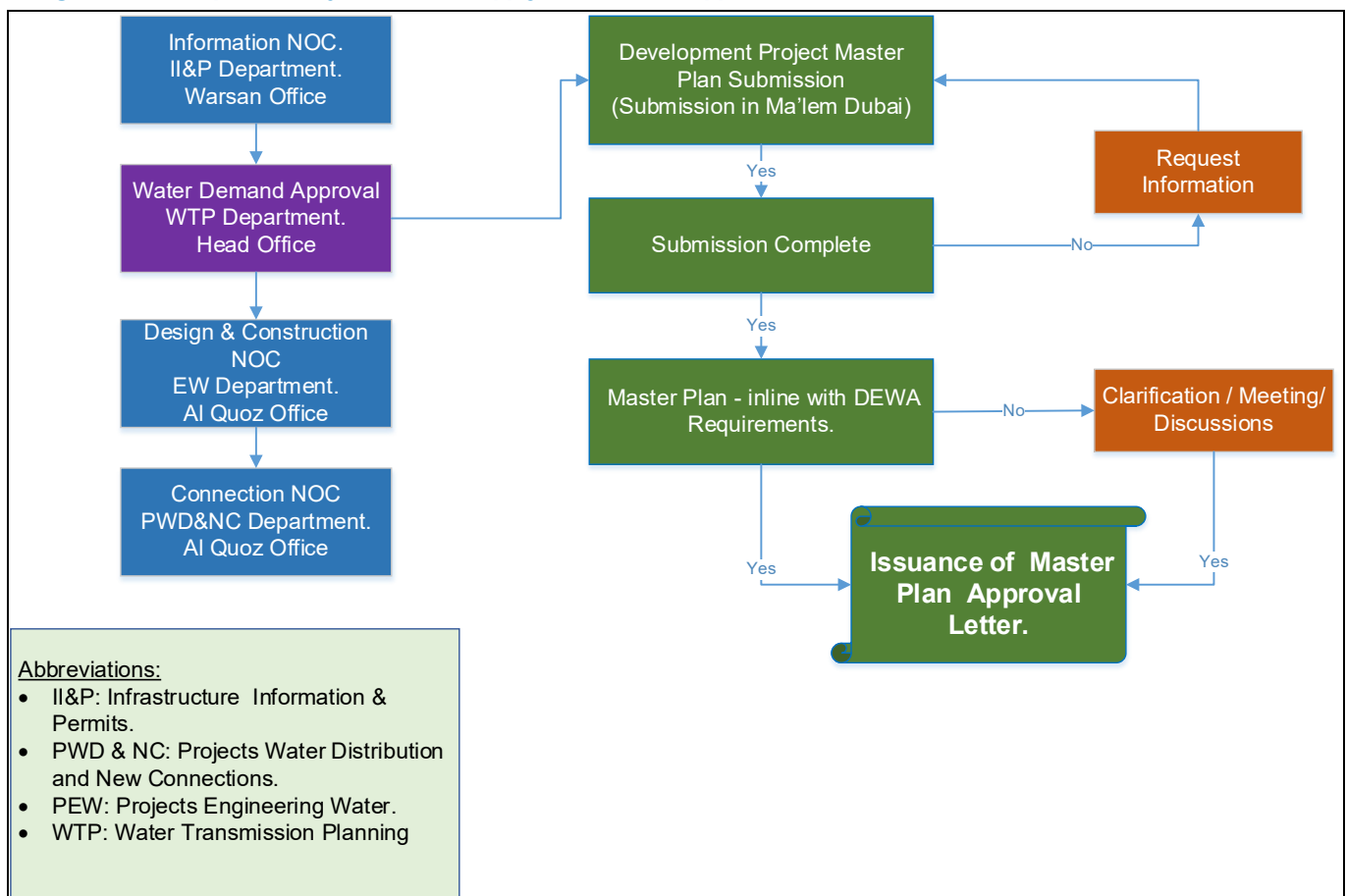
In order to ensure timely, optimal and reliable water supply services to development projects across Dubai, it is essential that the developers and their consultants prepare the complete development project(s) water supply master plans and submit to DEWA.

The purpose of these guidelines is to provide developers/consultant with adequate information to help with the preparation and submission of their development project water supply master plan. The Guidelines include all requirements related to project's water demands, phasing, population, land use, network layout information hydraulic models, etc. to be submitted as part of the master plan submission for DEWA's review and approval. The project information, once reviewed and approved, will be used by DEWA for Water Infrastructure planning activities.

