

Guideline of Developers Links with Railway Stations

Rail Agency

Revision 1.0

Document No: RA-RROW-RNOC-GDL-0001

August 2024

Table of Contents

NOTICE	1
1 OVERVIEW	3
1.1 Introduction	3
1.2 Primary objectives for developers	4
1.3 Presentation and Terminology	8
2 PROCESS REQUIREMENTS	10
2.1 Introduction	10
2.2 Request of connection with Rail Structure	10
2.3 Process	10
2.4 Rail Agency Role and Responsibilities	20
2.5 Fire and life safety strategy	21
2.6 Compliance with standards and legislations	21
3 DESIGN PRINCIPLES	24
3.1 Introduction	24
3.2 Dubai climate and environment	24
3.3 Security	24
3.4 Civil engineering	26
APPENDIX 1: EARTHING AND BONDING ARRANGEMENTS	30
A1.1 General	30

1 Overview

1.1 Introduction

- 1.1.1.1 This document, Guidelines and Design Principles for Pedestrian Connections with Railway Stations undertaken by Developers in the Emirate of Dubai, referred to hereafter as the Developers' Link Guidelines, constitutes the General Guidelines Manual referred to in Executive Council Resolution No (1) for the year 2017 and its modification No (53) for the year 2023.
- 1.1.1.2 This document addresses the links interface with Rail stations, and the developer shall approach ROW to fulfil their requirements.
- 1.1.1.3 The Developers' Link Guidelines shall be mandatory for all pedestrian connections undertaken by external entities other than the RTA, referred to hereafter as Developers, and is intended to set out:
- a) the expectations of the RTA from designs delivered by Developers for links with the Railway Station.
 - b) the requirements for the preparation of submissions to the RTA, including No objection certificates; and
 - c) the design guidelines and principles that would help demonstrate compliance with RTA objectives.
- 1.1.1.4 The Developers' Link Guidelines shall be the reference document for Developers and their appointed Designers, Contractors, Suppliers, and Third-Party Reviewers.
- 1.1.1.5 The objectives of this document are to promote construction of links with Rail stations and ensure:
- a) compliance with the laws and regulations in Dubai and the UAE;
 - b) compliance with the RTA's Strategic Objectives; and
 - c) that the proposed connection delivers high standards of safety and performance.
- 1.1.1.6 The deliverables prepared and submitted by Developers, or their representatives, to the RTA shall demonstrate compliance with all requirements contained in this document.
- 1.1.1.7 While compliance with some of the objectives, may be subjective, the RTA shall be the sole authority to determine if the spirit of compliance has been delivered.
- 1.1.1.8 The discipline requirements contained in this document shall cover the following types of connections with Railway stations:
- a) Link pedestrian bridge with overground Railway station.
 - b) Underground passageway connection with underground station.
 - c) At grade links to the entrance of the at grade Railway stations.

1.1.1.9 Connections with Etihad Rail or connection with private Railway systems requirements are not included in this document and these shall be communicated with the Rail system owner.

1.2 Primary objectives for developers

1.2.1 Introduction

1.2.1.1 This section identifies the primary objectives that Developers must achieve when delivering links with rail stations and facilities.

1.2.1.2 Compliance with these primary requirements is mandatory for all links and connections with Rail stations and shall be demonstrated for each project.

1.2.1.3 The primary objectives which Developers shall meet cover the following areas:

- a) Health and safety;
- b) Security;
- c) Passenger environment;
- d) Accessibility;
- e) Environmental sustainability;
- f) Interchange integration;
- g) Systems integration; and
- h) Transit Oriented Developments.

1.2.1.4 Designs shall be prepared to deliver the link to Rail stations to the highest level of quality, fully integrated and interoperable with existing station systems, with a high level of innovation in accordance with international best practices and standards.

1.2.2 Health and safety

1.2.2.1 The health and safety goal shall be to safeguard the lives of passengers, employees, contractors, vendors, emergency response personnel and the public at large when using the proposed links.

1.2.2.2 The strategy to achieve this goal shall include requirements:

- a) to eliminate or reduce risks to the health and safety of persons using or working on the transport system;
- b) to enable timely detection and intervention to mitigate the risks in the event of any incident;
- c) to enable timely emergency evacuation for occupants from any part of the transport system through the proposed link;
- d) to ensure effective access and timely emergency response to the incident scene by emergency services;

- e) to minimise property damage and the time required for operations recovery and business continuity;
- f) to protect the environment in the design, construction and maintenance of the health and safety provisions.

1.2.2.3 Ergonomics, which includes human factors, shall be recognized as a key element to design safety at every level and function of the project system lifecycle.

1.2.3 Security

1.2.3.1 The security goal is twofold:

- a) to protect the lives of persons, using or associated, with the rail transport systems; and
- b) to protect the properties of the rail transport system.

1.2.3.2 The strategy to achieve these goals shall include requirements to:

- eliminate or reduce, the security and safety risks of, persons using or associated, with the rail transport system;
- eliminate or reduce the risks of damages, to the properties of the rail transport system ;
- enable timely detection and intervention to mitigate risks, in the event of any incident;
- ensure effective access to incident location, and timely response, by relevant responders or emergency services;
- minimise the recovery time for operations and business continuity; and
- protect the environment in the design, construction, whilst maintaining the security provisions.

1.2.4 Passenger Environment

1.2.4.1 The proposed links with Rail stations projects shall aim to deliver high-quality passenger environments that:

- a) respect social conventions and cultural norms;
- b) ensure passengers' comfortable, smooth and quick circulation;
- c) provide adequate signage and wayfinding;
- d) provide clean and hygienic facilities and amenities;
- e) provide user-friendly and automated services;
- f) create a sense of personal safety and security;
- g) allow safe and smooth integration with other forms of public transport, particularly public transport, to enhance passenger convenience; and

- h) offer a level of service that encourages the use of rail transport and increases rail transport patronage.

1.2.4.2 Free movement shall be allowed to and through stations during peak commuter periods and stations shall be able to cope adequately with flow during special events. The route to a destination shall be easily identifiable between development building and stations.

