

POWER SUPPLY GUIDELINES FOR MAJOR PROJECTS



POWER & WATER PLANNING / POWER TRANSMISSION PLANNING
SYSTEM PLANNING DEPARTMENT
(Update – June 2021)

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SYSTEM PLANNING DEPARTMENT

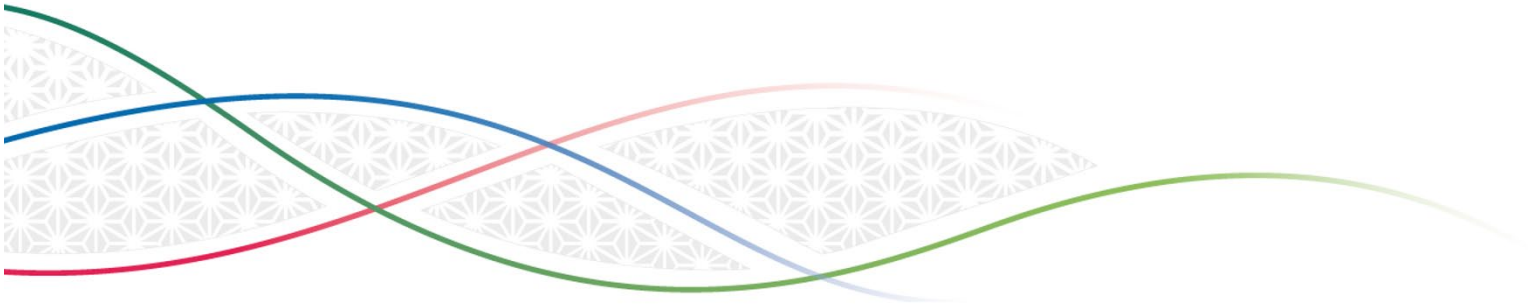


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1. Introduction

To ensure the timely availability of power, it is essential that the technical details of the Major project including the power phasing, locations of 132/11kV substations and associated 132kV and 11kV corridors, plot-wise load details and other requirements from all the potential developers or their appointed consultants are available with DEWA well in advance.

The purpose of this document is as follows:

- ❖ To provide guidelines to all the major developers and the consultants regarding DEWA's power supply requirements rules and guidelines.
- ❖ To assist the developers and the consultants in understanding the requirements for submissions of project / development Master Plan documents and to facilitate the project / development power supply on time.

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

The purpose of these guidelines is to provide developers/consultants with adequate information to help with the preparation and submission of their development master plans. The Guidelines include all requirements related to project's power demands, power phasing, population, land use, 132kV and 11kV corridors, 132/11kV substation locations, plot-wise load details, network information and models, etc. to be submitted as part of the master plan submission for DEWA's review and approval. This project information once approved will be used by DEWA for Power Infrastructure planning activities.

It is therefore essential for developers and their consultant to ensure that development master plans are prepared in line with DEWA's Guidelines for a timely and efficient approval process. This document includes itemized requirements for each of the development master plan components, as shown in [Annexure-7.1](#).

2. MA'LEM DUBAI

MA'LEM DUBAI is an online service enables the enrolled / registered Developers and Consultants to apply Power Supply Master Plan for Major Project Developments for DEWA review.

3. Power Supply Master Plan Requirements

In order to avail the power supply for any major project / development on time, it is necessary to submit and get approved the technical pre-requisites on time as DEWA require lead-time.



3.1 Technical Requirements

The technical requirements that are necessary to be submitted to DEWA for planning any 400/132kV and 132/11kV substations, designing the 11kV Distribution Network and allocating necessary 11kV cables from the 132/11kV substations are listed below:

3.1.1 Location and Layout of the Development Project

Location (with DLTM coordinates) shall be shown on Dubai Map. Further, a detailed project layout reflecting roads, buildings, parks, parking areas, open spaces, water ponds / canals, bridges etc. also to be submitted.

3.1.2 Nature of the Project

Description of the project along with type of land use (Residential, Industrial, Commercial, Labour Accommodation, etc.) to be mentioned.

3.1.3 Total Connected Load (TCL) and Expected Maximum Demand (MD)

- Total connected load (along with split up of General and Cooling load) of the project, type of cooling system, and expected peak demand.
- Realistic power requirement date / phasing.
- Split up details of the load like, Residential, Commercial, Industrial, Cooling, etc.
- Plot-wise load details in the standard format (refer to [Annexure-7.2](#)).
- In case ultimate load details are not available, the load requirement up to next 5 years should be submitted.
- Details of the District Cooling Plant loads (size, location and the expected phasing of its commissioning).

3.1.4 Distribution Renewable Resources Generation (DRRG)

For the projects with DRRG, the submittal shall include DRRG plan (PV Rooftop Solar) which consists of;

- Planned DRRG capacity (kW) per plot and for entire project.
- Expected commissioning dates of PV solar in the project.



3.1.5 Power Factor

Power Factor is to be maintained at not less than 0.95 and any capacitor bank installation required at customer end (at 11kV level) shall be by the customer at his own cost.

3.1.6 Load Characteristics (quality of voltage, harmonics, flickering, dents, etc.)

- The main characteristics of the supply voltage expected at customer load supply terminals shall be in line with DEWA regulations. Customers shall ensure that their equipment can adequately operate in accordance with the supply technical characteristics as per DEWA rules.
- Voltage drop calculation, harmonic study, fault level calculation, etc., to be submitted by the consumer for any dirty load/ private switchgear.
- Installation of special equipment and devices, if required, to maintain the same as per the standards shall be by the consumer at his own cost.

3.1.7 Power Supply Voltage

- Dedicated / shared 132/11kV substation is required for meeting the power supply requirement of any Major Development. Large loads requiring the allocation of several 132/11kV substation plots might require 400/132kV source. The project developer should allocate plots for the required number of substations and associated 132kV and 11kV corridors.
- 11kV shall be the general distribution voltage.

3.1.8 Substation Plot Sizes and Layouts

- 400/132kV substation: 200m x 200m.
- 132/11kV substation: 60m x 50m.
- 11/0.4kV substation: Refer to Distribution Substation Guidelines.
- The standard setting out plan of 400/132kV substation is shown in [Annexure-7.3](#).
- The standard setting out plan of 132/11kV substation is shown in [Annexure-7.4](#).



3.1.9 Location of Substation Plot

3.1.9.1 400/132kV Substation Location

- The 400/132kV substation plot should have access to heavy vehicles.
- Enough space/corridors for taking 400kV overhead lines IN/OUT.
- Enough space/corridors for taking 132kV cables IN/OUT.

3.1.9.2 132/11kV Substation Location

- The 132/11kV substation plot shall have access from two major roads or one major road and Sikka (min 7m wide). The longer side (60m) shall face the main road.
- The access road to the substation plot shall be adequate for smooth maneuvering of heavy vehicles (low bed trailer, crane, etc.).
- Enough space/corridors for taking 132kV cables IN/OUT.
- Enough space/corridor for taking out 80 numbers of 11kV outgoing cables with proper duct arrangement with minimum 150mm space between the cables.
- Location of 132/11kV substations should be provided at the load center and close to District Cooling Plants (DCP) if available.
- When a project requires more than one 132/11kV substation, the feeding zone of each substation shall be specified.

3.1.10 The 132/11kV Substation Plot Verification Requirements

In order to review the proposed 132/11kV substation plot, the developer / consultant to comply and submit standard substation plot verification list (refer to [Annexure-7.5](#)) for each 132/11kV substation plot, along with respective drawings / layouts.

3.1.11 Site Plan for 400/132kV and 132/11kV Substation

Approved site plan /affection plan (in the ownership of DEWA) of the substation plot is required from the concerned Zoning Authority. The developer shall confirm, whether the building permit for the substation building will be issued by Dubai Municipality or other Zoning Authorities.



3.1.12 Undertaking to Clear Services within the Substation Plot

The developer to submit an undertaking letter to clear / divert all services within the plot allocated for the 132/11 kV substation and the associated 132 kV and 11 kV corridors (if any), well in advance prior to the issuance of the Project Parameter Report (PPR) and also to bear all the associated costs by the developer.

3.1.13 Corridors

3.1.13.1 400kV Overhead Lines (OHL)

- 50m wide corridor (double circuit tower line).

3.1.13.2 132kV Underground Cables

- 2.5m wide corridor for each 132kV cable circuit.
- Minimum horizontal clearance between 132kV corridor and nearby pressure pipeline (100mm to 450mm Ø) shall be 1m (edge of the pipe to edge of the trough).
- Minimum horizontal clearance between 132kV corridor and nearby pressure pipeline (500mm to 1200mm Ø) shall be 3m (edge of the pipe to edge of the trough).
- Minimum gap of 2m shall be ensured between 132kV corridors and nearest foundation / permanent structure / plot boundary.
- 132kV cable under the dual carriageway is not acceptable. The surface above 132kV corridors shall be either soft landscaped or interlock tiled only.
- The developer to divert all the existing infrastructure services (if any) within the allocated 132kV corridors inside the project boundary and bear all the associated costs. Further, the project developer to level and free the allocated 132kV corridors from any obstacles (trees / structures).
- The 132kV duct bank arrangement for road crossing shall comply with DEWA standard (refer to [Annexure-7.6](#)).
- The developer to install all the 132kV ducts at site well in advance of any 132kV cable laying works at site and bear all the associated costs.



- The project developer / consultant to update the approved 132kV corridors allocated within the project in Dubai Municipality GIS System.

3.1.13.3 11kV Underground Cable

- Exclusively 11kV corridor of 7m (2x2.5m + 2m gap) width to be provided at two adjacent sides of 132/11kV substations up to the roads.
- Exclusive 11kV corridors of 2.5m width to be provided on both sides of the road around the 132/11kV substations.
- A single stretch of 11kV corridor width should not exceed 2.5m.
- A minimum clearance of 2m to be maintained between adjacent 11kV corridors / between adjacent 132kV and 11kV corridors. Further, the space between the adjacent 11kV corridors / adjacent 132kV and 11kV corridors can be used for any non-heat generating services.
- Dedicated 11kV corridors to be provided from the source 132/11kV substation to the District Cooling Plant (DCP).
- The 11kV corridors under carriageway, median, curbstone and service road are not acceptable. The surface above 11kV corridors shall be either soft landscaped or interlock tiled only.
- Cross-section to be provided for each road section, dedicated 11kV corridors should be available on both sides of road.
- Duct arrangement for each road crossing is to be provided.
- In case of 132/11kV substation away from the road Right-of-Way (ROW), the party shall provide sufficient corridor from the substation boundary to the road.
- The protection barriers to be between 11kV corridors and big trees / street lighting poles, wherever they are adjacent.
- In case street light pole is adjacent to DEWA 11kV corridors, a minimum clearance of 50cm to be maintained or foundation of the street light pole to be extended 150cm from the bottom of the cable.



3.1.14 LV Network.

The LV distribution network will not be reviewed in power supply Master Plan finalization stage. Therefore, The relevant drawings, load schedules, single line diagrams and road cross-sections for LV distribution network approvals such as 11kV substation locations, capacity, LV cable routes, feeder pillar locations, MDB / MCCB capacity connected load / maximum demand / demand factor of each plot / substation wise, voltage drop etc. shall be uploaded during online 'Getting Electricity' application system.

3.1.15 Policy on Construction of 400kV and 132kV Substations.

3.1.15.1 400/132kV Substation

DEWA requires sufficient lead time to construct a 400/132kV substation.

3.1.15.2 132/11kV Substation

Any 132/11kV substation for development projects shall be constructed by the project developer matching their power requirement phasing of the project, through a DEWA approved consultant and contractor. However, DEWA requires adequate lead time for arranging 132kV cables to any new 132kV substations after finalization of load requirements, substation locations, cable corridors and receiving the original affection plan of the plot for the substation in the ownership of DEWA.

3.1.16 Project Parameter Report for 132kV Substations.

Prior to issue the Project Parameter Report (PPR) for the construction of 132/11kV substation, the project developer to submit the followings;

1. Clear the site of the 132/11kV substation of all obstacles, services, utility infrastructures etc.
2. Finalize the access road and gate level of the 132/11kV substation plot.
3. Submit information confirming the above.