It is therefore essential for developers and their consultant to ensure that development master plan is prepared in line with DEWA's requirements for a timely and efficient approval process.

This document includes itemized requirements for water demands and connection points approval, as well as stamping project's sign-off sheets following the approval. The chart below outlines the Development Water Supply Master Plan Approval Process. The process applies to Ma'alem Dubai water application after registration.

Figure 1: Development Projects Water Supply Master Plan Approval Process



2. Development Project Water Master Plan Submission Requirements

In order for DEWA to process the application, a signed checklist (Annexure 1) should be provided along with the following requirements.

1. The complete development project Water Master Plan Report document.
2. DEWA's Information NOC issued for the project (Not older than 6 months).
3. Colored location maps and layout of the project (all soft file in CAD or GIS system shape file format, should be geo-referenced to DLTM coordinate system).
4. Project's water demands calculation sheets with consumption rates and peak-factors used to calculate Average and Peak Demands along with justification of the same, as applicable. (all demand calculations should be provided in MS Excel spreadsheet format including all assumptions/formulas used along with referenced data files).
5. Projected annual water demands phasing based on estimated occupancy.
6. Internal network layout indicating proposed take offs/connection points, year required and assumed/required pressure at each connection points. (PDF & CAD format/shape files).
7. Project's water network model in Epanet hydraulic modelling software. The model should be geo-referenced to the Dubai coordinate system (DLTM).

2.1 Domestic Water Demand

Domestic demand is defined as the water supplied by DEWA such as Residential, Commercial, Industrial, Government and Others (Mosque, Police Station, Government Hospital, etc.). (Refer to Table 1.) Developers/Consultants are requested to include detailed calculations and the following information in the domestic water demand submission:

- Plot-wise land use and population information.
- Projected annual water demands phasing based on estimated occupancy.
- Excel calculations worksheets based on information used to estimate the total water demands, such as population, land use, consumption rates, etc.

2.2 Per Capita Consumption Rates

Table 1 below outlines typical ranges of water consumption rates, which Developers/Consultants are advised to use as a reference for calculating different land use demands for the projects.

In line with DEWA Sustainability Strategy, Developers/Consultants are encouraged to avoid the use of potable water demand maximum rate in all categories while calculating the demands, unless there are valid justifications based on the requirements of the project.

Table 1. DEWA Reference Per Capita Consumption Rates

User Category	Consumption Rates (L/Cap. Day)
Based Metal Chemical Zone	100
Day Clinic (per Medical Practitioner) including Visitors	300 - 450

User Category	Consumption Rates (L/Cap. Day)
Club house/Recreation	100
Commercial Buildings	60-100
Entertainment & Leisure/Theater	10-60
Events	10-50
Guardhouse	60-75
Headquarters	60-80
Hotels (per employee)	60-80
Hotels (per guest)	200-300
Laboratory	60-80
Labour Accommodation	80-150
Local Plaza/Retail/Town Center	60-82
Logistic, Academic & Business Center	60-75
Manufacturing/Mineral	60-80
Medical (per bed)	350-450
Mixed Used Commercial	60-80
Mixed Used Residential	250-350
Mosques	10 - 60
Nursery/Child Care Centre	50-70
Offices	45-60
Public Amenities	10 - 50
Residential Buildings (flat)	200-300
Restaurant (per meal)	10-15 l/d per meal
Schools/University	40-60
Shops	45-60
Theatre	10-50
Villas (Expat)	250-350
Visitors	14-40
Industrial (Workshops/Machinery/Warehouse, etc.)	60-80

2.3 Non-Domestic Water Demand

DEWA does not normally supply potable water for non-domestic purposes such as:

- Construction purposes (particularly at projects' areas with No Existing network).
- Water features without human contact (lagoons, fountains, etc. for landscaping and beautification purposes).
- Irrigation / landscaping purposes.
- District cooling purposes.
- Firefighting (Except for initial filling of fire water tanks)

Conditional exemptions for water supply may be made in the following cases:

- Unavailability of alternative water supply such as TSE supply, or the requirement by DM for alternative back-up supply.
- Temporary supply of potable water for non-potable purposes (DC, Irrigation, Water features with human contact for health reasons, etc. excluding construction).
- Supply for initial filling of firefighting tanks.