1.2.4.3 A Fruin Level of Service of “C” or better shall be provided in all public areas.

1.2.5 Accessibility

1.2.5.1 The new links to rail stations shall comply with Dubai Universal Design Code (DUDC).

1.2.5.2 The design shall adopt the following design principles:

- a) step-free access shall be provided between the development building and stations;
- b) all facilities, such as lifts, shall be located next to normal circulation areas to ensure inclusivity and prevent isolation;
- c) provision of help points at strategic locations; and
- d) provision of continuous tactile paving (Tactile paving shall comply with DUDC.)
- e) All waiting/queueing areas (e.g. lifts, ATMs,...) shall not overlap the main circulation areas in the link to avoid circulation clashes and bottlenecks.
- f) The proposed links to rail stations shall be sized according to the expended demand, granting a LOS ‘C’ as per Fruin standard.
- g) New links shall not negatively impact the existing station circulation areas, reducing LOS ‘C’.
- h) The new links shall have all required signage to guide passengers. Signage inside the station also needs to be updated to include a new link.

1.2.5.3 The design shall address the specific needs of the following user profiles:

- a) wheelchair users;
- b) visually and hearing impaired;
- c) elderly;
- d) passengers with children, including those in prams, push chairs, pregnant women; and
- e) passengers with luggage.

1.2.6 Environmental sustainability

1.2.6.1 links projects shall aim to deliver the link with the minimum impact on the environment by achieving the following:

- a) use of low energy construction materials and low impact construction techniques;
- b) state-of-the-art building systems that minimise the amount of energy and

- water required during manufacture, installation and operation;
- c) minimum use of energy and water required for climate control, while maintaining passenger comfort; and
- d) encouraging the use of innovative insulation materials, and plant and building management systems.

1.2.7 Interchange integration

1.2.7.1 Where Developer and RTA buildings are physically linked for passenger interchange, the following shall apply:

- a) compliance with the RTA signage manual as applicable;
- b) system links between fire alarm systems to ensure that both parties are aware of a fire threat in either building;
- c) system links between Public Address (PA) systems for coordinated emergency evacuation messages;
- d) system links between Closed Circuit Television (CCTV) systems to ensure that common areas and other key locations can be seen by staff in both buildings and their respective control centers;
- e) system links between radio systems to ensure that staff and emergency services can communicate seamlessly when moving between buildings;
- f) system links between Passenger Information Display (PID) systems to ensure that operational messages from one service provider may be displayed in areas managed by the other service provider – particularly for instances when the passenger interchange must be suspended, or service disruptions occur for any reason; and
- g) requirements for physical interfaces at facility perimeters including security, access, maintenance, airflow, fire compartmentation, noise and light pollution, etc., shall be coordinated.
- h) Fire compartmentation between the station and the link shall comply with the UAE Fire and Life Safety Code of Practice. Official DCD approval to be obtained and presented
- i) Physical interface between the two buildings shall grant seamless integration between cladding materials and structures granting water, and air tightness.
- j) Floor expansion joints shall have recessed heavy duty, anti-slip metal cover joints.
- k) The environmental conditions (temperature, light LUX level etc) of the link portion shall be compatible to the design values of the adjacent Metro area.
- l) No power, water, AC etc. source from the station shall be required to be tapped.
- m) Fire segregation and escape route strategy in case of fire / emergency to be approved by RTA.

- n) C & E Matrix approval by RTA for all situations like Normal operating, Closed, Emergency, Fire etc.
- o) Fire rated Doors as per DCD recommendations for separation of RTA asset from the developer asset.
- p) Lightning protection continuity requirement.
- q) Coordinate and provide necessary support to manage special events around the station

1.2.8 Transit Oriented Developments

1.2.8.1 The RTA encourages transit-oriented developments (TODs). TODs are generally characterized by high-quality pedestrian environments surrounding a transit station, includes a range of residential and commercial mixed land uses and features greater development density that supports public transport ridership and potentially generates higher fare revenues. The developer shall comply with requirements of Dubai Municipality latest TOD manual

1.2.8.2 TODs shall seek to achieve the following and shall be in line with Dubai Municipality Manual:

- a) integrate land use and public transportation to enhance passenger/pedestrian convenience and to consequently improve ridership and ultimately boost property value;
- b) develop urban planning and design solutions that promote a sense of place/community and are responsive to the geographic and social context;
- c) address market demand and achieve the best return on investment by careful consideration of development mix and commercial opportunities that would sustain the development;
- d) promote good intermodal connectivity and provide safe pedestrian accessibility within the plot and appropriate links to adjacent environments;
- e) create or maintain public realm areas and green, open, breathing spaces within the development; and
- f) develop competent and sustainable urban forms inspired by and complementary to the local context.

1.3 Presentation and Terminology

1.3.1 Use of language

1.3.1.1 Project documentation shall be written in a simple, clear and concise manner.

1.3.1.2 Project documentation shall be written in English, although other languages may also be permitted for operational purposes.

1.3.2 Document and asset identification

- 1.3.2.1 All Project documentation shall be presented in a consistent style and a document and asset identification system shall be implemented.
- 1.3.2.2 This system shall address the identification requirements for all design documentation including plans, reports, specifications and drawings and the identification of assets.
- 1.3.2.3 Version control of documentation shall be ensured through a documented change control process.

1.3.3 Consistency of Terminology

- 1.3.3.1 All Project documentation including plans, reports, specifications, manuals, and drawings shall utilise consistent terminology in accordance with that used by the RTA.
- 1.3.3.2 A Project Glossary shall be adopted, developed, and maintained throughout the whole of the Project to include abbreviations and definitions that are necessary to support the Project and shall be attached with deliverables as relevant.

1.3.4 CAD standards

- 1.3.4.1 Drawings shall comply with RTA CAD standard requirements.
- 1.3.4.2 SI units shall be used throughout all aspects of the Works.

2 Process requirements

2.1 Introduction

- 2.1.1.1 This chapter (Chart 1) presents the processes that need to be complied with to enable the RTA to issue the relevant No Objection Certificates (NOCs), Permits and Certificates.
- 2.1.1.2 Adherence to these processes and procedures by the Developer and its appointed Designer/ Contractor / Operator is mandatory to demonstrate that the delivery of the link with Rail Station (from design to commercial operation) has been carried out in accordance with RTA's safety and operational performance requirements.