Subsequently, the developer should request to issue the PPR for the 132/11kV substation and to ensure the submission of the following:

1. The original affection plan of the 132/11kV substation plot (in the ownership name of DEWA) issued by concerned Authority reflecting the access arrangements as per DEWA standards.



2. An undertaking letter to construct the 132/11kV substation.
3. The construction schedule of the 132/11kV substation clearly indicating the construction start date and commissioning date.
4. A layout drawing clearly indicating the Entry / Exit arrangement of 132kV and 11kV cables around the proposed 132/11 kV substation plot. Further, to indicate the access road to the substation plot and the same has to be approved by concerned Authority.
5. An undertaking letter to divert all services within the plots allocated for the 132/11 kV substations (if any), well in advance before the construction works and to bear all the associated costs.

3.1.17 Requirement for 11kV Network/Design Approval

- Latest planning of the development (soft copy).
- 11kV Substation location, refer to Distribution Substation Guideline for approval of 11kV substations.
- Total connected load, maximum demand and capacity for individual 11kV substation.
- Realistic power requirement date.
- Zone-wise/phase-wise load details with respective 132/11kV substations to be provided if the number of 132/11kV substations is more than one.
- In case the number of 132/11kV substations are more than one, project loads should be allocated to respective 132/11kV substations for effective network design (Phase wise). In addition, the 132/11kV substations need to be planned for commissioning to match the power requirement date of projects.
- District cooling loads (if any) should be located adjacent to the related 132/11kV substation.
- No source metering is allowed (metering equipment to be arranged in the 11kV switchgear room).
- 11kV corridors details for all the roads within the project boundary.
- Approved cross section of all the roads (with 11kV corridor indicated) to be submitted at the time of 11kV network design request.



- Generally, in case of private switchgear, approval for single line diagram should be obtained prior to purchase.
- All the distribution network design requirements and guidelines for 11kV supply shall be strictly followed in line with the latest design guidelines of Distribution Power Division.

4. Backup Power Generators for Major Projects

- 4.1 As per the order of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of UAE and Ruler of Dubai, all real estate developers, companies and other relevant stakeholders must install backup generators at major projects in Dubai.

The attached DEWA circular (refer to [Annexure-7.7](#)) requires the installation of backup power generators in major buildings and landmarks such as tourist, commercial and cultural buildings in Dubai. This is to ensure that they will have necessary power in emergencies for public security and safety reasons, while also ensuring the comfort and well-being of society and the public at large.

The backup power generators should be sufficient to cover lighting, elevators, escalators, automatic doors, surveillance cameras, alarm systems and fire and safety equipment's.

These generators must be properly maintained to ensure that they will work when needed in an effective and timely manner, according to best safety practices.

- 4.2 The real estate developers, companies and other relevant stakeholders shall ensure and provide free access to DEWA mobile generators as appropriate.
- 4.3 The approval process for the implementation of backup generators for Major Projects, shall be coordinated directly with DEWA Distribution Power Division/ Connection Services Department.

5. Coordination and General Requirements

- 5.1 The main developer shall appoint a reputed consultant to prepare the infrastructure including power supply Master Plan of their Major Project development, in order to avail DEWA approval.
- 5.2 The main documents required within power supply Master Plan submission for Major Projects are indicated in [Annexure-7.1](#).



- 5.3 The developers or their consultants shall submit the Major Project Master Plan or Master Plan related documents for DEWA review thorough online portal called 'MA'LEM DUBAI' (<https://www.dewa.gov.ae/en/builder/noc-services/malem-dubai>). The user Manuel of 'MA'LEM DUBAI' is available at (<https://www.dewa.gov.ae/en/builder/noc-services/malem-dubai-electricity>).
- 5.4 The covering letter for any submission through online portal shall be addressed to:
Dr. Nasser Tleis
Vice President – Power Transmission Planning Department.
Dubai Electricity and Water Authority
- 5.5 The drawings in the submission shall be in AutoCAD/Microstation and PDF format. Further, the plot-wise load details shall be in MS Excel format. Any other documents (such as covering letter, reports, response sheet, etc.) shall be in PDF format only.
- 5.6 The drawings (pdf and CAD) file names shall be clear enough to identify the drawing no. and subject.
- 5.7 The cross-section drawings shall match with RTA standard format (one cross-section per sheet, reflecting 'Typical', 'Existing' and 'proposed' cross-sections) as shown in [Annexure-7.8](#). Further, the cross-sections shall be named alphabetically such as 'Cross-section A, A-A, AA-AA', etc.
- 5.8 The drawing files in the submission should be geo reference and projection to be DLTM, and the file naming format shall be as per [Annexure-7.9](#).
- 5.9 The file names and file formats for the documents submitted through 'MA'LEM DUBAI' shall comply with standard requirements explained in the user Manuel of 'MA'LEM DUBAI' (<https://www.dewa.gov.ae/en/builder/noc-services/malem-dubai-electricity>).
- 5.10 In order to schedule meetings / discussions in regard to power supply Master Plans for Major Projects, the followings may be contacted:
- **Mr. Mohamed Naceur Marzouki** (Senior Manager-System Planning)
Tel: 04 322 2900 Email: Mohamed.Naceur@dewa.gov.ae
 - **Mr. Vijayan Ayappan** (Manager-Planning Coordination)
Tel: 04 322 2909 Email: Vijayan.Ayappan@dewa.gov.ae
 - **Mr. Ahammed Sadique** (Sr. Engineer – Planning Coordination)
Tel: 04 322 2904 Email: Ahammed.kuttiadi@dewa.gov.ae
- 5.11 The power supply Master Plan for Major Projects shall be submitted well in advance to DEWA and got approved to avoid any delay in starting the project.



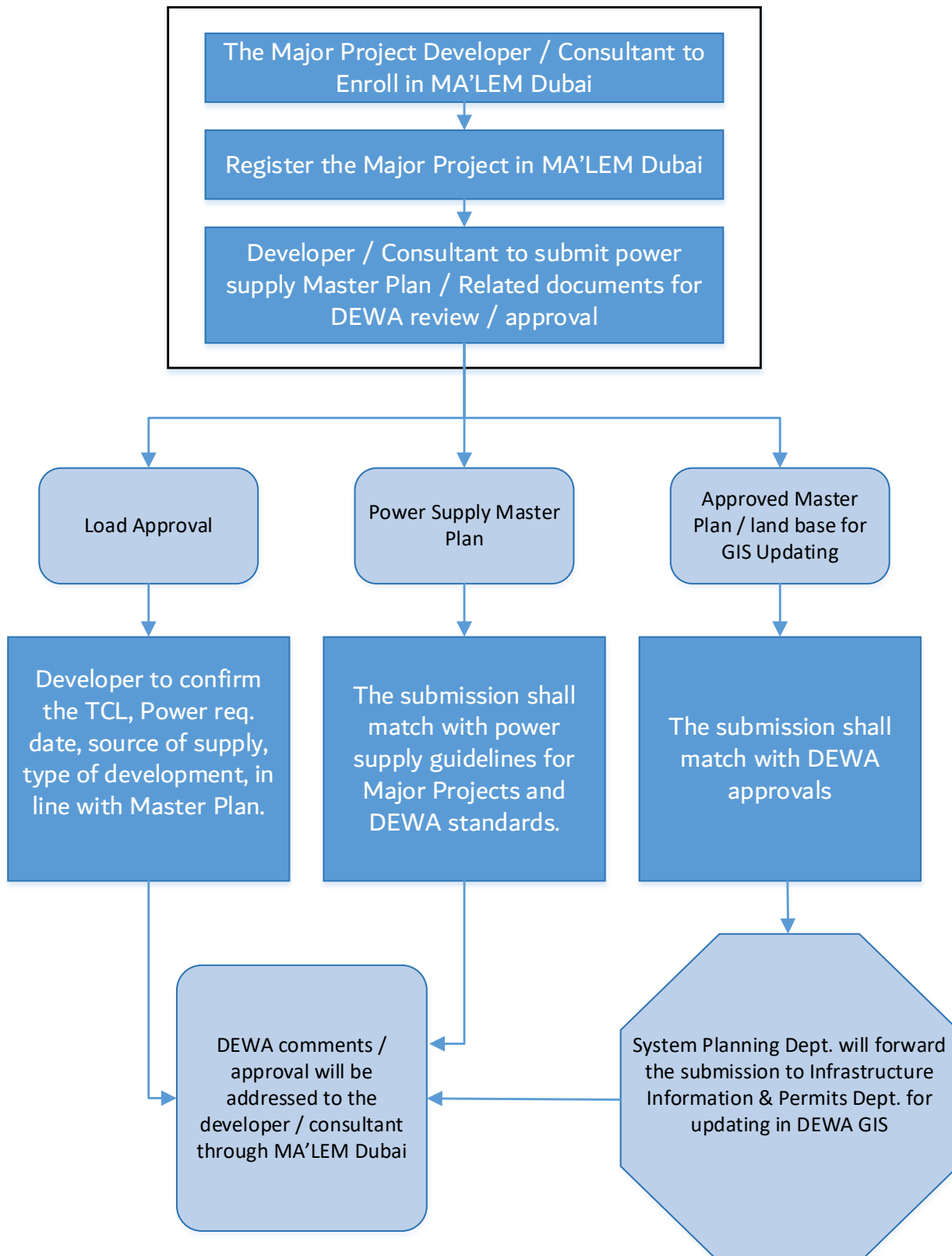
- 5.12 Once approved, DEWA expects that the developer will adhere to the plan and any changes in the project plan, changes in phasing, etc. shall be informed to DEWA in time and got approved. Changes on works during the execution stage shall not be entertained.
- 5.13 Any power supply requirement for the project shall be from the 132/11kV substation built for the project. The developer shall phase the developments and accordingly the power requirements matching the commissioning schedule of the source 132/11kV substation for the project.
- 5.14 During the progress of the Project, bi-annual updated information shall be submitted by the party which shall include:
- a. Energized load details till date.
 - b. The developer shall issue confirmation on the individual party's loads (who had applied for power supply NOC) as a part of their Master Plan in terms of magnitude and time. Load under design/approval but not approved for power supply NOC including the load of project shall be as per the agreement already signed between party and developer.
 - c. The updated information shall be submitted by the party in area maps indicating plot numbers, power requirement dates and comparison with the original information received as per the approved Master Plan of the project / development.
- 5.15 DEWA will not be responsible for any delay in commissioning due to any change/ revision of loads, which might result in re-design of 11kV cable circuits.
- 5.16 After approval of the power supply Master Plan, the developer / consultant to submit final / approved power supply Master Plan (soft copy) of the project thorough online portal 'MA'LEM DUBAI', to upload on DEWA GIS system, complying with Digital Drawing Submission Requirements (refer to [Annexure-7.10](#)).
- However, the developer / consultant to ensure that the final submission are as approved by DEWA and the offset from the building line of ROW in the soft copy (AutoCAD and GIS Drawings) are in line with DEWA approval as well as matching with pdf drawings.
- 5.17 The relevant drawings, load schedules, single line diagrams and road cross-sections for LV distribution network approvals such as 11kV substation locations, capacity, LV cable routes, feeder pillar locations, MDB/MCCB capacity connected load / maximum demand / demand factor of each plot / substation wise, voltage drop etc. shall be uploaded during on-line power supply NOC application for the project through 'Getting Electricity' application system (www.dewa.gov.ae).



- 5.18 On approval of power supply Master Plan, the plot owners / consultant may apply for power supply NOC for their plot, through E-Services for “Getting Electricity” on DEWA Website (as per normal practice), along with the main developer’s letter confirming the load figures indicated in NOC application are equal to the loads in the plot-wise load details.
- 5.19 On finalization of the power supply Master Plan for entire or portion (Phase) of any Major Development, the project developer / consultant to approach concerned Zoning Authority as well as DEWA Infrastructure Information & Permits (II&P) Department (at Al Warsan Office) to upload the project land base in GIS. II&P department’s requirements are listed in [Annexure-7.10](#).
- 5.20 The project developer / consultant to obtain design / construction NOC from DEWA Infrastructure Information & Permits (II&P) Department during infrastructure-design / approval / execution stage.