The above will be subject to some conditions which may include:

- The developer acknowledges that priority of potable water supply is given to customers for domestic purposes.
- Back-up connections should be designed with adequate protection to prevent back flow for health and safety reasons as per DEWA requirements.
- Back-up connection will only be used during emergencies or shortage/disruption of TSE supply.
- The developer to adopt the most efficient and sustainable irrigation techniques in order to reduce irrigation water demand.
- Filling of firefighting tank/ lagoon should be done as per the approved flow rate and during off-peak demand period (minimum filling duration of one day).
- For temporary supply, the developer should make provisions in their design and construction of the Permanent District Cooling plants to be suitable for using TSE water, and should fully and permanently switch to TSE water as soon as it is made available.

2.4 Yearly Water Demand Phasing

The phasing of the project water demand is the most critical factor for planning expansion of water infrastructure and ensuring timely water supply to the project. Therefore, the developer/consultant is required to make reasonable phasing and submit the estimated year- wise water demands of the project up to the ultimate development horizon year, including the projected yearly population and projected occupancy rates.

3. Development Project Water Network

3.1 Connection Points (Tie-In Points)

Each development project should have at least two connections to DEWA existing water system: Main Supply and Back up Connection. As much as practically possible, each connection should be designed to supply independently the development's full demand. Developers/Consultants are expected to provide locations of the proposed connection points to DEWA existing network with coordinates for DEWA review and approval.

3.2 Network Design Requirements

Table 2 below outlines some criteria to be used for design of the network and building of the model. A hydraulic model should be built for the development project water network, and used as a basis and tool for network design. DEWA will review the models in contrast with DEWA planning design criteria, and make recommendations for changes accordingly.

Table 2: Network Design Criteria and Hydraulic Modelling Requirements

Design Criteria	Transmission	Distribution
Peak Factor	1.25 - 1.3	
Pipeline Diameters (mm)	(1200mm, 900mm, 600mm)	(450mm, 300mm, 225mm and 150mm)
Pipelines and Fittings Material	Glass Reinforced Epoxy (GRE) PN10 / PN16 (subject to DEWA's approval)	
Maximum Velocity (m/s)	1.5	1
Minimum Pressure in water network (Bar)	1.5	1
Working Pressure in water network (Bar)	1.5 – 4.0	1.0 – 1.5
Minimum Pressure at Connection Point (Bar)	1.5	
Minimum Number Connection Points to	2 (Failure of one connection should not affect the supply of the project.)	
Hydraulic Model	Hydraulic Models shall be submitted preferably in EPANET (.inp/.net) format.	
	Model shall be georeferenced to Dubai Local Transverse Mercator (DLTM) Coordinate System.	
	Refer to section 3.1 for Connection Points details which shall initially be based on DEWA's Information NOC issued for the project.	
	Minimum Three Scenario Models shall be prepared: <u>Scenario Model 1</u> - Ultimate Demand with main Supply and back-up Connections open <u>Scenario Model 2</u> - Ultimate Demand with main Supply Connection Open and Back-up Connection Closed. <u>Scenario Model 3</u> - Ultimate Demand with main Supply Connection Closed and Back-up Connection Open.	
	Additional Model Scenarios maybe requested by DEWA depending on the initial evaluation of the hydraulic models.	

4. Sustainable Development

DEWA has embarked on its sustainability journey with the goal of becoming a globally leading sustainable innovative corporation. A tremendous amount of effort is being put into sustainability at all levels, and this includes a strategy that adopts a triple bottom concept covering the social economic and environmental aspects, which are at the heart of sustainable development.

DEWA encourages Developers/Consultants to adopt innovative and sustainable solutions in all aspects of their development projects design, considering optimal designs, minimizing leakage and the need for future network modifications, while maintaining a safe and reliable water supply.

5. Additional Requirements

5.1 Lead Time

Developers/Consultants are advised to prepare and submit their Development Master Plan well ahead. This will give DEWA

adequate time to plan for infrastructure expansion requirements to supply the project which may require long lead time.

5.2 Plots And Corridors

Depending on the project's size and location, the developer may be required to allocate a land plot for DEWA pumping station and/or reservoir to supply the area. Similarly, water transmission corridors, in addition to the standard ROW water corridors may also be required. These requirements will be identified, communicated and discussed during the approval process.

5.3 BOOSTER STATIONS/ZONING

In some cases, and depending on the development location and its topography, the developer/consultant may be required to design the water network into zones with different pressures, which may require a water distribution booster to supply the higher areas within the development land.