2.2 Request of connection with Rail Structure

- 2.2.1.1 According to the process of manage rail connections (RL.NO.1.11) explained in the flow chart below (Chart 1), the developer shall Submit official request letter to RTA and/or Rail agency management asking to for link, in this letter the developer shall provide the name of the station to connect with, in addition a presentation showing the proposed location of link. All requirements stated in the pre-design stage shall be fulfilled.
- 2.2.1.2 The Developer shall appoint prequalified third-party reviewer (referred to hereafter as the Independent Review Body or IRB) to check and verify on behalf of the RTA that the appointed Designer's/ Contractor's work and deliverables are in compliance with this document, and in line with the relevant local governing laws and regulations.
- 2.2.1.3 The submission process described above shall be repeated for the Preliminary Design and the Detailed Design submissions, however, this time RTA approval shall be required in order for the Developer to proceed to the next stage. The IRB shall forward these submissions to the RTA.
- 2.2.1.4 The independent review party shall be an RTA prequalified consultant for the same scope of work.
- 2.2.1.5 Upon review of the Preliminary Design submission and if deemed compliant by the IRB and if the RTA has no objections on the same then the RTA shall issue a Preliminary Design NOC to enable the Developer to proceed with Detailed (Final) Design. The IBR shall send the submission to RTA approval, including the IBR acceptance of the submission.
- 2.2.1.6 In cases where the IRB and/or RTA have comments on a submission that they deem as minor and that are easy for the Developer's Designer to address in a subsequent design approval submission then an NOC with Comments may be issued by the RTA.

2.3 Process

- 2.3.1.1 The chart below (Chart 1) demonstrates the review, approval process for links with Rail Stations during all project phases.

2.3.2 Pre-Design Stage (feasibility study)

- 2.3.2.1 For proposed developments that may potentially feature a connection with rail transport component, the Developer shall submit a Brief to Rail Agency through letter directed to RTA/Rail Agency management.
- 2.3.2.2 The Project Brief shall describe the scope and extent of the proposed link with Rail station prepared by RTA approved consultant, it shall include, but not limited to, the following:
- a) Project background, purpose, and scope
 - b) Project benefits (economic, social, environmental, etc.)
 - c) Illustrations of proposed connection
 - d) Potential impacts of the Project on the existing Railway Station/facility, which may include:
 - i) Physical impact on the built environment in terms of any required.
 - ii) Potential impacts of the proposed link on passenger flow inside station and gates of fare collection.
 - e) Project brief shall show any potential impacts on the station exterior areas (if applicable)
 - f) Identify potential risks and uncertainties associated with the project, such as technical challenges, regulatory hurdles, or unforeseen delays

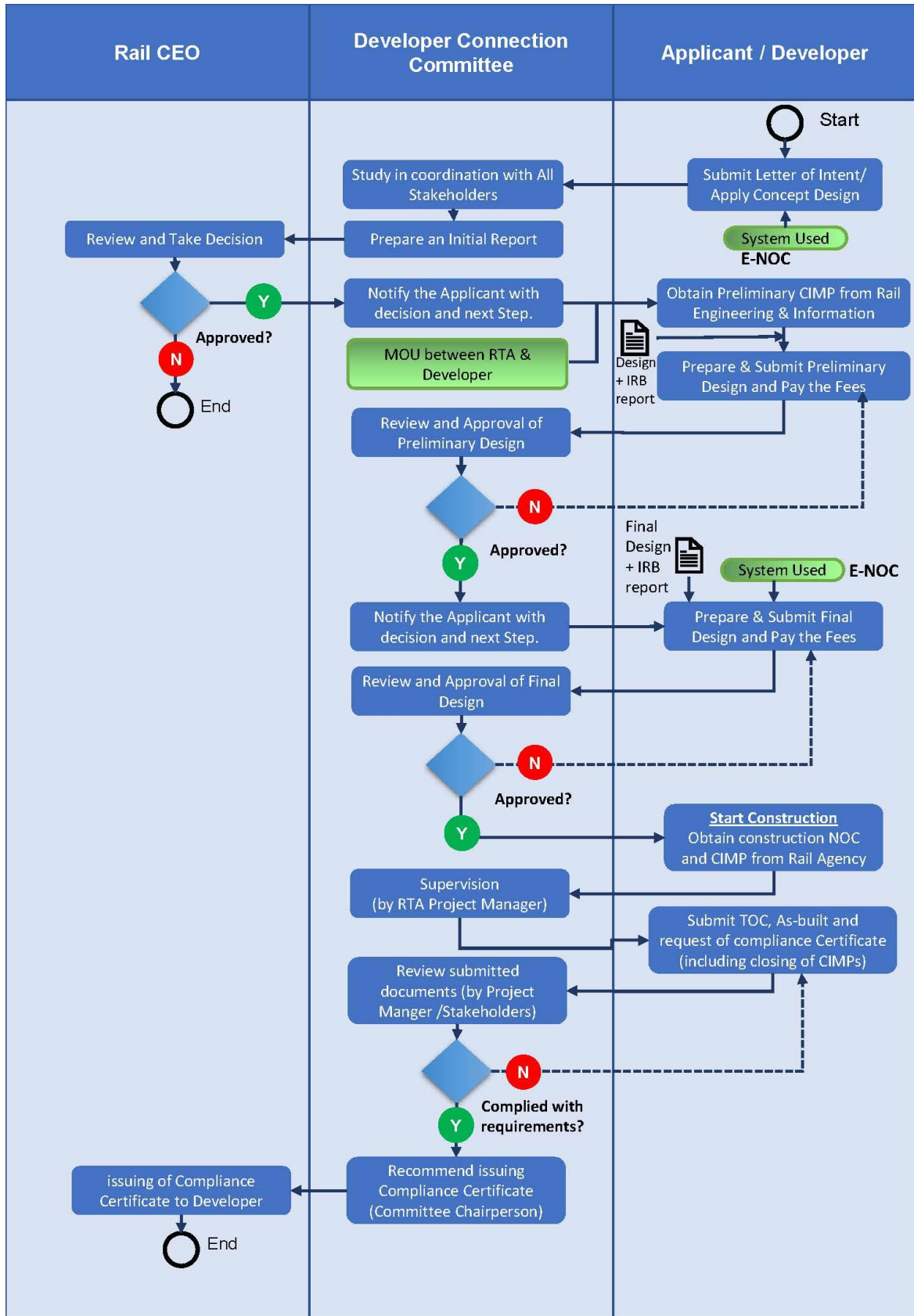


Chart 1: Rail Agency Process for review and management of Links with Developers

- 2.3.2.3 The submitted documents shall be reviewed by Rail Agency technical Team. Meetings with developer's consultant to discuss the proposal shall be requested whenever required.
- 2.3.2.4 If RTA have no objections for the feasibility study, the developer's consultant shall apply for concept design NOC through eNOC portal, the main goal of this NOC is to obtain the approval on the concept design of the proposed link from all authorities, especially when part of the link is located in Roads Right of way.
- 2.3.2.5 If the RTA management has no objections on the same, then the RROW shall issue the NOC in Principle to enable the Developer to proceed with the preliminary Design NOC. This NOC may have several Restrictions and Qualifications associated with it that would require satisfactory closure within a specified time, to be determined by the RTA.