6. Power Supply Master Plan Process Map



7. Annexures

7.1 Annexure-1 : List of Documents to be Submitted

| S. No. | Documents | Remarks |
|--------|---|-----------------|
| 1 | Key Plan showing the location and layout of the project in Dubai Map with co-ordinates. | |
| 2 | Plot-wise load details in the standard format (refer to Annexure-2) | MS Excel format |
| 3 | Year-wise Power Phasing | |
| 4 | Nature of Load | |
| 5 | Details of District Cooling Loads (location / capacity, power requirement date etc.) | |
| 6 | Locations of proposed 132/11kV substation(s) | |
| 7 | Locations of proposed 400/132kV substation(s) | |
| 8 | 400kV corridors details within the project area | |
| 9 | 132kV corridors details with detailed road cross-sections | |
| 10 | 132kV ducts arrangements | |
| 11 | 11kV corridors details with detailed road cross-sections | |
| 12 | 11kV ducts arrangements | |
| 13 | PV Solar requirements in terms of capacity per plot | |

The above documents shall be submitted in Digital Copy / soft copy only thorough online portal 'MA'LEM DUBAI'.

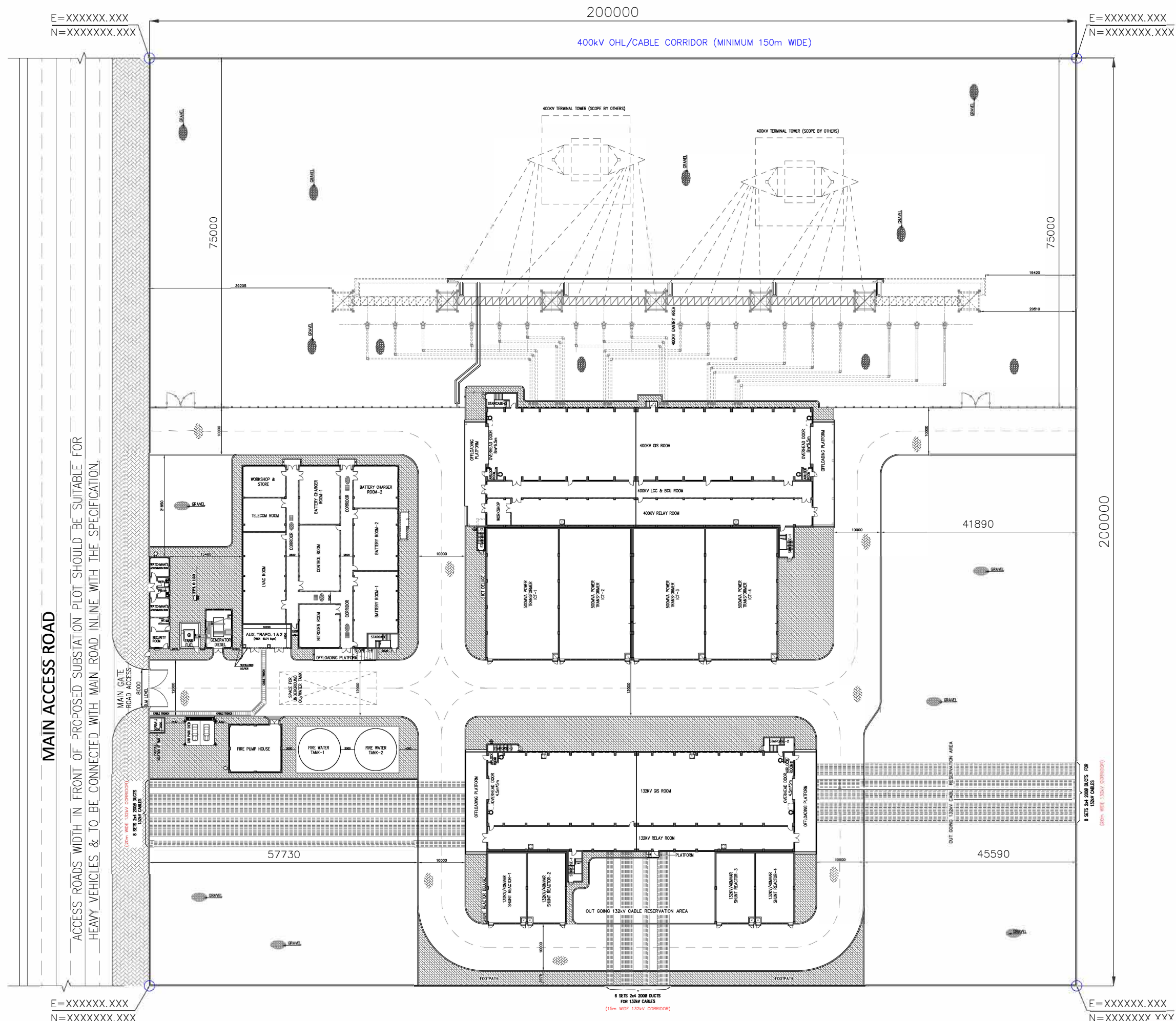
7.2 Annexure-2 : Standard Format for Plot-wise Load Details

Project Power Supply Master Plan : Plot-wise Load Details

| | |
|----------------------------------|--|
| Project Name: | |
| Developer Name: | |
| Consultant Name: | |
| Substation Built by Name: | |

[illegible]




7.3 Annexure-3 : Standard Setting Out Plan of 400/132kV Substation



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER.
2. RMU FLOOR LEVEL TOWARDS DOOR SIDE SHALL BE MAINTAINED HIGHER THAN ADJACENT RTA ROAD LEVEL (BETWEEN 15CM TO 30CM).
3. TRANSFORMER FLOOR LEVEL TOWARDS DOOR SIDE SHALL BE MAINTAINED HIGHER THAN ADJACENT INTERNAL ROAD/DRIVEWAY LEVEL (BETWEEN 15CM TO 30CM).
4. CABLE TRENCH SIZE AND LOCATION AS SHOWN INDICATIVE ONLY. THE DESIGN AND LOCATION TO BE FINALIZED DURING DETAILED ENGINEERING STAGE AS PER THE NUMBER OF CABLES.
5. THE CABLE TOTAL LENGTH 37m AS INDICATED IN THE LAYOUT. HOWEVER, THE EXACT LENGTH & ROUTE SHALL BE FINALIZED DURING DETAILED ENGINEERING STAGE.
6. THE CABLE TOTAL LENGTH NOT EXCEED 300m FROM RMU TO AUX. TRAFO 1&2.

LEGEND:

-  - PRECAST TRENCH COVER
-  - PROPOSED 132kV CABLE ENTRY/EXIT
-  - PROPOSED 400kV OHL/CABLE CORRIDOR


GOVERNMENT OF DUBAI
Transmission Power Division
P.O. BOX : 564, DUBAI - U.A.E
TEL : 00971 4 348111
FAX : 00971 4 348888

هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

قطاع نقل الطاقة

ص.ب. 554 دبي - ا.ع.
هاتف: 00971 4 3490111
فاكس: 00971 4 3490088

STANDARD OF 400/132kV SUBSTATION (200x200m PLOT)

TITLE:

SETTING OUT PLAN

PREPARED BY
SMF

| | |
|------------|--|
| CHECKED BY | |
| NKT | |

APPROVED BY
KS

| |
|---|
| DATE: 11.11.2020 |
| DRAWING NO. DEWA/400KV-SS/STANDARD/001/2020 |

| | |
|---------------|-------------|
| ISSUE-1 REV.1 | SCALE: NTS. |
|---------------|-------------|



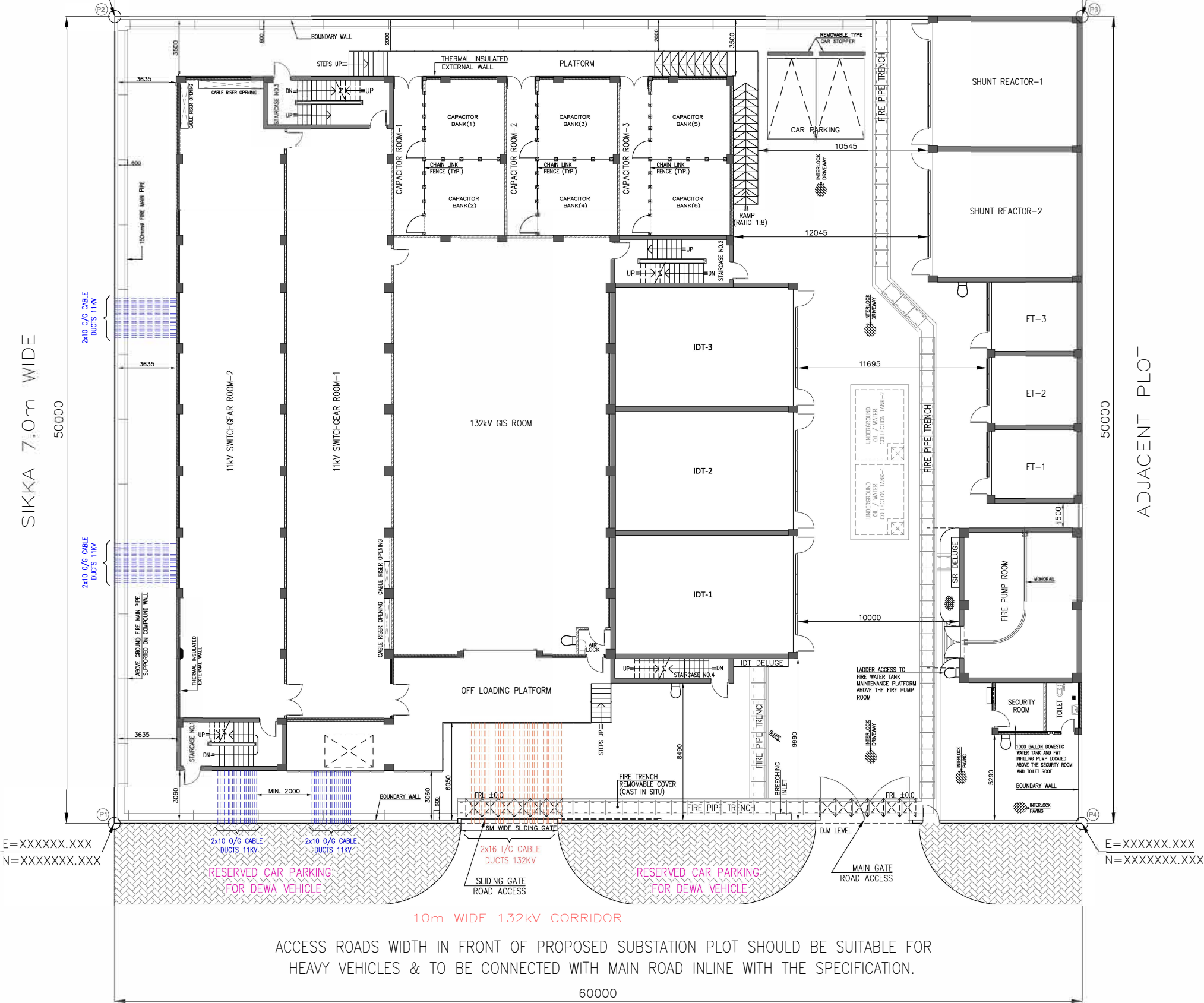
7.4 Annexure-4: Standard Setting Out Plan of 132/11kV Substation

ADJACENT PLOT

60000

E=XXXXXX.XXX
N=XXXXXX.XXX

E=XXXXXX.XXX
N=XXXXXX.XXX



ROAD ACCESS

SETTING OUT PLAN
132/11KV SUBSTATION (G+1)

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GENERAL NOTES

- 1.) ALL DIMENSIONS ARE IN MILLIMETERS (mm).
- 2.) DRAWING SHALL NOT BE SCALED.