6. Stamping of Project's Sign-Off Sheets (SOS)

For projects under Dubai Municipality planning framework and regulations, the request for stamping should be submitted through the Dubai Municipality Portal/ Ma'lem (Water) portal for DEWA WTP.

For projects under other planning authorities e.g. Dubai Development Authority and Trakhees, the request for stamping should be submitted through Ma'lem (Water) portal.

Depending on the purpose of stamp, SOS applications in Ma'lem are categorized into two types as illustrated in the following two sections.

6.1 Third Party Sale of Land/ Residential Units SOS

The stamp is for obtaining the approval of third-party sale of land/ residential units. The request for SOS stamp should be submitted through Ma'lem (Water) portal. A signed checklist (Annexure 3) should be provided along with cover letter stating clearly that the purpose for the stamp is third party sale of land/ residential units.

The stamp in this case will be subject to the developer's commitment to the provision of water transmission and distribution corridor/ plot requirements as applicable.

6.2 Water Infrastructure Master Plan SOS

The stamp is for obtaining approval of the project overall masterplan layout. Following the issuance of Water Supply Master Plan, a request for SOS stamp should be submitted through Ma'lem (Water). A signed checklist (Annexure 4) should be provided along with the following requirements:

- Cover letter stating clearly that the purpose for the stamp is for masterplan approval.
- DEWA's water demands approval letter of the project.
- Confirmation that there are no changes to the approved water demands and connection points.

7. Submissions

7.1 Ma'lem Dubai (Water)

Ma'lem Dubai (Water) is an online DEWA service available to all developers and their consultants for submitting, tracking, and obtaining approvals of Development Projects' Water Master Plans, re-validation of previously approved Master Plans, as well as stamping project's sign-off sheets. This service enables the enrolled / registered Developers and Consultants to submit the development projects Water Supply Master Plans for DEWA review and approval, to ensure timely provision of reliable water supply.

The process can be initiated online through DEWA Builder Portal website [here](#).

The “Ma’lem Dubai User Manual”, which provides guidelines and information on the registration and submission processes, is also available on DEWA website [here](#). The main steps to be followed by Developers and Consultants are detailed in Figure 2- Ma’lem Dubai Water Process Chart below. Please refer to the user manual for more details:

Important Notes:

1. Developer and Consultant need to create an account with category (Developer – Private or Developer Government / Consultant – Major Projects). Please click [here](#) for account registration
2. Please note that only builder accounts with categories (Developer – Private or Developer Government) and (Consultant – Major Projects) are accessible in Ma’lem Dubai (Water).
3. The Developer shall register the project, by clicking (Register projects for water) [here](#).
4. For approval of water demand approval, Consultant/ Developer shall submit the request by clicking (Submit Water Master Plan for a project) [here](#).
5. For obtaining SOS stamp, Consultant/ Developer shall submit the request by clicking (Submit Water Master Plan for a Development project) [here](#). Please select demand type to be domestic and plan type either to be SOS Stamp (Masterplan) or SOS Stamp (Sale of Land/Villas), depending on the purpose of the stamp.
6. For approval of water demand and for obtaining SOS stamp, please make sure to provide signed checklist in the submissions. (refer to Annexure-1, Annexure-2, Annexure-3 and Annexure-4).