2.3.3 Feasibility Study and Concept Design Stage

- 2.3.3.1 Developer shall appoint Designer pre-qualified by RTA to prepare the Concept Design for the Project.
- 2.3.3.2 It shall be the Developer's responsibility to ensure that any entity appointed to undertake connection-related works (whether studies, design, construction, etc.) are Pre-Qualified by the RTA. Failure to procure the services of RTA-prequalified service providers shall result in RTA's rejection of submitted deliverables or completed works.
- 2.3.3.3 The Developer shall develop the Concept Design in accordance with this Guidelines and any additional requirements provided by the RTA including, but not limited to, manuals, guidelines, and strategic plans.
- 2.3.3.4 The Developer's consultant shall submit the following documents/ studies to Rail Agency (through E-NOC System) to obtain the NOC with conditions:
- a) Project background, purpose, and scope
 - b) Project benefits (economic, social, environmental, etc.)
 - c) Proposed phasing strategy
 - d) Illustrations of proposed connection with Rail structures (architecture, structure, MEP...etc.)
 - e) Impact of the proposed connection on the existing utilities in case if part of connection is in the Road right of way.
 - f) Potential impacts of the proposed link on Railway structures, which may include:
 - i) Physical impact on the built environment in terms of any required.
 - ii) demolitions, utility relocations, road network reconfiguration, etc.- any impact on planned or existing RTA assets or infrastructure (including road networks, rail corridors, footpaths, pedestrian crossings and cycle paths and tracks etc.) shall be highlighted.
 - iii) Potential impacts of the proposed link on passenger flow inside station and gates of fare collection.

- g) The proposed links to rail stations shall be sized according to the expended demand, granting a LOS 'C' as per Fruin standard. Pedestrian simulations shall be developed and presented to confirm the design adequacy to the expected demand in the connection
- h) The concept shall also address aesthetic concerns, accessibility for passengers with reduced mobility, and adherence to local building codes and regulations
- i) The concept design shall include layouts, sections, elevations, and 3D illustrations of the proposal.
- j) Where applicable the concept design shall present the design for all exterior spaces, confirming passengers' accessibility is not affected by the proposal, and ensuing all station integration elements are not affected.
- k) Impact on emergency evacuation and passengers' safety

2.3.3.5 Upon review of the Developer's submission, the RTA may request additional information or clarification which the Developer shall address and provide in a timely manner to the satisfaction of RTA.

2.3.3.6 Upon review of the Concept Design submission and if the RTA has no objections on the same then the RROW shall issue the Concept Design NOC to enable the Developer to proceed with Preliminary Design. This NOC may have a number of Restrictions and Qualifications associated with it that would require satisfactory closure within a specified time period, to be determined by the RTA.

2.3.4 Preliminary Design Stage

2.3.4.1 RROW shall issue an invoice to the developer for the fees required for reviewing the Preliminary Design. The fees shall be paid before submitting the Preliminary Design stage.

2.3.4.2 The Developer shall develop the Preliminary Design in accordance with the Connection Guidelines Document and any additional requirements provided by the RTA, including, but not limited to, manuals, guidelines and strategic plans (master plans).

2.3.4.3 Once the Preliminary Design for the Connection is prepared, the Developer shall submit the same and copy of the Receipt of payment for reviewing the Preliminary Design fees to RTA for review. The RTA shall review the Preliminary Design submission. Once deemed compliant.

2.3.4.4 Upon review of the Developer's submission, the RTA may request additional information or clarification which the Developer shall address and provide in a timely manner to the satisfaction of RTA.

2.3.4.5 Developers Consultant shall submit an asset change application (CIMP) to Rail Engineering and information Section. The Consultant shall use the approved form of the CIMP. The Developer's Consultant shall coordinate directly with the RROW Rail Engineering and information Section to confirm the appointed RMD Sponsor for the CIMP application

- 2.3.4.6 Upon approval of the preliminary design CIMP, the Consultant shall apply through eNOC system to obtain Rail Agency No Objection certificate.
- 2.3.4.7 Upon review of the Preliminary Design submission and if the RTA has no objections on the same then the RROW shall issue the Preliminary Design NOC to enable the Developer to proceed with Final Design. This NOC may have a number of Restrictions and Qualifications associated with it that would require satisfactory closure within a specified time period, to be determined by the RTA.
- 2.3.4.8 RPPD/RROW shall issue an invoice to the developer for the fees required for reviewing the Final Design. The fees shall be paid before submitting the Final Design stage.

2.3.5 Final Design Stage

- 2.3.5.1 The Developer shall develop the Final Design in accordance with the Connection Guidelines Document and any additional requirements provided by the RTA, including, but not limited to, manuals, guidelines, and strategic plans (master plans).
- 2.3.5.2 Once the Final Design for the Connection is achieved, the Developer shall submit the same and copy of the Receipt of payment for reviewing the Final Design fees to RTA for review. The RTA shall review the Final Design submission. Once deemed compliant,
- 2.3.5.3 Upon review of the Developer’s submission, the RTA may request additional information or clarification which the Developer shall address and provide in a timely manner to the satisfaction of RTA.
- 2.3.5.4 The developer is responsible to obtain approval of other relevant authorities (Dubai Municipality, DEWA, DCD,...etc) for the link design.
- 2.3.5.5 Upon review of the Final Design submission and if the RTA has no objections on the same then the RROW shall issue the Final Design NOC to enable the Developer to proceed with Construction. This NOC may have a number of Restrictions and Qualifications associated with it that would require satisfactory closure within a specified time period, to be determined by the RTA.
- 2.3.5.6 RPPD/RROW shall issue an invoice to the developer for the fees required for the Compliance Certificate. The fees shall be paid before submitting the Final Compliance Report for obtaining the Compliance Certificate.
- 2.3.5.7 The detail design shall include all drawings, details, images, and material specifications, for all disciplines required to develop the proposed link.
- 2.3.5.8 The final design stage shall include all detail drawings and material specifications, to implement the project.

2.3.6 Construction Stage

- 2.3.6.1 The developer shall hire a contractor approved by RTA to execute the proposed link.
- 2.3.6.2 The contractor shall obtain construction NOC from Rail Agency and relevant authorities to allow for construction of the proposed link.