LEGEND

- FFL — FINISHED FLOOR LEVEL
FPL — FINISHED PAVEMENT LEVEL
FRL — FINISHED ROAD LEVEL
TOC — TOP OF CONCRETE

- 450mm THK. WALL
220mm THK. THERMAL INSULATED EXTERNAL BLOCK WALL
150mm THK. HOLLOW BLOCK WALL (INTERNAL)
RCC WALL / COLUMNS & STIFFENERS



Transmission Power Division
P.O. BOX : 564, DUBAI - U.A.E
TEL : 00971 4 3481111
FAX : 00971 4 348888



قطاع نقل الطاقة
ص.ب. 564 دبي - ا.ع.م
هاتف: 00971 4 3481111
فاكس: 00971 4 348888

STANDARD OF 132/11kV SUBSTATION (60x50m PLOT)

TITLE:

SETTING OUT PLAN

| | | |
|---|-----------------------|-------------------|
| PREPARED BY SMF | CHECKED BY NKT/FAM | APPROVED BY KS |
| DATE. 09.03.2021 | | |
| DRAWING NO. DEWA/132KV-SS/STANDARD/001/2020 | ISSUE-1 REV.0 | SCALE: NTS. |

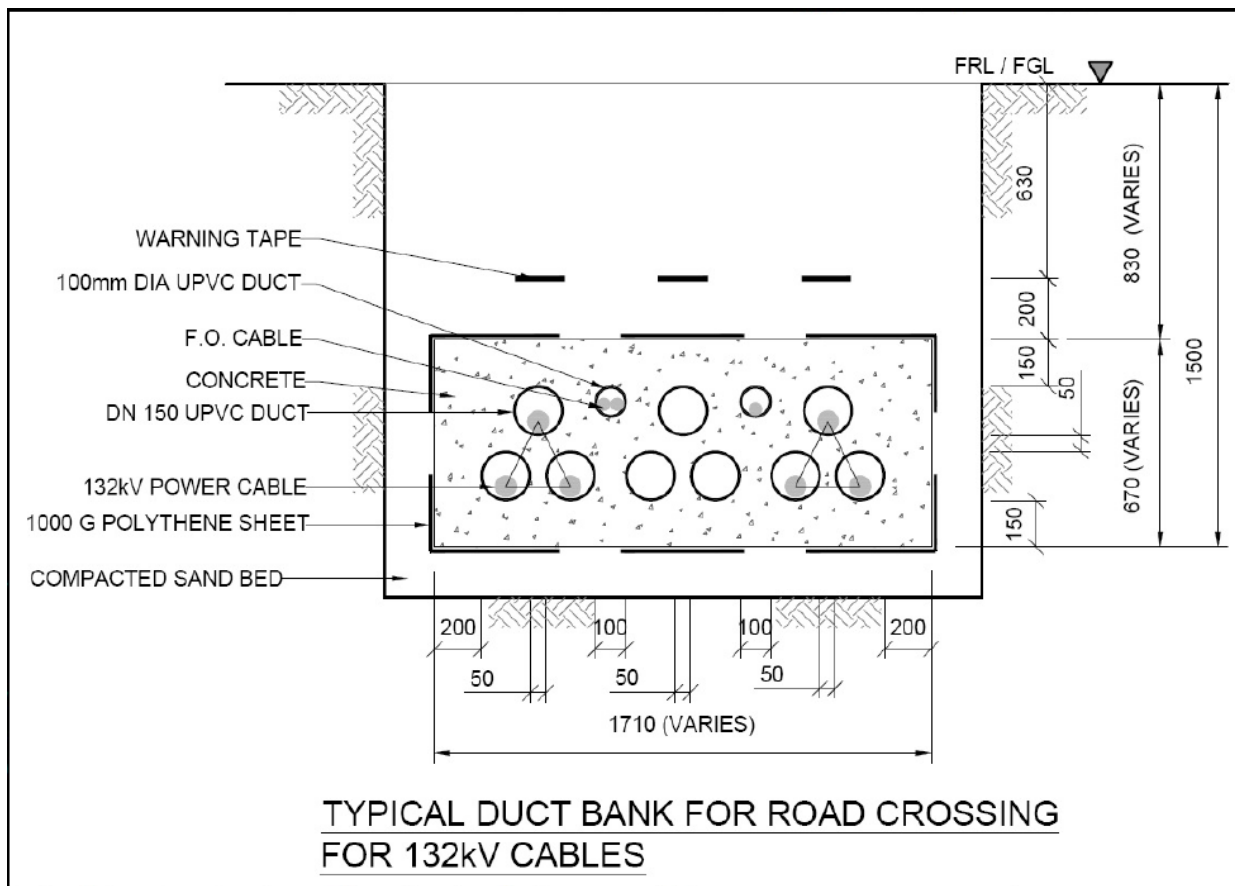
7.5 Annexure-5 : The 132/11kV Substation Verification Guidelines

| Document Title | | Document Number | Issue | Rev. | Date |
|--|---|-----------------|------------------------|------|-----------|
| 132/11kV Substation Building - Standard Plot Verification Guidelines | | - | 2 | 0 | 10/5/2021 |
| SR. | Description | Category | Developer's Compliance | | |
| 1 | Technical Detailed Guidelines | | | | |
| 1.1 | Plot's Conditions | | | | |
| 1.1.1 | The proposed plot should have a regular shape to facilitate all of the other technical requirements for a substation to be built. | DEWA Practice | | | |
| 1.1.2 | Size of the proposed plot should be adequate to architecturally fit all of the other technical space requirements. 60m (Width) x 50m (Length) (main road access from 60 m side) | DEWA Practice | | | |
| 1.2 | Accessibility | | | | |
| 1.2.1 | The proposed plot should have proper road clear access where substation should be accessed directly from the road | DEWA Practice | | | |
| 1.2.2 | Width of the road should be minimum 10 meters to help big trucks to maneuver while accessing the site. | DEWA Practice | | | |
| 1.3 | Plot's Surroundings | | | | |
| 1.3.1 | Plot's Surroundings should be shown clearly in proposed plot drawing. | DEWA Practice | | | |
| 1.3.3 | The proposed plot should be surrounded with a minimum of one clear road and one Sikka with a width of 7 meters. | DEWA Practice | | | |
| 1.3.4 | Gate Level & Levels of surroundings should be verified and sufficient. (if available) | DEWA Practice | | | |
| 1.3.5 | The available site infrastructure should be verified and sufficient. (shown clearly in the proposed plot) | DEWA Practice | | | |
| 1.4 | Proposed Plot's Entrance Condition | | | | |
| 1.4.1 | Minimum of no.2 Gates should be provided to access the plot along the 60 meters side with a width of 6 meters. | DEWA Practice | | | |
| 1.4.2 | Gate location should be verified and suitable for the proposed layout. | DEWA Practice | | | |
| 1.5 | Cable Corridors | | | | |
| 1.5.1 | Clear cable Corridors to be shown clearly in the proposed plot. | DEWA Practice | | | |
| 1.5.2 | 11 kV outgoing cables should be in the arrangement of 4 sets of (2x10). | DEWA Practice | | | |
| 1.5.3 | Width of 11 kV Cable Corridor should be minimum of 2.5 meters for each set of 11 kV outgoing cables. | DEWA Practice | | | |
| 1.5.4 | 2 meters gap shall be provided between every 2 sets of 11 kV outgoing cables. | DEWA Practice | | | |
| 1.5.5 | 132 kV incoming cables should be in the arrangement of 4 sets of (2x4). | DEWA Practice | | | |
| 1.5.6 | Width of 132 kV Cable Corridor should be minimum of 10 meters. | DEWA Practice | | | |





7.6 Annexure-6 : The 132kV Typical Duct Bank for Road Crossing





7.7 Annexure-7 : DEWA Circular Regarding Backup Generators



المرجع: ع م / 146 / 2017

التاريخ: 2017 / 4 / 25

تعميم

إلى المطورين العقاريين والاستشاريين والمقاولين
وكافة الجهات المعنية الأخرى

الموضوع: توفير مولدات كهرباء احتياطية في المباني والمرافق والمنشآت الحيوية ذات الطابع الحضاري والسياحي والتجاري في إمارة دبي

بناء على أمر صاحب السمو الشيخ محمد بن راشد آل مكتوم نائب رئيس الدولة رئيس مجلس الوزراء حاكم إمارة دبي رعاه الله، بإلزام المطورين العقاريين والشركات وكافة الجهات المعنية الأخرى التي تعمل على تنفيذ المشاريع العمرانية الكبرى والمباني والمرافق والمنشآت الحيوية ذات الطابع الحضاري والسياحي والتجاري في إمارة دبي بتوفير مولدات كهرباء احتياطية في هذه المباني والمرافق والمنشآت لضمان تزويدها بالطاقة الكهربائية اللازمة في الحالات الطارئة لاعتبارات الأمان والسلامة العامة، وتأمين الراحة للمجتمع والجمهور اعتباراً من 25 أبريل 2017.

على أن تكون قدرة هذه المولدات الاحتياطية كافية لتغطية المتطلبات الأساسية بما فيها الإنارة الكافية والمصاعد والسلالم المتحركة والأبواب الأوتوماتيكية وكاميرات المراقبة وأجهزة الإنذار والسلامة ومكافحة الحريق وغيرها، مع التأكد من الصيانة الدورية لضمان عمل هذه المولدات الاحتياطية في الحالات التي تستدعي ذلك بشكل فعال ووقت مناسب مع مراعاة اشتراطات وإجراءات السلامة.

ولتنفيذ هذا الأمر السامي، يرجى التعاون التام مع هيئة كهرباء ومياه دبي كونها الجهة ذات الاختصاص والمسؤولة عن متابعة هذا الأمر والإشراف على تنفيذه مباشرة.

سعيد محمد الطاير
العضو المنتدب والرئيس التنفيذي

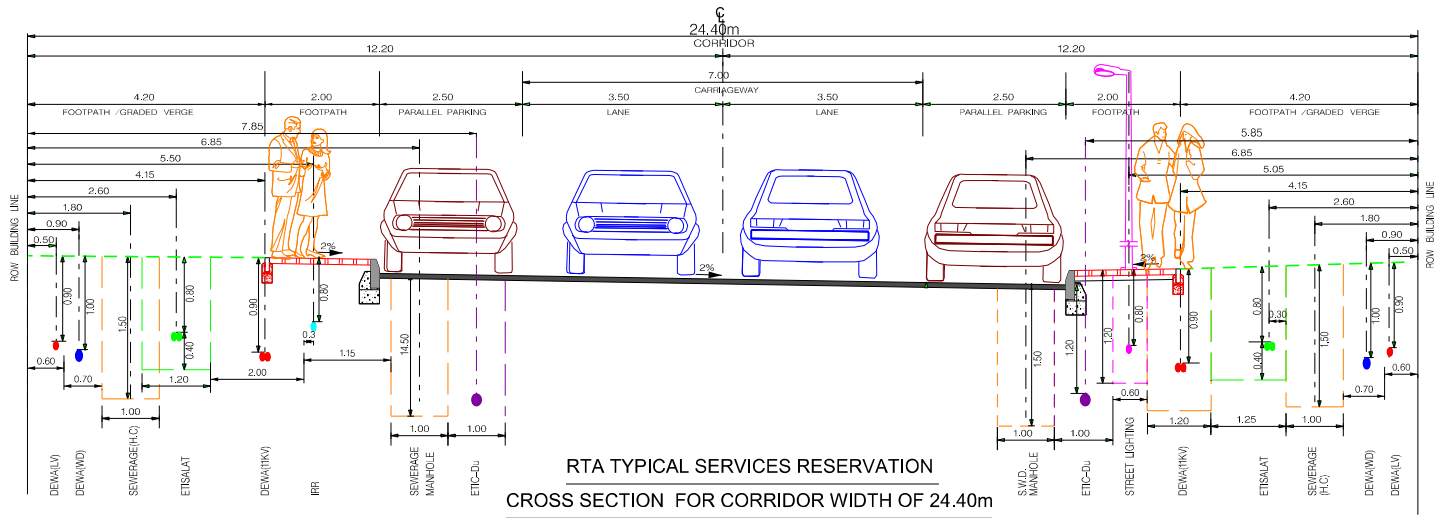


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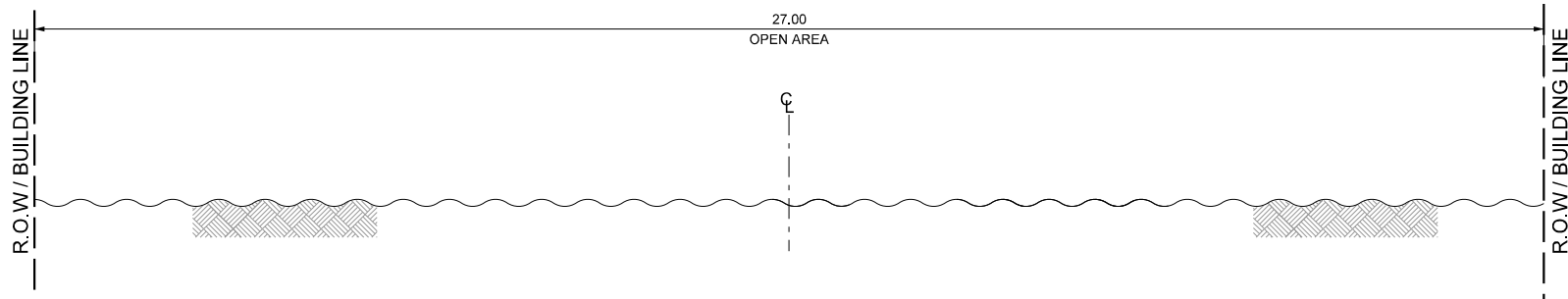