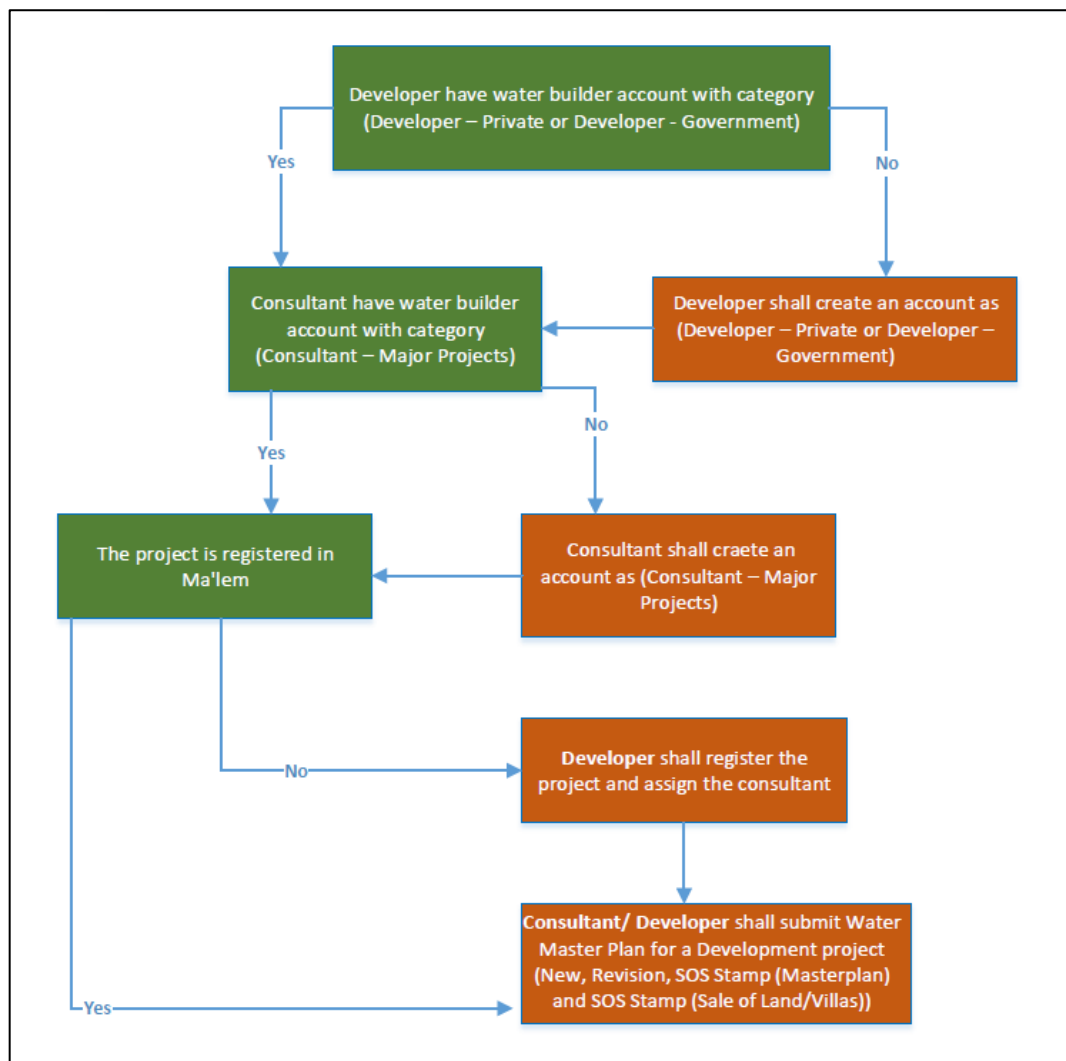


Figure 2. Ma’lem Dubai (Water) Process Chart

7.2 Contacts

The submissions for potable water supply masterplan approvals and SOS stamping requests in Ma'lem Dubai (Water), with all communications to be addressed to:

Mr. Boualem Belhadj

Senior Manager - Water Transmission Planning Dubai Electricity & Water Authority

P.O. Box 564, Dubai, U.A.E.

Tel.: 04-32-22700

Fax.: 04-3249206

Email: boualem.belhadj@dewa.gov.ae

For clarifications related to the submission, and requests for meetings should please contact:

Ms. Maria Isabel Santos Igarta

Tel.: 04-32-22701

Email: Maria.Igarta@dewa.gov.ae

For clarifications regarding Ma'lem Application, please contact:

Ms. Noora Yousuf Ibrahim Alhasawi

Tel.: 04-32-22815

Email: Noora.alhasawi@dewa.gov.ae

You may also contact the Department email: WaterTransmission.Planning@dewa.gov.ae

8. The Approval Process

- Following the submission, DEWA will review the submitted documents and confirm their completeness (Ma'lem Portal).
- DEWA Water Transmission Planning Engineers will coordinate with the Developer/Consultant for any queries/issues associated with the submission. Meetings may be arranged as required.
- DEWA-WTP will process the application, review the submission and issue an approval letter to the Developer/Consultant via Ma'lem Portal. The approval is also sent via email to the concerned.
- The Developer/Consultant is required to confirm the receipt of the project approval and, if applicable, the acceptance of any associated condition.
- Further, the Developer/Consultant shall coordinate with DEWA's Water & Civil Division, Projects & Engineering Water Department and Projects Water Distribution & New Connection Department for design NOC and connection matters.