- 2.3.6.3 Requirements of the latest version of Railway protection code of practice for the Emirates of Dubai are considered mandatory
- 2.3.6.4 Contractor shall adhere to the Rail agency Requirements in the approved CIMP, Final design NOC- and Rail Operator’s procedures such as PTW and ACCA
- 2.3.6.5 Contractor shall obtain ACCA and PTW as per RTA and Rail Operator processes.
- 2.3.6.6 Any integration with existing station/facility systems shall be constructed by a sub-contractor approved by Rail Agency.
- 2.3.6.7 Test and validate integrated systems in coordination with Rail Operator

2.3.7 Configuration management compliance and Submission of project information, documents and As-Built

- 2.3.7.1 This section outlines the procedures and requirements for submitting configuration management compliance and documents and information Handover to Rail agency. Subject to the Requirements stated hereunder.
- 2.3.7.2 Configuration Management Planning: The developer shall follow Rail configuration management planning guideline that includes detailed steps for the As-Built submission process.
- 2.3.7.3 Configuration Identification, the developer shall clearly identify all new configurable items (CIs) or information and document them in the Rail Breakdown Structure.
- 2.3.7.4 Change Management and Control, the developer shall follow rail assets Change management processes to handle any modifications during the design, construction phase till handover. All changes must be evaluated, documented, and approved before being incorporated into the As-Built documentation.
- 2.3.7.5 Documentation Requirements: The developer shall submit As-Built documents that include detailed drawings, specifications, schematics, and other technical documentation reflecting the final constructed state of the asset.
- 2.3.7.6 Documents and assets information shall be comply with the Rail Documents identification Guideline, Assets identification guideline and CAD standard during design, implementation and Handover phases.
- 2.3.7.7 Ensure all documentation is reviewed and approved by relevant project Engineer and required stockholders.
- 2.3.7.8 Verification and Audit: Rail Agency and O&M contractor will conduct regular configuration audits and verifications to ensure the scope matches with the Change applications and that the As-Built documentation accurately represents the constructed asset. This includes functional and physical configuration audits to validate the performance and attributes of the asset against its requirements.
- 2.3.7.9 Maintenance information and MIMP (Maintenance interface management plan): The developer shall arrange with their contractor and Rail O&M contractor to have common

MIMP that matches and provide all the required maintenance information and documents needed before starting the Maintenance period.

- 2.3.7.10 Rail As-built handover guidance:
- 2.3.7.11 Developer to contact Rail Engineering and Information Section team to start the activities related to collecting all relevant As-Built documentation, ensuring it is complete and accurate.
- 2.3.7.12 Review and Approval: Developer to Submit the documents on batches for final review and handover.
- 2.3.7.13 Address any feedback and make necessary revisions to ensure compliance with project and regulatory standards.
- 2.3.7.14 Developer to coordinate for documents Final Submission: Upload the approved As-Built or other required documentation to the Rail CIS platform.
- 2.3.7.15 Notify all relevant parties of the submission and provide access to the documentation for future reference and maintenance activities.

2.3.8 Compliance Certificate

- 2.3.8.1 The application to obtain a Compliance Certificate shall be submitted to the Rail Agency, according to the form approved by it for this purpose, supported by the required documents.
- 2.3.8.2 The Rail Agency shall register the application to obtain a Compliance Certificate, and the applicant for the certificate shall be given notice of submitting his application.
- 2.3.8.3 The Rail Agency studies the application from a technical standpoint to verify that it fulfils all the required conditions, requirements, and documents. To do this, the Rail Agency may conduct field visits and request any additional documents it deems necessary.
- 2.3.8.4 The Rail Agency shall issue its decision regarding the Compliance Certificate application within (30) thirty days from the date the application fulfils all conditions. The application shall be considered rejected if the Rail Agency does not issue its decision within this period. The Rail Agency may grant the applicant an additional period not exceeding (30) thirty days to complete the deficiencies, which it determines before issuing its decision in this regard.
- 2.3.8.5 If the application is rejected, the Rail Agency shall inform the Compliance Certificate applicant of the reasons for the rejection. Anyone whose application was rejected may submit this application to the Rail Agency again after at least thirty (30) days have passed from the date of rejection.
- 2.3.8.6 If the application is approved, the Compliance Certificate applicant shall be required to pay the prescribed fee in this regard, and the Rail Agency shall then issue a Compliance Certificate.
- 2.3.8.7 The following is required to issue a certificate of compliance:
 - a) The contractors and consultants working on the project must be qualified by the RTA to work in the field of construction work related to the scope of the project.

- b) The developer or his representative must submit a technical report in accordance with what is approved by Rail Agency and confirm his commitment to implementing the requirements contained in this Guidelines.
- c) the developer or his representative to provide all project data (plans, designs and technical documents) in addition to As-built for the link.

2.3.9 Links Fees

2.3.9.1 According to Executive Council Resolution No. (53) of 2023 amending the decision to regulate the railways in the Emirate of Dubai No. (1) for the year 2017, the payments required to link any building with Dubai railway as following:

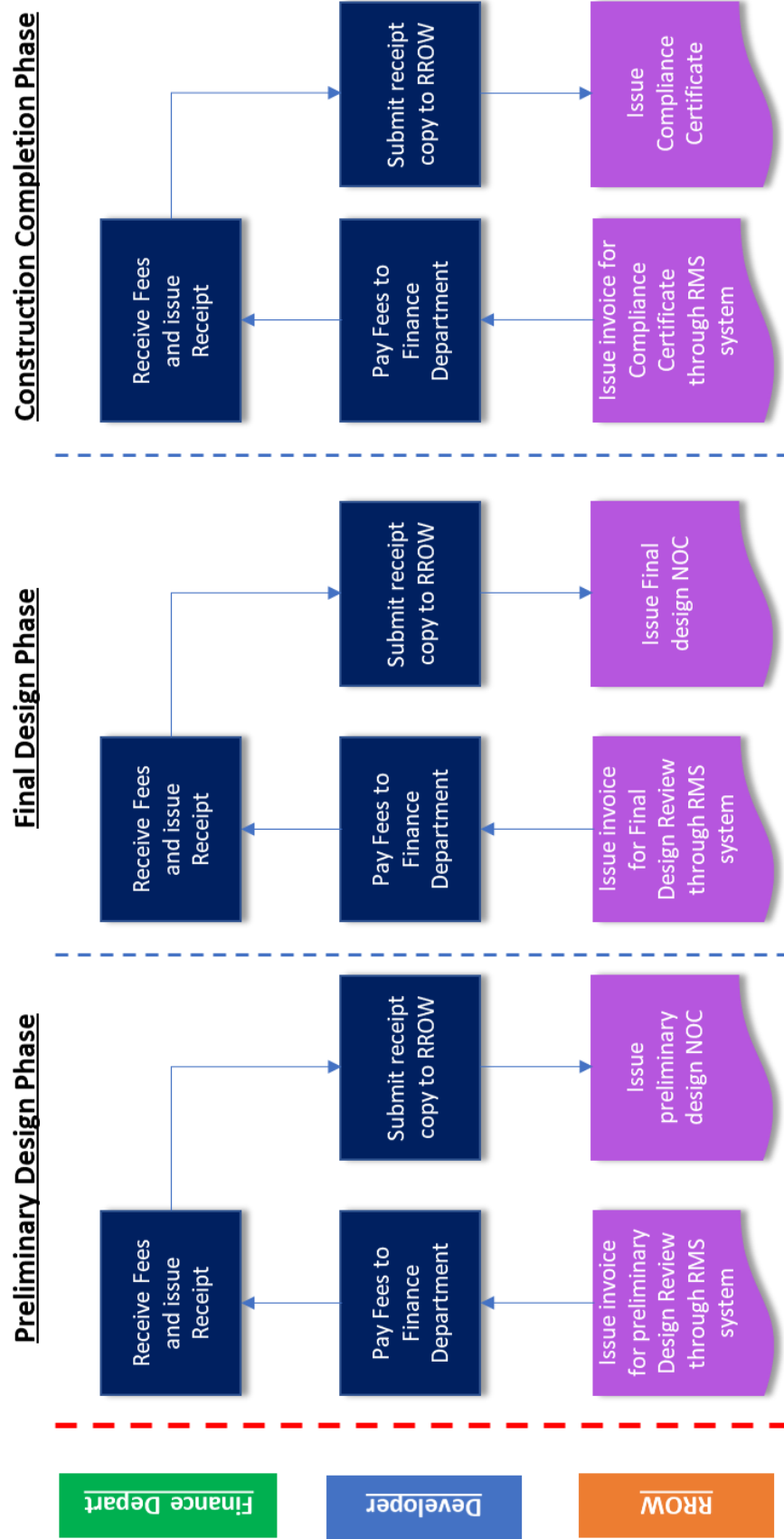
No.	Statement	Payment (AED)
1	Reviewing preliminary designs for the construction of a connection to Stations or other Railway facilities	30,000.00 Per connection
2	Reviewing final designs for the construction of a connection to Stations or other Railway facilities	40,000.00 Per connection
3	Issuing a Compliance Certificate for a connection to Stations or to other Railway facilities	430,000.00 Per connection
4	Using the right of way on which a connection to Stations or to other Railway facilities is constructed	A variable annual fee ranging between five percent (5%) to twelve percent (12%) of the value of the land on which the connection is constructed

2.3.10 Fees Collection Process

2.3.10.1 The chart below demonstrates the process for Fees Collection, whereby:

- a) The Developer shall obtain an invoice for the design review phase to which a fee should be paid.
- b) The Developer shall pay the fee in RTA – Finance department and obtain a receipt from RTA for the paid amount.
- c) The Developer shall submit a copy of the receipt and show the original for validation to the Rail Right of Way Department (RROW)
- d) The Rail Right of Way Department (RROW) may issue the No Objection Certificate for which the fee was paid according to RROW governing rules and processes.

Railway links Fees collection Process



2.4 Rail Agency Role and Responsibilities

2.4.1 The table below shows the role of each department in the Rail Agency.

Title	Description
Rail Right of Way Department (RROW)	<ul style="list-style-type: none"> • Issuing NOCs (Concept Design, Preliminary Design, Final Design, and Construction NOCs). • Issuing construction NOC. • Review and authorize CIMP • Prepare report to the Rail Agency CEO for link request approval. • Ensure the link payments to be done by the developer. • Compliance Inspection during construction • Receive the handover as-built documents for closeout and uploaded to Rail CIS. • Preparation for the compliance certificate. • Prepare and manage SLA for link project and liaise with stakeholders to ascertain their needs (e.g. RMD, ROD, RPPD etc.).
Rail Planning and Development Department (RPPD)	<ul style="list-style-type: none"> • Liaise with applicant to prepare feasibility study for any link request and decide whether the link is feasible or not. • Assign a project manager for each link to follow construction activities until closeout and submitting link As-built documents. • Technical review for the link design and construction through the CIMP process. • Issuance of design review certificates for preliminary and final design for the link with railway stations or structures.
Rail Maintenance Department (RMD)	<ul style="list-style-type: none"> • Technical review for the link design and construction through the CIMP process. • Prepare the SLA required from maintenance perspective. • Liaise with Operator for ACCA and PTW approval (in coordination with RROW/QHSE). • Liaise with Developer/RTA Stakeholders for scrap disposal as per RTA procedures (where applicable for partial demolition of existing metro asset).
Rail Operation Department (ROD)	<ul style="list-style-type: none"> • Technical review of the link design and construction through the CIMP process. • Prepare the SLA as per operational requirements.

Title	Description
	<ul style="list-style-type: none"> • Liaise with Rail Operator to review temporary arrangements affecting operations. • provision by external stakeholders for evacuation and crowd control plan. this should be provided by stakeholders/owners.
Quality, Health, Safety and Sustainability (QHSS)	<ul style="list-style-type: none"> • Technical review for the link design and construction through the CIMP process. • Review of SLA to ensure safety-requirement if any are fulfilled.
Rail CEO	<ul style="list-style-type: none"> • Approve the link request. • Issuing the compliance certificate.

2.5 Fire and life safety strategy

- 2.5.1.1 Fire segregation and escape route strategy in case of fire / emergency to be developed by developer constant \ specialist and to be submitted for IRB & RTA approval.
- 2.5.1.2 C & E Matrix to be developed by developer constant \ specialist and to be submitted for IRB & RTA approval.
- 2.5.1.3 Fire rated Doors as per DCD recommendations for separation of RTA asset from the developer asset to be proposed by the developer.

2.6 Compliance with standards and legislations

2.6.1 Introduction

- 2.6.1.1 This Guidelines defines the relationship between it and other standards, codes of practice and the statutory requirements of Dubai.

2.6.2 Legislation

- 2.6.2.1 All designs shall comply with the relevant laws of the UAE and Dubai.
- 2.6.2.2 Relevant legislation shall be identified in the Developer's Project Brief but the responsibility to ensure that all applicable legislation has been identified remains with the Developer's appointed Designer / Contractor.

2.6.3 Regulations

- 2.6.3.1 All designs shall comply with the relevant regulations issued by statutory agencies with jurisdiction in Dubai.
- 2.6.3.2 All designs shall comply with applicable regulations issued by the RTA.

2.6.3.3 The responsibility to ensure that all applicable regulations have been identified remains with the Developer's appointed Designer / Contractor.

2.6.4 General approach to standards

2.6.4.1 The hierarchy of standards shall be as follows:

- a) UAE Federal Codes and Standards; and
- b) Dubai standards (in no particular order):
 1. Dubai Civil Defence;
 2. Dubai Electricity & Water Authority;
 3. Roads & Transport Authority; and
 4. Dubai Municipality.

2.6.4.2 The design management procedure shall require each design submission to be supported as appropriate by a reference to the standards on which the design is based.

2.6.4.3 Designs shall be based on the preferred reference standards (see below) in the Developer Guidelines unless otherwise accepted by the IRB.

2.6.4.4 Related design elements shall be based on reference standards from the same source.

2.6.4.5 For each standard quoted as the basis for a design submission, the most recently published version at the time of the Project's invitation to tender shall apply, unless otherwise agreed with the IRB.

2.6.4.6 The consistent application of standards is required.

2.6.4.7 Mixing and matching of standards from different sources for related design criteria is not permitted.

2.6.4.8 Where standards referred to are not already recognized by the RTA as being acceptable to transport systems in Dubai (i.e. standards that are different to those cited in the RPDG), evidence shall be provided to the IRB for verification demonstrating that the quality of the design to the reference standard is equivalent to a design based on the corresponding recognized standard.

2.6.5 Preferred reference standards

2.6.5.1 The preferred reference standards to be adopted for Projects where practicable are:

- a) European Norms (Eurocodes) published in the English language under BS EN references. These may be regarded as the Primary reference standards;
- b) International standards published and supported by:
 - i) UIC;
 - ii) IEC;
 - iii) ITU;

- iv) ETSI;
- v) NFPA;
- vi) ASTM; and
- vii) ISO;
- c) Professional bodies such as:
 - i) IET (Institute of Engineering and Technology – formerly the Institute of Electrical Engineers)
 - d) British Standards (only where not superseded by an equivalent European Norm)

2.6.5.2 Projects may adopt other reference standards, but the Developer needs to:

- e) demonstrate that these are relevant, well established and shall ensure similarly high levels of safety and performance; and
- f) show that it shall not mix standards from different regions, or based on different principles, or that (if this is necessary at some interfaces) the risks have been carefully analysed and mitigated.

2.6.6 Reference standards in the Developer Guidelines

2.6.6.1 Standards quoted, in whole or in part, within this document shall be treated as requisite for the application of the Developer Guidelines.

2.6.6.2 Where a reference is part of a complete standard which contains alternative requirements, then depending on the particular application, only the relevant parts of this standard shall be considered.

2.6.6.3 Where inappropriate to work in Dubai, specific elements of a reference standard may be disregarded or qualified, subject to the approval of the IRB.

2.6.7 Codes of practice

2.6.7.1 Where there are no appropriate reference standards that can be applied to the design or design implementation process, relevant codes of practice published by professional institutions (or similar organisations) shall be applied.

2.6.7.2 UAE and Dubai codes of practice shall take precedence over codes published in other countries.

2.6.8 Version Control

2.6.8.1 For all legislation, regulations, standards and codes of practice, the most recently published version when the Project Brief was issued to the RTA shall apply.

3 Design principles

3.1 Introduction

3.1.1.1 This chapter presents design guidelines and principles whose adoption, though optional to a Developer, would help demonstrate compliance with the primary objectives for railway projects in Dubai and would facilitate RTA's issuing of Permits and Safety Certificates.

3.2 Dubai climate and environment

3.2.1 Flood protection

3.2.1.1 All necessary protective measures should be made to ensure that the Works areas do not become flooded at any time.

3.2.1.2 All arrangements for flood protection should, as a minimum, meet the requirements of Dubai Municipality Drainage and Irrigation Department as stipulated in their Sewerage and Drainage Design Criteria.

Flood protection plan

3.2.1.3 A Flood Protection Plan should be prepared and shall:

- a) review the topography, the local and global drainage network, any tidal effect, sequencing of construction activities and the risk of flooding on adjacent properties, tunnels and facilities;
- b) be submitted to the IRB prior to the commencement of excavation or drainage works on site;
- c) identify the areas that are at risk from flooding; and
- d) examine the potential consequences of any flooding and shall make proposals to prevent flooding.

Design flood level

3.2.1.4 The Design Flood Level should be derived from the highest flood levels;

3.2.1.5 The Design Flood Level should be taken as 1m above the highest recorded flood level at each location; and

3.2.1.6 For areas with no flood record, Design Flood Level should generally be 1m above the existing ground or road level.

3.3 Security

3.3.1 General

3.3.1.1 In addition to the overall security design requirements covered in section 2.7, the following particular requirements are provided as guidance that may help realize and reinforce the security strategy.

3.3.2 Stations

3.3.2.1 Potential security risks may be reduced by, but not be limited to, the following measures:

- a) the use of a transparent design incorporating a clean, open, bright and highly visible (both internal and external) environment;
- b) central monitoring of station systems;
- c) fire detection, alarm and suppression systems;
- d) CCTV equipment both internal and external to the station;
- e) Crowd control & Evacuation plans shall adhere to the requirements of the stations' operations with the agreement of both parties during any incidents impacting both.
- f) communications equipment allowing passengers to contact the station operator or control centre;
- g) alarm systems to the station operator or control centre for cabinets containing vital systems and emergency equipment;
- h) intrusion alarm systems;
- i) access control and master key systems;
- j) cash management planning and systems;
- k) the provision for security control, screening facilities and associated spatial requirements;
- l) platform edge protection devices;
- m) audio and visual passenger information systems providing for pre-recorded security messages; and
- n) crowd control devices.
- o) If the infrastructure connects to any Railway Infrastructure area(s) covered by a RTA managed passenger counting system, the new access and egress infrastructure must be covered by RTA approved integrated equipment to such system to allow reliable monitoring of passenger flows.
- p) Should the new infrastructure connect to any paid area under the Unified Automated Fare System in Dubai; the developer must provide an integrated fare system according to RTA's approved quantity and quality standards, which allows for unrestricted passenger flow and which is:
 - i) interfacing with the Station control unit, and
 - ii) connected to the backend of the RTA managed unified fare system, and
 - iii) if gates or equipment are not installed in a permanent location, it must offer sufficient AFC network connections (ports) and network power outlets to

provide customers with a reliable and efficient access to the rail network for reliable event & crowd management.

3.4 Civil engineering

3.4.1 Introduction

- 3.4.1.1 Civil infrastructure should enable the services to be operated safely and reliably throughout the lifetime of the link with the station.
- 3.4.1.2 Designs should be undertaken in accordance with latest international standards and best practice. This shall ensure the infrastructure provided is appropriate in all respects.
- 3.4.1.3 The below requirements and principles are provided as guidance only for the design of civil infrastructure.

3.4.2 Key objectives and guiding principles

Safety

- 3.4.2.1 Safety should be the primary issue to be considered in the development of civil engineering designs.
- 3.4.2.2 Designs should be safe to build and safe in operation for public and staff. The safety of passengers and staff should be considered both in normal and emergency conditions including fire and emergency evacuation.
- 3.4.2.3 To ensure safety is achieved, a process of risk assessment should be used to identify risk and implement mitigation measures.
- 3.4.2.4 Civil engineering designs should be fully integrated with architectural and building services.

Aesthetics

- 3.4.2.5 The designs should provide an appealing, comfortable environment for the public to travel in, and for the operational staff to work in with a minimum standard of comfort equal to RTA's existing rail system.
- 3.4.2.6 Visible elements of the infrastructure, in particular station entrances and above ground structures should complement the Project's architectural design vision and as a minimum meet the design quality standards of RTA's existing rail system.

Durability

- 3.4.2.7 Durability of structures is a key issue in the harsh environment of Dubai. Designs should provide a high level of durability to resist the environmental conditions.
- 3.4.2.8 Durable design should be achieved through attention to detail which allows high quality construction providing a high level of robustness and requiring minimum maintenance.
- 3.4.2.9 Materials and finishes should be specified in a manner that shall ensure that they are fit for purpose and shall give both durability and high quality in service appropriate to the in

particular conditions in Dubai in order to suggest a modern, safe, efficient and attractive facility.

Local context

- 3.4.2.10 Designs should be tailored to meet the cultural and environmental context of Dubai Rail Network.
- 3.4.2.11 Designs should be tailored to meet the specific regulatory requirements of the relevant statutory authorities and other relevant parties as appropriate.
- 3.4.2.12 Design solutions should be appropriate for the ground and seismic design conditions,
- 3.4.2.13 Proven techniques should be promoted that minimise the risk to properties along and adjacent to the route during construction. In all cases, risks should be mitigated by ensuring appropriate site information is available and appropriate analysis undertaken.
- 3.4.2.14 Underground structures should be designed to resist uplift from ground water and allow safe dewatering during construction. Understanding the ground water regime, in particular the soil permeability, is a key design parameter.
- 3.4.2.15 Construction techniques should be considered in the design that limit the requirement for open work sites and allow fast reinstatement of the existing infrastructure to minimise the impact on members of the public.

3.4.3 Principle design requirements of civil engineering elements

- 3.4.3.1 Bridges & elevated structures should:
 - a) remain fit for the use required, and sustain all the actions and environmental influences likely to be imposed upon it – within acceptable deformation limits.
 - b) accommodate existing and foreseeable requirements for users of the structure, equipment, services and plant.
 - c) have adequate stability, resistance, stiffness, serviceability and durability.
 - d) have sufficient resilience, robustness and structural redundancy to:
 - i) not suffer damage by accidents and events (such as vehicle impact, vandalism, and human error in design and use) that would be proportionate to the severity of their cause;
 - ii) have a low sensitivity to hazards that it might be subjected to; and
 - iii) so far as is reasonably practicable, provide adequate warning of collapse – for example, by showing signs of structural distress or deformation.
 - e) have adequate clearance between Rail facilities and station traffic.
 - f) be economic to construct, use and maintain.
 - g) be readily accessible for routine examination and maintenance.
 - h) have no unacceptable effect on;
 - i) the safe use or performance of existing or proposed railway infrastructure and equipment;

- ii) other infrastructure and equipment; and
- iii) the safety of people using the structure, and the public at large.
- i) cause no damage to adjacent property and the environment.
- j) Where practicable, the link structures shall not be directly connected to the existing metro structure and furthermore, the imposition of additional loads from the new structure onto the existing metro structure should be avoided.

3.4.3.2 Underground structures should:

- a) be of a design life appropriate to meet the function and performance requirements of the Project;
- b) meet the needs of the travelling public for safety, comfort and mobility and provide for the safe movement of people between public access and trains;
- c) take into account the following health and safety considerations:
 - i) the hazards and risks to persons constructing and maintaining the structure;
 - ii) measures which shall protect workers if it is not possible to avoid or reduce the risk to a safe level; and
 - iii) the provision of adequate information on health and safety.
- d) be designed in consideration of the following:
 - i) short and long term structural stability;
 - ii) drainage requirements;
 - iii) fire and life safety;
 - iv) ventilation requirements;
 - v) movement joint details;
 - vi) impact on existing buildings and structures;
 - vii) methods of construction, temporary works requirements and construction sequence;
 - viii) ground conditions;
 - ix) environmental and other local constraints; and
 - x) mechanical and electrical services.

3.4.3.3 Geotechnical design should:

- a) establish a ground model and a list of potential risks at an early stage through desk study and possibly preliminary investigation, this should include an assessment of likely hazards such as made ground and high-water tables and any other known problems;
- b) use a model to inform the design of appropriate geotechnical and geo-environmental investigations, the aim of which is to confirm the ground model and

establish the appropriate geotechnical parameters in a systematic way and hence provide geotechnical design parameters for the proposed works; and

- c) adopt a holistic approach to risk identification, ground investigation for geotechnical, geo-environmental and hydro geological aspects, consider seismicity and ensure that the work undertaken is appropriate to correctly inform the design and construction process.

Appendix 1: Earthing and bonding arrangements

A1.1 General

- 1.1.1.1 Appendix 1 covers particular requirements and supplementary information pertaining to earthing and bonding which are provided for the purpose of guidance.
- 1.1.1.2 Lightning protection continuity to be ensured between structural metallic elements.
- 1.1.1.3 Earthing shall be segregated between the RTA asset and the developer asset.