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dewa@dewa.gov.ae

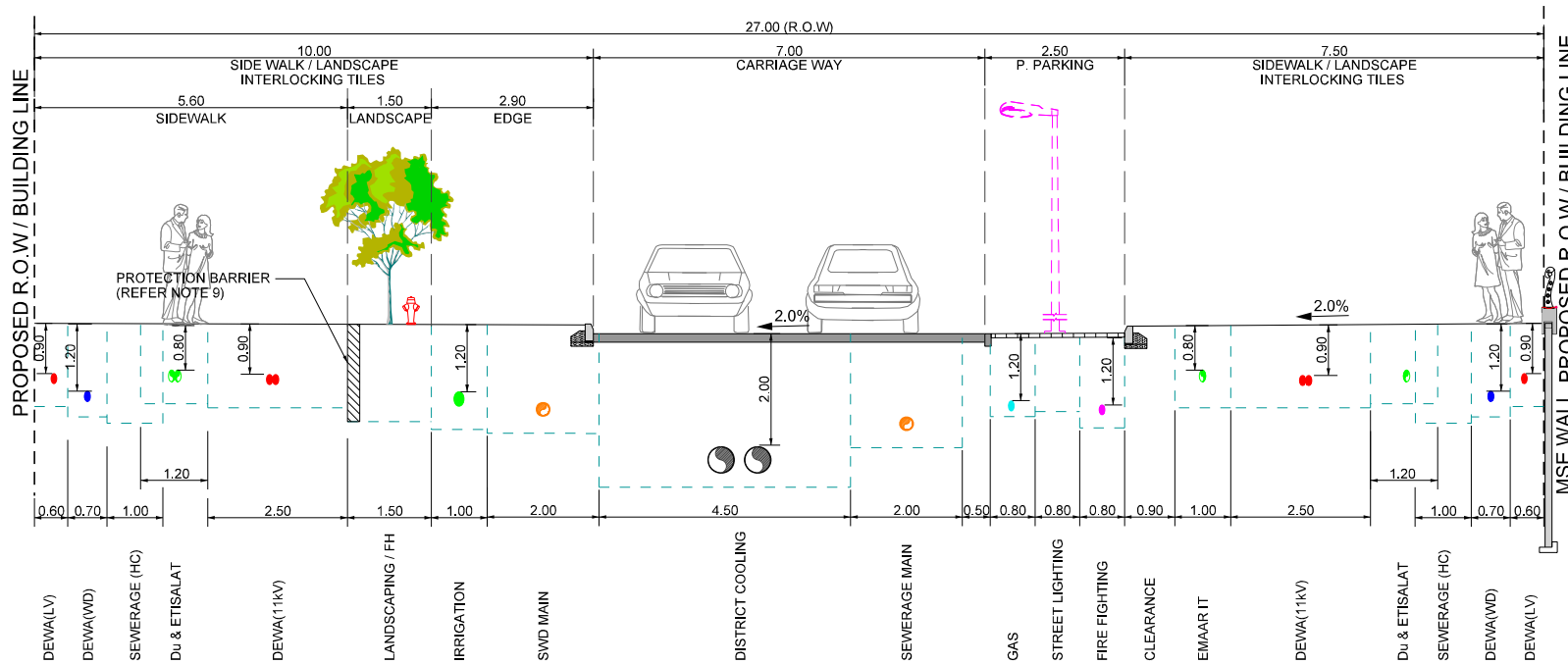




RTA TYPICAL SERVICES RESERVATION
CROSS SECTION FOR CORRIDOR WIDTH OF 24.40m



AA EXISTING UTILITY SERVICES RESERVATION CROSS SECTION FOR 27.00m R.O.W



AA PROPOSED UTILITY SERVICES RESERVATION CROSS SECTION FOR 27.00m R.O.W

NOTES

1. ALL DIMENSIONS ARE IN METERS,UNLESS OTHERWISE STATED.
2. FOR SERVICES RESERVATION KEYPLAN REFER DRAWING NUMBER
- 3.

ABBREVIATIONS

| REV. | DATE | DESCRIPTION | APPRD |
|------|------|-------------|-------|
|------|------|-------------|-------|

Client

Consultant

Project / Contract

Drawing Title

| | | | |
|--------------------|----------|---------|-------------|
| CONTRACT No: | | JOB No: | |
| DRAWN | DESIGNED | CHECKED | APPROVED |
| HORZ SCALE : N.T.S | | DATE | ACTUAL SIZE |

| | | | |
|-------------|---------------|------|---|
| Drawing No. | MP00126-XS-AA | Rev. | 0 |
|-------------|---------------|------|---|



7.9 Annexure-9 : File Naming Format

| Project Code (as per MA'LEM DUBAI Registration) | File Description | File Format |
|---|--|----------------------------|
| MP00126 | Layout Drawing (DLTM) | MP00126-LD |
| MP00126 | 132kV Corridors Drawing (DLTM) | MP00126-132CD |
| MP00126 | 11kV Corridors Drawing (DLTM) | MP00126-11CD |
| MP00126 | 132kV Road Crossing Ducts (DLTM) | MP00126-132RCD |
| MP00126 | 11kV Road Crossing Ducts (DLTM) | MP00126-11RCD |
| MP00126 | Cross Section markers drawing (DLTM) | MP00126-CSMD |
| MP00126 | Ultimate Feeding Zone Drawing (DLTM) | MP00126-UFZD-SS1(SS*) |
| MP00126 | Initial Feeding Zone Drawing (DLTM) | MP00126-IFZD-SS1(SS*) |
| MP00126 | Entry/Exit of 132kV and 11kV Corridors (DLTM) | MP00126-EE-132-11-SS1(SS*) |
| MP00126 | Detailed Cross Sections Drawing (Bulk Drawing) | MP00126-XS-AA(AA*)- PDF |



7.10 Annexure-10 : Digital Drawing Submission Requirements for Power Supply Master Plan

Digital Drawing Submission Requirements For Power Supply Master Plan

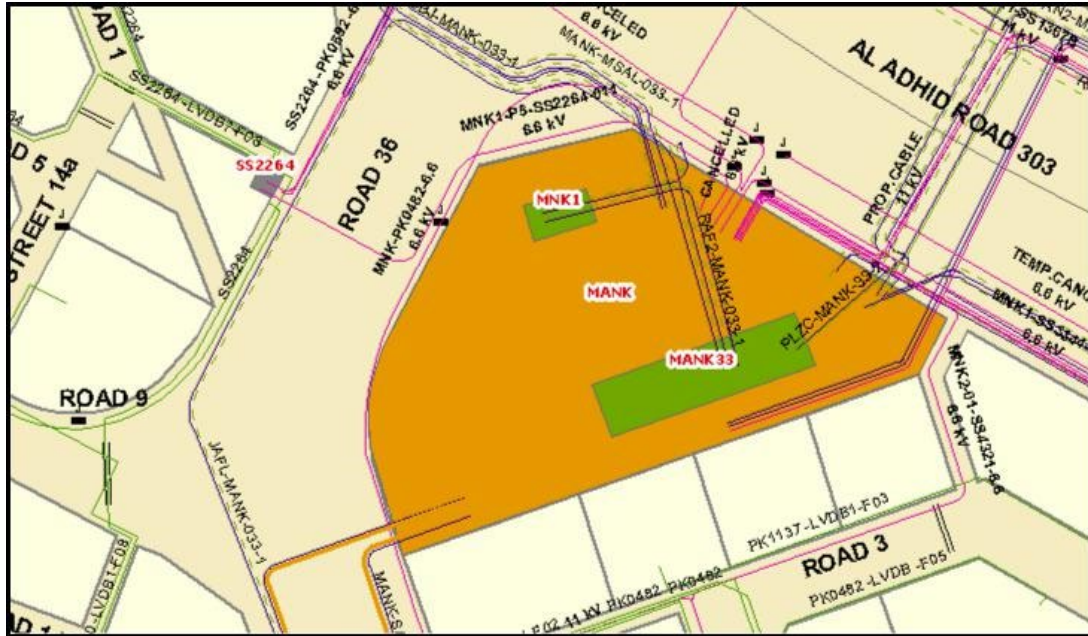


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1. Introduction

The purpose of this document is to provide the GeoSpatial Data submission guidelines to all DEWA customers. The Layers/levels in the GDS submission shall be in line with DEWA requirements. Therefore, DEWA customers are requested to submit Power Supply Master Plan projects to DEWA PTP in a predefined format, which will enable us to work in an orderly manner. This guideline is intended to understand and facilitate DEWA II&P requirements to upload the project's landbase on DEWA GIS system.

Any questions concerning these standards or exceptions to these standards due to special circumstances should be referred to DEWA II&P Department for further clarification.

The format and the content of the GDS template file are explained in the following sections.

1.1 GDS File Format

The format of the GDS file can be either ESRI GeoDatabase (GDB), AutoCAD (DWG) or MicroStation (DGN). DEWA will agree all above formats for data exchange from Data Submitter.

The GDS file defines the following;

- a. What coordinate system to be used in drawing preparation
- b. How map features are organized into layers
- c. How those layers are named
- d. How existing features and layers in DEWA's GIS are symbolized.

Once the customers started to submit the drawings in the above specified manner then DEWA's II&P Department GIS team can update database in DEWA GIS.

Important note:

Drawing files submitted by the customers should strictly follow this guidelines such as "Level or Layer/Feature Class Name" "Symbology" "Coordinate system" etc..., that are mentioned in the **Layers Data field definition** (Ref 2.1) for example If customer not comply with specified **Layers Data field definition**, the GDS will not be recognized as data.

Most importantly, the drawing file submitted by the customer must not contain the following.

1. Title block
2. Border line



3. Notes in the drawing.

2. GDB/CAD/CSV file Submission Details

The following guidelines should be considered while preparing CAD/GDB for Road Network Layers and CSV for Proposed Duct/utility cross-section marker submissions. The File name should start with Project Name along with file details. For example Projectname_Crosssection.csv, Projectname_Dist_duct.csv, Projectname_roadlayout.dgn, Projectname_roadlayout.dwg, Projectname_Trans_duct.csv. (Ref. [Appendix 1](#))

2.1 Layers, Data Field and Definitions

| ROAD NETWORK LAYERS | | | | |
|---------------------|--------------|--|---------------------------------------|-------------------|
| S.No. | Layer_Name | Description | Geometry Type and Color Code CAD | Geometry Type GDB |
| 1 | Road Width | The width allocated to lanes for motorists, buses, trucks, bikes and this is also called carriage way. | Polyline and Point (RGB: 0:0:255) | Polygon |
| 2 | Roundabout | Non-pedestrian islands in the road surface that normally contains grass, trees, flowers or other plantations. | Polyline and Point (RGB: 255:102:102) | Polygon |
| 3 | Road Divider | The area that separates opposing lanes of traffic on divided roadways. Also called central reservation. | Polyline and Point (RGB: 255:0:255) | Polygon |
| 4 | Right-of-way | Right-of-Way is the land on which a roadway and its associated facilities and appurtenances are located. Highway right-of-way accommodates the entire roadway (i.e., travel lanes and shoulders), as well as adjacent sidewalks and the roadside corridors on which utilities are located. | Polyline (RGB: 0:255:0) | Polygon |
| 5 | Pavements | A path consisting of a paved area on the side of a road for Pedestrians, also called a sidewalk. | Polyline and Point (RGB: 204:0:0) | Polygon |
| 6 | Parking Lots | Should Represent vehicles Parking lot boundaries. | Polyline and Point (RGB: 0:255:0) | Polygon |



| | | | | |
|----|--|--|--|---------|
| 7 | Cross-section | <p>The simple line should be captured across the road which covers all road utilities allocations and road associated features(make sure the cross-section marker should not extend beyond the ROW).The cross-section ID should be provided in Text format, which should match with section id in detailed section view PDF file. Alternatively, CSV file should have both start and end coordinates with DEWA specified attributes.</p> <p>The direction for Cross-section digitization should be Right side (X1,Y1) to Left side (X2,Y2) according to the orientation.</p> | Line, Text and CSV (RGB: 255:255:255) | Line |
| 8 | Parcels | <p>The boundary and ID of the parcel should match with Authorities (DM, DSO and so on.)</p> <p>This Parcel ID should match with CSV file Parcel ID Column.</p> | Polyline/Text/CSV (RGB:51:0:0) | Polygon |
| 9 | Conduit132kV Planned(CAD) ElectricTransmissionDataSet /T_Conduitline (GDB). | Should represent simple line. | Line and CSV (RGB:255:170:0) | Line |
| 10 | Conduit11kV_33kV_Planned (CAD) ElectricDistribution DataSet / Conduitline (GDB). | Should represent simple line. | Line and CSV (RGB:76:230:0) | Line |
| 11 | ConduitLV Planned (CAD) ElectricDistribution | Should represent simple line. | Line and CSV (RGB:244:179:252) | Line |



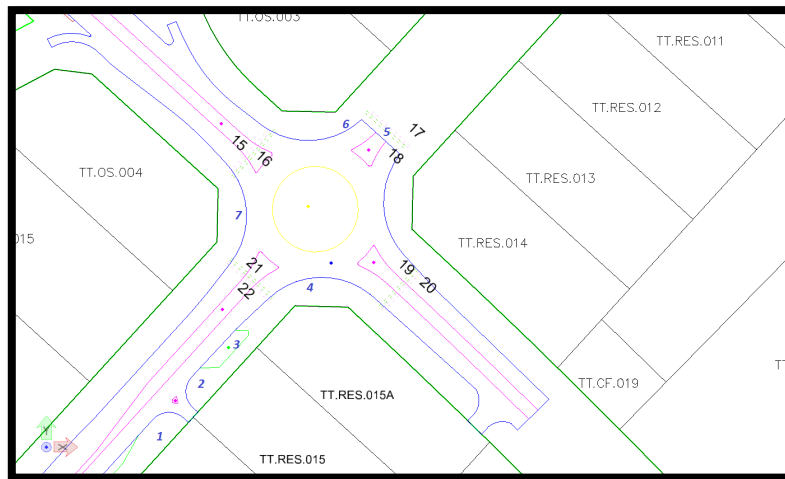
| | | | | |
|----|---|---|-------------------------------|---------|
| | utionDataSet / Conduitline (GDB). | | | |
| 12 | Duct_No and No. of Ways | This Duct ID should match with DEWA CSV file Ref No Column. | Text (RGB:204:204:0) | NA |
| 13 | Corridor | Should represent simple line. | Polyline (RGB:245:255:255) | NA |
| 14 | UC_EHV | Transmission Power network Corridor (132kv and 400kv). | Point (RGB:127:127:127) | Polygon |
| 15 | UC_HV | Distribution Power network Corridor (33kv, 11kv, and 6.6kv). | Point (RGB:255:0:0) | Polygon |

Other than GIS data, DEWA II&P expect customer to submit proposed duct/Utility Cross-section in CSV file and This CSV file should follow as per instruction given in Ref.3.0 Specification of coded values for various fields-CSV, and 4.Specification of coded values for various fields-CSV (Cross-section).

Note: *There is no need to provide CSV files when submitting GDS data in ESRI GDB format.*

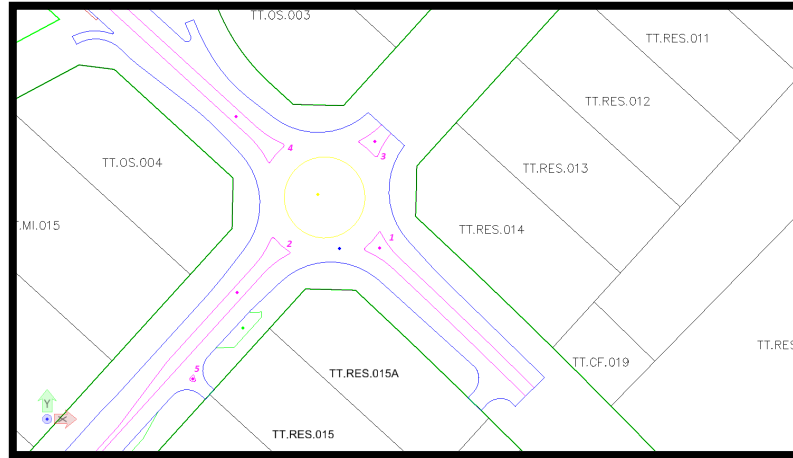
2.1.1 Road Width and Duct

The road width should be captured in Line string as specified in below picture and each segment should be end snapped with adjacent features. The duct should be captured as a single line segment with duct number as a text.



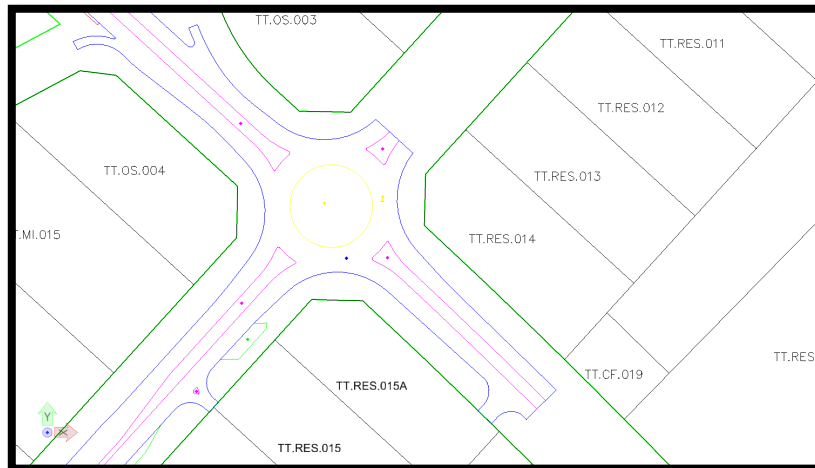
2.1.2 Road Divider

The road divider should be captured in Line string as specified in below picture and each segment should be end snapped with adjacent features.



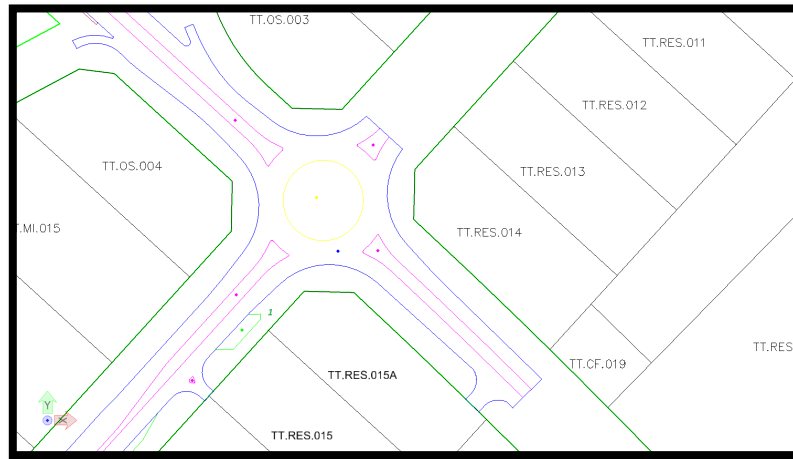
2.1.3 Roundabout

The Roundabout should be captured in Line string as specified in below picture.



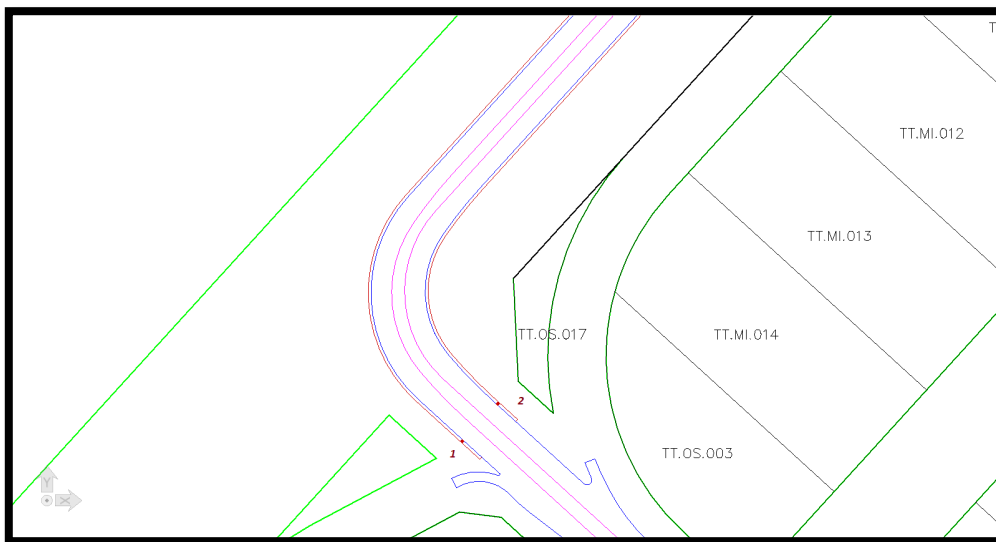
2.1.4 Parking

The Parking should be captured in Line string as specified in below picture and each segment should be end snapped with adjacent features.



2.1.5 Pavement

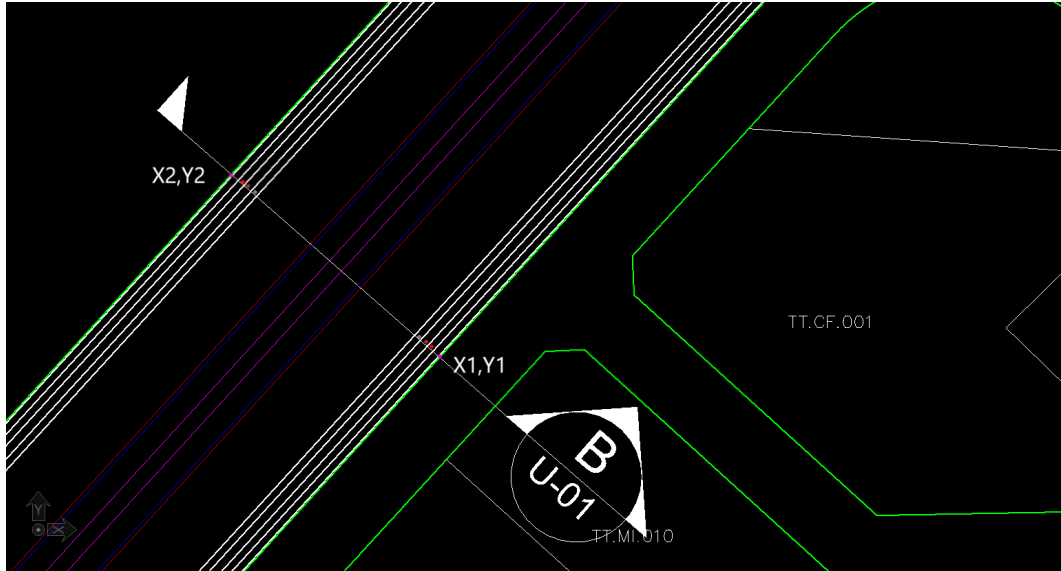
The Pavement should be captured in Line string as specified in below picture and each segment should be end snapped with adjacent features.



2.1.6 Cross-section

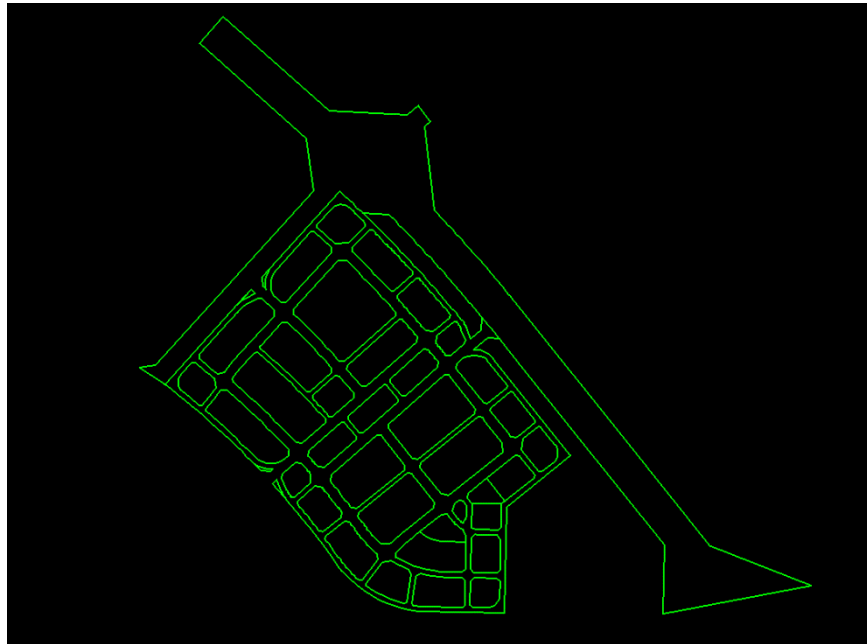
The cross-section should be captured single line segment with section number as a text. The orientation for cross section digitization should be right side (X1,Y1) to left side (X2,Y2) according to the direction.





2.1.7 Right of Way

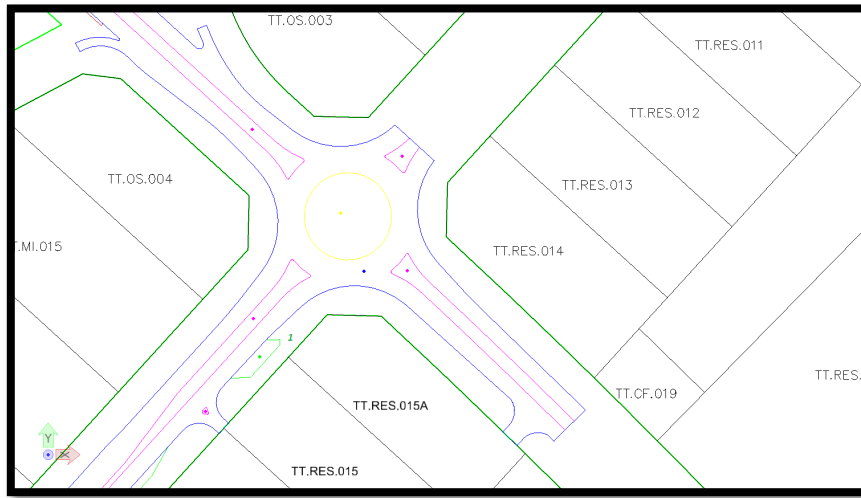
The Right of Way should be captured in Line string as specified in below picture and each segment should be end snapped with adjacent features.



2.1.8 Parcel

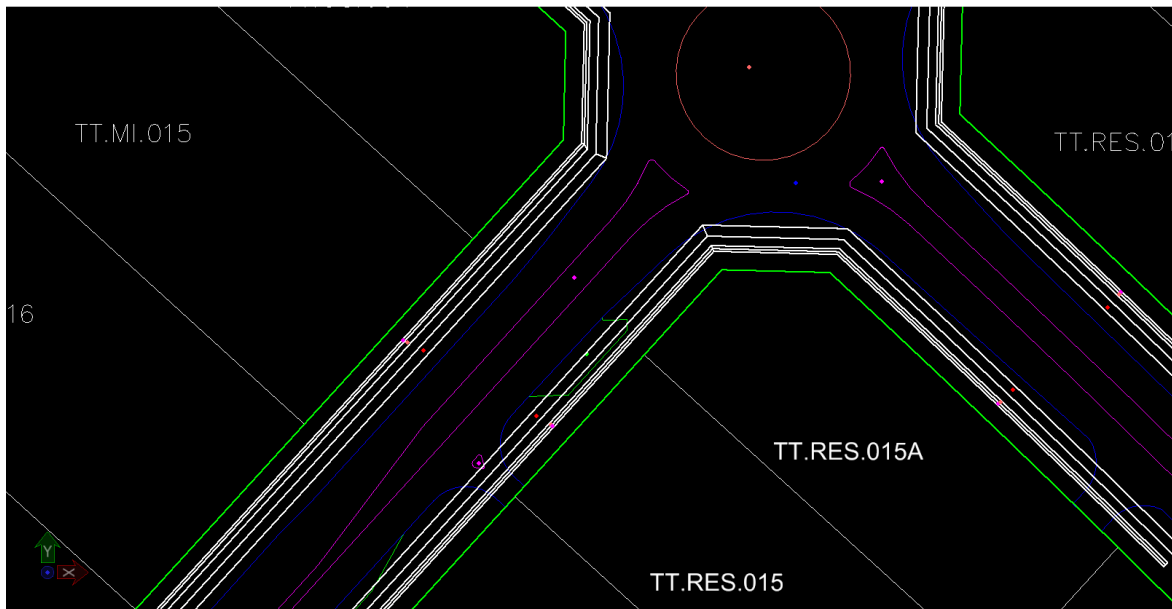
The boundary and ID of the parcel should match with Authorities (DM, DSO and so on.) and Parcel boundary polyline should not share with adjacent polyline and text should be fit into inside the parcel.





2.1.9 DEWA Utility Corridor

DEWA utility corridors should be captured in Line string and point features as specified in below picture and each segment should be snapped with adjacent features. The corridor boundary should be captured based on detailed cross-section submitted with Master plan. The different type of utility corridors in DEWA GIS such as UC_EHV (Transmission Power 132kV and 400kV), and UC_HV (Distribution Power 33kV, 11kV, and 6.6kV).



2.2 Coordinate System

Features in DEWA GDS compliant files must be represented in real world locations as referenced by Dubai Local Transverse Mercator projection (DLTM) parameters as given below.



Projection:

Dubai Local Transverse Mercator

Parameters:

Longitude of Origin 55:20:00.00 d:m:s

Latitude of Origin 0:00:00.000 d:m:s

False Easting 500,000.000 m

False Northing 0.000 m

Scale Factor along Longitude of Origin 1.0000

Geodetic Datum: WGS84

Ellipsoid WGS84 (Standard parameters)

Equatorial Radius: 6378137.000 m

Polar Radius: 6356752.314 m

Eccentricity: 0.0818191908426215

Flattening: 0.00335281066474746

Flattening Inverse: 298.257223563002

Units and Formats:

Geographic Units: d: m: s

Format: Long/lat. Precision: 4, Positive N,E

Projection Units: m

Format: Easting/Northing Precision: 3

Height Units: m Precision: 3

Geocentric Units: m Precision: 3

Distance Units: m Precision: 3

Angular Units: deg Precision: 6

2.3 CAD / GDB data submission guidelines

If the Data Submitter is unable to provide the required spatial information in accordance with the DEWA's GDS, the following guidelines should be followed when preparing CAD data for submission to the DEWA that will be used by the GIS Section:

- Layer/feature class names need to follow the DEWA's GDS naming format
- Each Feature Class and/or its sub-types need to be in a separate layer in the CAD file.
- Ellipse and Spline shall not be used at all.
- Overlapping, Self-intersecting and Zero Length are not allowed.



- Where two Polylines logically join, intersecting features within the same layer these shall be snapped at the point of intersection.
- Each text/point representing information about an area should fit well inside it.
- Digitization of lines (for example where these are roads) should be undertaken in their direction of travel where the road links are 'one-way' links. Two-way links represented as one link can be digitized in either direction.
- All new Conduits (Line features) must be clearly distinguishable from existing features by symbology and labels (Existing/New/Proposed).
- For each feature the following spatial data is required: StartPoint, EndPoint and TurningPoints if applicable). Features must have x,y co-ordinates as label text near the respective location on the drawing. These co-ordinates shall be on level 10.
- All drawings delivered to DEWA shall have an attached CSV file containing all features, their X,Y location (StartPoint, EndPoint and TurningPoints) and shall include attributes (ref 3.Specification of coded values for various fields-CSV(Duct) and 4.Specification of coded values for various fields-CSV(Crossection)) specified in a tabular form. Sample CSV template available in [Appendix 1](#) Sample CSV/CAD file template.
- An additional reference number in duct/section_id in Crossection (refno-Ref [Appendix 1](#) Sample CSV/CAD file template) can be added (if required) to enable relationships between the graphics in CAD and attributes in CSV.

2.4 Topology Rules

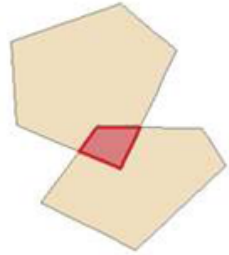
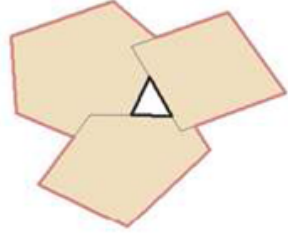
It is important that some basic topological rules are enforced whilst creating and maintaining existing data. These rules should be followed in CAD format files to ensure ease of translating from CAD to GIS formats should DEWA need to undertake such translation exercise. Some of the examples are shown below:





| | | | |
|---|--------------------------------------|---|--|
| 1 | Must Not Overlap | Requires that lines not overlap with lines in the same feature class. This rule is used where line segments should not be duplicated. | |
| 2 | Must Not Intersect | Requires that line features from the same feature class not cross or overlap each other. Lines can share endpoints. This rule is used in cases where the intersection of lines should only occur at endpoints, such as street segments and intersections. | |
| 3 | Must not have Dangles | Requires that a line feature must touch lines from the same feature class at both endpoints. An endpoint that is not connected to another line is called a dangle. This rule is used when line features must form closed loops, such as when they are defining the boundaries of polygon features. It may also be used in cases where lines typically connect to other lines, as with networks, such as road links. In this case, exceptions can be used where the rule is occasionally violated, as with cul-de-sac or dead end street segments. | |
| 5 | Must not intersect or Touch Interior | Requires that a line in one feature class must only touch other lines of the same feature class at endpoints. Any line segment in which features overlap or any intersection not at an endpoint is an error. This rule is useful where lines must only be connected at endpoints, such as in the case of plot lines, which must split. | |
| 6 | Must not Overlap with | Requires that a line from one feature class not overlap with line features in another feature class. This rule is used when line features cannot share the same space. For example, roads must not exactly follow a railway line. | Where the purple lines overlap is an error. |
| 7 | Must not Self Overlap | Requires that line features not overlap themselves. They can cross or touch themselves, but must not have coincident segments. This rule is useful for features such as streets, where segments might touch in a loop, but where the same street should not follow the same course twice. | The individual line feature overlaps itself, with the error indicated by the coral line. |
| 8 | Must not self Intersect | Requires that line features not cross or overlap themselves. This rule is useful for lines, such as contour lines, that cannot cross themselves. | |
| 9 | Must be a Single Part | Requires that lines have only one part. This rule is useful where line features, such as highways, may not have multiple parts. | Multipart lines are created from a single sketch. |



| S.no | Topology Rule | Rule Description | Example |
|------|--------------------|--|---|
| 1 | Must Not Overlap | Requires that the interior of polygons in the feature class not overlap. The polygons can share edges or vertices. This rule is used when an area cannot belong to two or more polygons. It is useful for modelling administrative boundaries, such as building plots, districts, and mutually exclusive area classifications, such as land cover or landform type. |  |
| 2 | Must Not Have Gaps | This rule requires that there are no voids within a single polygon or between adjacent polygons. All polygons must form a continuous surface. An error will always exist on the perimeter of the surface. You can either ignore this error or mark it as an exception. Use this rule on data that must completely cover an area. For example, Land Uses polygons cannot have gaps. |  |

The following definitions clarify the subject of the DEWA's GDS:

Polyline: A polyline is a sequence of joined vertices. Each vertex has an X and Y. Attributes further describe the polyline. A polyline must be uniquely identified and duplicates are not permitted, unless the justification for a duplicate is provided by the Data Submitter.

Polygon: A polygon, like a polyline, is a sequence of vertices. However, in a polygon, the first and last vertices are always at the same position. Overlapping polygons are not permitted, unless the justification for any overlap is provided by the Data Submitter.

Dangle: Dangles are topological errors where an arc or a line does not end at the point where it should. These are created due to improper digitization. Dangles are of two types- overshoots and undershoot. Dangles can be avoided if proper Snapping tolerance is defined before starting digitization. Dangles are not permitted, unless justification for any dangles is provided by the Data Submitter.

Undershoots: When an arc or a line finishes before connecting to another arc at a required location it is called as undershoot. Undershoots can occur when a line feature (e.g. a road) does not exactly meet another feature to which it should be connected. Undershoots are not permitted, unless justification for any undershoot is provided by the Data Submitter.



Overshoots: When an arc or a line does not end at its termination point on another arc and goes beyond it is called as overshoot. Overshoots can occur when a line feature such as a road does not meet another road exactly at an intersection. Overshoots are not permitted, unless justification for any overshoot is provided by the Data Submitter.

Spurious Polygons: Spurious polygons or slivers are often created during overlay of two or more polygon layers. Slivers are small polygons which results due to overlay operations of polygons whose edges do not match. Slivers can occur when the edges of two polygon areas do not meet properly. Slivers are not permitted, unless justification for any sliver is provided by the Data Submitter.

Compliance: The Data Submitter must comply with the requirements for DEWA's GDS in the coordinate system; layer names must meet the requirements of the DEWA's GDS. These layers will be populated by those submitting the GDS file with the appropriate survey / engineering data and by providing supporting documentation to allow DEWA full discovery of the information provided and any issues that DEWA should be aware if they use the data.

Naming Convention: Layers must be submitted in accordance with a naming convention that is consistent with the DEWA's own naming convention.

3. Specification of coded values for various fields-CSV (Duct)

Subtype

| Code | State |
|------|-----------|
| 1 | Duct Bank |
| 2 | Trench |
| 3 | Turf |
| 4 | HDD |
| 5 | Unknown |

Status indicator

| Code | State |
|---------------------------|---------------------------|
| Proposed | Proposed |
| Cancelled | Cancelled |
| In service | In service |
| Approved for Construction | Approved for Construction |
| Constructed As laid | Constructed As laid |

Operating Voltage

| Code | Conduit Nominal Voltage |
|------|-------------------------|
| 400 | 400 kV |
| 132 | 132 kV |



| | |
|----|-------|
| 11 | 11 kV |
| 33 | 33 kV |
| LV | LV |

Encasement Type

| Code | Encasement Type |
|------------|-----------------|
| Backfil | Back Fill |
| Concrete | Concrete |
| NDRC | NDRC |
| Smart Sand | Smart Sand |
| 0 | Unknown |

Material

| Code | Material Type |
|------|---------------|
| HDPE | HDPE |
| UPVC | UPVC |
| UNK | Unknown |

Duct Size

| Code | Duct Size |
|------|-----------|
| 2 | 2" |
| 4 | 4" |
| 6 | 6" |
| 12 | 12" |
| 18 | 18" |
| 24 | 24" |
| 30 | 30" |
| 36 | 36" |
| 42 | 42" |
| 48 | 48" |

Number of Ducts

| Code | No of Ducts | Code | No of Ducts | Code | No of Ducts | Code | No of Ducts | Code | No of Ducts |
|------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|
| 4 | 1 | 48 | 27 | 32 | 2x30 | 55 | 4x(2x5) | 62 | 2x2 |
| 5 | 2 | 49 | 28 | 33 | 2x35 | 1 | IV(1) | | |
| 6 | 3 | 50 | 29 | 34 | 2x40 | 3 | IV(3) | | |



| | | | | | | | | | |
|----|----|----|------|----|---------|-----|---------|--|--|
| 7 | 4 | 51 | 30 | 35 | 2x45 | 399 | IV(39) | | |
| 24 | 5 | 12 | 1x6 | 36 | 2x50 | 2 | UNKNOWN | | |
| 17 | 6 | 56 | 1x8 | 10 | 3x4 | 100 | 9 | | |
| 25 | 7 | 58 | 1x11 | 39 | 3x5 | 8 | 2X4 | | |
| 15 | 10 | 57 | 1x12 | 14 | 3x6 | 12 | 1x6 | | |
| 37 | 11 | 8 | 2x4 | 22 | 3x8 | 14 | 3x6 | | |
| 38 | 13 | 26 | 2x5 | 60 | 3x11 | 15 | 10 | | |
| 16 | 16 | 13 | 2x6 | 23 | 3x12 | 17 | 6 | | |
| 9 | 18 | 19 | 2x8 | 21 | 3x16 | 101 | 8 | | |
| 41 | 19 | 29 | 2x10 | 40 | 4x4 | 102 | 12 | | |
| 42 | 20 | 59 | 2x11 | 99 | 4x6 | 103 | 14 | | |
| 43 | 21 | 20 | 2x12 | 61 | 4x11 | 104 | 15 | | |
| 44 | 22 | 27 | 2x15 | 11 | 6x4 | 105 | 17 | | |
| 45 | 23 | 30 | 2x20 | 52 | 1x(2x5) | 106 | 8x11 | | |
| 46 | 25 | 28 | 2x24 | 53 | 2x(2x5) | 107 | 2x3 | | |
| 47 | 26 | 31 | 2x25 | 54 | 3x(2x5) | 108 | 2x7 | | |

4. Specification of coded values for various fields-CSV (Cross-section)

Status

| Domain Type: | CodedValue |
|--------------|--------------------|
| Code | Value |
| AB | As-Built |
| C | Construction |
| FD | Final Design |
| PD | Preliminary Design |

Undertaking Letter Indicator

| Domain Type: | CodedValue |
|--------------|----------------|
| Code | Value |
| N | No |
| NA | Not Applicable |
| UNK | Unknown |
| Y | Yes |



5. Specification of coded values for various fields (Parcel Planning)

| ENTITLEMENT_E | |
|---------------|------------|
| Domain Type: | CodedValue |
| Code | Value |
| 1 | Private |
| 2 | Granted |
| 3 | Lease |
| 4 | Null |
| 5 | Rented |
| 6 | Reserved |
| 7 | Utilities |
| 8 | Government |

| PARCEL_TYPE | |
|--------------|---------------------------|
| Domain Type: | CodedValue |
| Code | Value |
| 1 | DM Code |
| 2 | Developer/Contractor Code |
| 4 | JAFZA |
| 5 | DWC |
| 6 | TRAKHEES |
| 7 | Meydan |
| 8 | DCCA |
| 11 | Jumeirah Golf Estate |
| 12 | Nakheel |
| 13 | TECOM |
| 14 | Dubai Silicon Oasis |
| 15 | DAFZA |
| 16 | DMCC |
| 17 | Jumeirah Lake Towers |
| 18 | EO |
| 19 | EMAAR |
| 20 | DUBAI PROPERTIES |



| | |
|----|------------------------------|
| 21 | DUBAI PORT AUTHORITY |
| 22 | DIP |
| 24 | MERAAS |
| 25 | MBRHE |
| 26 | BUSET |
| 27 | SOBHA |
| 28 | DIRE |
| 29 | MAF |
| 30 | DFC |
| 31 | DHCC |
| 32 | HABTOOR |
| 33 | DAMAC |
| 34 | DUBAI SPORTS CITY |
| 35 | UNION PROPERTIES |
| 36 | MUSTAFA GALADARI |
| 37 | AL BARARI |
| 38 | TANMIYAT GROUP |
| 39 | DIAMOND |
| 40 | FCW |
| 41 | TIGERWOOD |
| 42 | PCFC |
| 43 | LIMITLESS |
| 44 | DCA |
| 45 | DWTC |
| 46 | DIC |
| 48 | Deira WaterFront Development |
| 49 | NSHAMA |
| 50 | DIB |
| 51 | DGC |
| 52 | Al Wasl |
| 53 | DREC |
| 54 | Dubai Holding |
| 55 | Dubai Maritime City |
| 56 | Gulf Developers |
| 57 | Nobility |



| | |
|----|---------------|
| 58 | GFH |
| 61 | Al Ahli Group |
| 62 | DHE |

| ZONINGAUTHORITY | |
|-----------------|------------|
| Domain Type: | CodedValue |
| Code | Value |
| 1 | DM |
| 2 | DCCA |
| 3 | TRAKHEES |
| 4 | DWC |
| 5 | DSOA |
| 6 | JAFZA |
| 7 | DAFZA |
| 8 | EO |
| 9 | DPA |

| LANDUSE_DESC(LanduseDescription) | |
|----------------------------------|--------------------------------------|
| Domain Type: | CodedValue |
| Code | Value |
| 1 | Residential |
| 2 | Mixed Use(Residential-Office-Retail) |
| 3 | Commercial |
| 4 | Public Facilities |
| 5 | Hotels and Apartments |
| 6 | Parks |
| 7 | OpenSpace and Recreation |
| 8 | Utilities |
| 9 | Landscaping |
| 10 | Sikka |
| 11 | BufferZone |
| 12 | Hospital/Clinic |
| 13 | Schools |
| 14 | Transportation |



| SUBTYPECD | |
|--------------|------------|
| Domain Type: | CodedValue |
| Code | Value |
| 1 | FreeZone |
| 2 | DM |

Status

| Domain Type: | CodedValue |
|--------------|--------------------|
| Code | Value |
| 1 | Preliminary Design |

6. General Requirements

All digital drawings submitted to DEWA must confirm to the following requirements.

6.1 Documentation

The following documentation is required when submitting digital drawings to DEWA

- Document describing the content of digital data, including project details. Example:

Project Name: Palm Island
File Name(s): 132kV_ThePalm.shp, 33kV_ThePalm.shp, etc
Date: July 1, 2004
Company Name: Contractor LLC
Contact Person: John Doe
Contact Phone: +971 50 555 5555
Contact E-mail: John.Doe@contractor.co.ae
Format: DWG2000/DXF/GDB/DGNv8
Layers submitted: As specified in the Table 1.0
Thumbnail images of drawings

- Digital drawing files (DGN/DWG/DXF/GDB files)
- Comma Delimited File (CSV) sheet describing attributes of features included in the CAD drawings. *This document is not required if digital drawing is submitted in ESRI GDB file format.*

All documentation, including drawings, shall be submitted on CD-ROM/DVD media only.



6.2 Accuracy of co-ordinates in digital drawings

The accuracy of the co-ordinates submitted to DEWA shall be clearly mentioned on the submitted drawings or in attached documentation.

6.3 Digital drawing format standards

All drawing submitted to DEWA must be delivered in one of the following standardized drawing formats.

MicroStation design files (.dgn) up to Version 8i AutoCAD drawing files .dwg)
up to AutoCAD 2016

ESRI GDB V10

ASCII, binary and partial drawing interchange files (.dxf) that comply with DXF standards.

6.4 Map Orientation

All drawings shall be delivered in a non-rotated orientation (North facing up).

6.5 2D versus 3D drawings

All drawings are to be submitted as two dimensional (2D) graphic files. Three-dimensional Drawings are not acceptable except if specified by DEWA.

Appendix 1 : Sample CSV/CAD file template



Appendix 1-
Digital Drawing
Sample CSV &
CAD File