9. Annexure

9.1 Development Project Master Plan Submission Checklists

According to the type of demand required (Domestic / Non-domestic), the related checklist(s) below should be duly filled, signed, and stamped by the consultant before attaching to the submission. SOS stamping request checklist is also available in Annexure.

Annexure - 1

Development Project Master Plan (Domestic) Submission

Checklist

Project Name: _____

Developer : _____

Consultant: _____

S/N	Document Description	Remarks
1	Cover letter introducing the submission addressed to: Mr. Boualem Belhadj – Senior Manager - Water Transmission Planning.	
2	The complete development project's Master Plan report.	
3	Copy of a valid DEWA's Information NOC issued for the project (valid for 6 months).	
4	Colored digital Location map and layout files of the project in CAD format (.dgn , .dxf) or GIS system shape file format, using DLTM coordinate system.	
5	Land use layout of the project's masterplan.	
6	Project's water demand calculation sheets with consumption rates and peak-factors used to calculate Average and Peak Demands along with justification of the same, as applicable.	
7	Projected annual water demands phasing based on estimated occupancy.	
8	Digital file (PDF & CAD DXF/Dwg format) of internal network layouts indicating the following details of connection points: • Coordinates in DLTM system. • Diameter of connection line. • Assumed Pressure. • Proposed commissioning year.	
9	Epanet water network hydraulic models files developed for the study geo-referenced to the actual Dubai coordinate system (DLTM). Minimum Three Scenario Models shall be prepared (subject to the number of connection points): <u>Scenario Model 1</u> - Ultimate Demand with main Supply and back-up Connections open <u>Scenario Model 2</u> - Ultimate Demand with main Supply Connection Open and Back-up Connection Closed. <u>Scenario Model 3</u> - Ultimate Demand with main Supply Connection Closed and Back-up Connection Open.	

Consultant Signature, Date & Stamp:

Annexure - 2

Development Project Master Plan (Non-Domestic) Submission

Checklist

Project Name: _____

Developer : _____

Consultant: _____

S/N	Document Description	Remarks
1	Cover letter explaining your request, addressed to Mr. Boualem Belhadj – Senior Manager - Water Transmission Planning	
2	A letter from Dubai Municipality/ Developer clearly justifying the need for using potable water for non-potable purposes. (supply or back-up)	
3	Copy of a valid DEWA's Information NOC issued for the project (valid for 6 months).	
4	Colored soft Location map and layout files of the project in CAD format (.dgn/.dxf) or GIS system shape file format, using DLTM coordinate system.	
5	Detailed Water demand calculation of District Cooling, filling firefighting tank, irrigation, or water features as applicable, etc. (in excel format).	
6	Year-wise phased total demand, plot wise /zone wise and phase wise demands.	
7	Statements for plots / corridors availability for the development as per DEWA requirements (if applicable).	
8	Digital file of internal network layout indicating main take off /connection points of the project, year required, expected pressure at each of them as well as the connection points to district cooling plants, firefighting tanks, irrigation tanks, or water features as applicable, etc. (PDF & CAD, DXF/DWG format)	
9	Epanet water network hydraulic models files developed for the study geo-referenced to the actual Dubai coordinate system (DLTM) and DXF file of the same (if applicable).	

Consultant Signature, Date & Stamp:

Annexure - 3

Stamping Project's Sign-off Sheets (Sale of Land/ Residential Units)

Submission Checklist

Project Name: _____

Developer : _____

Consultant: _____

S/N	Document Description	Remarks
1	Cover letter stating clearly the purpose of stamp is for third party sale of land/ residential units, addressed to Mr. Boualem Belhadj – Senior Manager - Water Transmission Planning.	
2	Sign-off sheet of the project published from official authorities in pdf format.	

Consultant Signature, Date & Stamp:

Annexure - 4

Stamping Project's Sign-off Sheets (Masterplan)

Submission Checklist

Project Name: _____

Developer : _____

Consultant: _____

S/N	Document Description	Remarks
1	Cover letter stating clearly the purpose of stamp is for masterplan approval, addressed to Mr. Boualem Belhadj – Senior Manager - Water Transmission Planning.	
2	WTP Master Plan approval related to the SOS for stamping.	
3	Water demands showing comparison of the approved water demands and new proposed water demands (if applicable).	
4	Sign-off sheet of the project published from official authorities in pdf format.	

Consultant Signature, Date & Stamp:
