حكومة دبي
GOVERNMENT OF DUBAI

هيئة الطرق والمواصلات
ROADS & TRANSPORT AUTHORITY
RTA

Rail Agency No Objection Certificate Submission Guidelines

Rail Network Permits and Services

Rail Right of Way Department

Rail Agency

Nov 2024

Guidelines for Submission of Railway NOC

Second Edition

November 2024

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Nov. 2024	P02.0	Approved By	Abdulraouf Alsayed Mohamed	Acting Manager, Rail Permits and Services	
Nov. 2024	P02.0	Approved By	Abdulrahman Al Janahi	Director, Rail Right of Way	
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Nov. 2024	P02.0	Authorized By	Abdulmuhsen Kalbat	CEO, Rail Agency	

List of Changes

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Abbreviations

DEWA	Dubai Electricity and Water Authority
DM	Dubai Municipality
DTMFZ	Dubai Technology and Media Free Zone
E-NOC	Electronic NOC
GIS	Geographic Information System
HSE	Health, Safety and Environment
LRSA	Low Risk Site Activity
NDM	Non-Destructive Method
NDRC	Non-Destructive Road Crossing
NOC	No Objection Certificate
PTW	Permit to Work
RA	Restricted Activity
RFI	Request For Information
RPZ	Railway Protection Zone
RROW	Rail Right Of Way
RTA	Roads and Transport Authority
TBM	Tunnel Boring Machine
TRA	Traffic and Roads Agency of the RTA
UAE	United Arab Emirates
UAV	Unmanned Aerial Vehicle

Definitions

TERM	DEFINITION
AGENCY	Rail Agency of the body.
APPLICANT	Any party applying for a No Objection Certificate.
AUTHORITY	Roads and Transport Authority (RTA).
CONDITION SURVEY	Survey to assess the existing condition of Railway Infrastructure. Typically carried out before the Restricted Activity (pre-construction/baseline) and after completion of Restricted Activity (post-construction)
CONSTRUCTION	The erection of any new buildings or structures, or the variations to the Infrastructure facilities or Railway Vehicles.
CONSULTANT	A natural or legal person who is offering advice/consultation on engineering, technical, or any other matter related to Railways.
CONTRACTOR	An organization designated by the Owner or the Operator for the purpose of carrying out the works related to Railways, or execution of any work that requires obtaining of No Objection Certificates from the Agency.
CONTROL MEASURES	Provisions to reduce identified risks.
CRITICAL ZONE	A zone within the Railway Protection Zone, which requires more stringent Control Measures than the remainder of the Railway Protection Zone.

TERM	DEFINITION
E-NOC	The electronic NOC application that can be submitted via the online system (https:// noc.rta.ae/RTAeNOC/Webpages/common/login/login.aspx)
INFRASTRUCTURE	See definition for 'Railway Infrastructure'.
INFORMATION NOC	A document issued by the Agency providing information about the Railway network and Infrastructure.
INSTRUMENTATION	Devices installed to measure the impact of the proposed Restricted Activities upon the Railway Infrastructure.
LIFTING OPERATION	An operation concerned with the lifting and lowering of a load which has the potential to have an adverse effect upon the existing Railway system. A load is the item or items being lifted which could include a person or people. A lifting operation may be performed manually or using lifting equipment.
NO OBJECTION CERTIFICATE (NOC)	A document issued by the Agency, authorizing a Person to carry out a Restricted Activity within the RPZ.
OPERATIONS	The operation, movement or cause of movement of Railway Vehicles designed for transportation or for carrying out maintenance, modification works and development of Infrastructure or Railway Vehicles.
OPERATOR	The authorized party for the operation or maintenance of the Railway Infrastructure or Railway Vehicles, or both for the purposes of public transportation.
OWNER	Any public or private company or authority that owns the Infrastructure of the Railway or Railway Vehicles, or both, for the purposes of public transportation.

TERM	DEFINITION
RAILWAY	Railway transportation systems designed to transport passengers and goods, guided by specific tracks, designed for the movement of the rails either a single or dual track system or any other direction system, including heavy and light rail, monorail services, tramways or Railways for maintenance or freight terminals.
RAILWAY INFRASTRUCTURE	All establishments, facilities, systems and software necessary to operate Railways and to enable them to work safely, including but not limited to, Railway tracks and associated track structures, service roads, signalling systems, communications systems, rail controlling systems, notices and signs, the electric power supply, electric traction systems and cable corridors, substations, the associated buildings, stations, warehouses, machinery, equipment, structures, utilities, corridors, pass ways, tunnels, bridges, sidewalks, barriers (iron gates), associated works, the work of sanitation, connecting pedestrian bridges, chilled water network and plants and any rail-related construction, assets or work.
RAILWAY PROTECTION CODE OF PRACTICE	The code issued by the Agency which specifies the sites, areas, standards, procedures and requirements for the protection of the Infrastructure in the Railway Protection Zone.
RAILWAY PROTECTION ZONE (RPZ)	The Railway Infrastructure sites and the surrounding areas designated as such by the Agency in the Railway Protection Code of Practice.

TERM	DEFINITION
RESTRICTED ACTIVITY	Any activity considered by the Agency to (or have potential to) jeopardise or otherwise adversely affect any Railway, Railway Infrastructure and / or Railway Vehicles and / or pose a threat of risk or interference in any way with any Railway, Railway Infrastructure and / or Railway Vehicles as further described in the current By-laws and / or in the Railway Protection Code of Practice.
RISK ASSESSMENT REPORT	A report prepared by the Applicant seeking Railway Protection NOCs identifying potential risks and mitigation measures involved in carrying out any Restricted Activity, development and building proposals within the Railway Protection Zone.
SAFETY	The absence of any risk of harm or damage to the Railway, Railway Vehicles and Infrastructure, that is deemed unacceptable to the Safety Regulation Authority.
SITE ACTIVITY	A Site Activity is a possible physical activity required to perform restricted activity. It is the applicant responsibility to provide detailed information on all site activities required to perform the proposed work/restricted activities specified in the application.
SHORING	A structure such as a metal hydraulic, mechanical, concrete, steel or timber shoring system that supports the sides of an excavation and which is designed to prevent soil movement and collapse.
STRUCTURE GAUGE	The boundary enclosing the clearances required outside the swept envelope to enable the Railway to be operated in safety. The structure gauge includes provision for staff safety, where staff are permitted on the Railway while Railway Vehicles are running.
TRIGGER LEVEL	Threshold level for data reading from monitoring instrument.

1. Introduction

1.1. General

1.1.1. This Guideline is issued by the Agency to advise NOC applicants for the requirements of submission to Rail Agency, to obtain No objection Certificate form the Agency. The Guidelines shall be read in conjunction with the latest edition of Railway Protection code of Practice and the restricted activities.

1.1.2. The Guidelines is reflecting the best practice that might be accepted by Rail Agency team in design and construction stages.

1.1.3. Any party intending to carry out any Restricted Activities within the Railway Protection Zone is required can use this Guidelines to prepare documents required to obtain Rail Agency No Objection. Permission is provided through issuing a No Objection Certificate (NOC) by the Rail Agency.

1.1.4. This Guidelines is not mandatory requirements and the applicants shall prepare his own documents based on the requirements of Railway protection Code of Practice when carrying out any Restricted Activity or other construction-related activities within the Railway Protection Zone. the applicant shall check eNOC system for the list of the minimum documents required to obtain NOC from Rail Agency

1.1.5. The Railway Protection Code of Practice is published for guidance and does not absolve the Applicant from complying with other local or governmental laws issued for the Emirate of Dubai or the United Arab Emirates.

1.1.6. The Rail Agency will not be responsible for any damages, losses including without limitation direct, indirect, special, or consequential damage or economic loss arising from any reliance on the information in these guidelines.

Figure 1.1: Dubai Rail Network

1.2. Scope

1.2.1. This Document is applicable only to all Railway lines owned and operated by Roads and Transport Authority Dubai (under planning, under construction or in the operation and maintenance phases) in the Emirate of Dubai unless specified by the Resolutions.

1.2.2. This document is applicable to the Dubai Public Rail Network as shown in Figure 1.1.

1.3. Associated Documents

1.3.1. The associated documents include the current Executive Council Resolution No. (1) of 2017 Regulating Railways in the Emirate of Dubai and any other Resolution or Implementing By-laws associated with the Resolutions and latest edition of Railway protection code of Practice.

1.3.2. In addition to the Resolutions and requirements as stipulated in this Code, the Applicant is required to check the latest Resolutions issued by the RTA/ Dubai Municipality and other local authorities after the issuance date of this document, and to ensure full compliance with the same.

1.4. Notes Before Read

1.4.1. Drawing sample provided in this guideline represents a real example already approved by Rail Agency.

1.4.2. The drawings provided in these guidelines are intended as samples only. They do not imply that the applicant must comply with them exactly.

1.4.3. It is the responsibility of the applicant to submit their own drawings and propose appropriate risk control measures and rail protection measures specific to the proposed works to minimize risks and guarantee rail operation safety

2. E-NOC System

2.1.1. The Applicant shall register to use the RTA e-NOC system (https://noc.rta.ae) . A description of how to register in the eNOC system is given in the following weblink; https://noc.rta.ae/RTAeNOC/Docs/Howtoregister.pdf

Figure 2.1: E-NOC system Login Page

2.1.2. Once registered, the Applicant shall submit a NOC application through the e-NOC system.

2.1.3. Electronic copies and CAD drawings of the submitted application documents shall be uploaded to the e-NOC application.

2.1.4. The submitted documents shall be prepared based on the guidelines defined in this document.

2.1.5. The RROW Department will receive the NOC application and assess its potential impact upon the Railway Infrastructure (including all Railways that are planned, under construction or operational). The Agency will use the RTA Geographic

Information System to identify the location of the proposed work/activity and the affected Railway line.

2.1.6. The RROW Department may request further information or meetings with the Applicant as part of the evaluation process.

2.1.7. Following review of the NOC application, the RROW Department will either issue the NOC, issue comments, or issue an objection.

2.1.8. The Applicant may revise and resubmit the NOC application if comments or an objection is given to the original application.

2.1.9. If there is a later substantive change to the scheme the Agency may require a further submission, or parts of a submission.

3. No Objection Certificate

3.1. General

3.1.1. Any party (hereafter called 'the Applicant') intending to carry out a Restricted Activity within a Railway Protection Zone shall apply to obtain a No Objection Certificate (NOC) from the Rail Agency prior to commencing any such Restricted Activity, for list restricted activities please refer to Railway Protection code of Practice for the Emirate of Dubai.

3.1.2. A NOC is also mandatory for any works (including constructing buildings, infrastructure, or utility services, ...etc)

3.1.3. As part of the NOC process, the Applicant shall agree with the Agency on a schedule of submissions based on the various phases of the project.

3.2. Types of NOC

3.2.1. The types of NOC that may be granted are outlined in Table 5.1 below:

Table 3.1: List of NOC Types

NOC TYPE	DESCRIPTION
INFORMATIONAL NOC	NOC allows the Applicant access to available and relevant Rail Agency as-built information, manual or design.
DESIGN NOC	NOC allows the Applicant to proceed to Construction NOC. There are three types. › Concept Design NOC › Preliminary Design NOC › Final Design NOC › Design and Build NOC

NOC TYPE	DESCRIPTION
TRIAL TRENCHES NOC	NOC allows the Applicant to excavate hand-excavated trial trenches around existing Rail Infrastructure.
CONSTRUCTION NOC	NOC allows the Applicant to proceed with construction of planned works.
Rail NOC	This type of NOC is only submitted to obtain Rail agency NOC on specific works that is only require Rail Agency Approval. it is the applicant responsibility to obtain the approval of other authorities whenever needed.

The following clauses clarifies requirements for each type of NOC

3.3. Informational NOC

The application submitted for an Informational NOC is recommended to include any of the following to describe the location:

- Key plan showing the project area, project extents shall be bounded by a polygon where the coordinates of the polygon corners to be written in DLTM format.
- For Buildings, the applicant shall attach the affecting plan or to be mentioned in the application scope of work.
- For Roads and infrastructures projects the applicant shall indicate the route of the proposed work and mention the start point and end point of the on the key plan in DLTM format.
- file in DWG format including the project area.

The following Figures shows sample of the accepted drawings that might be attached to the information NOC.

Figure 3.1: Project Key plan Sample with bounding box

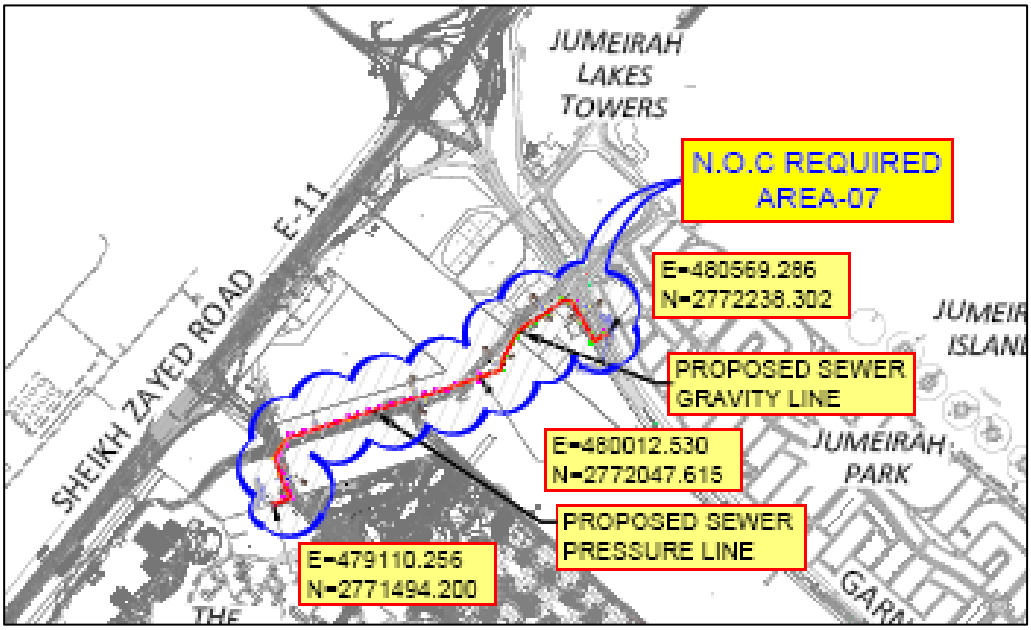

Figure 3.2: Infrastructure Project Key plan Sample

Once the NOC is received, Rail Agency will process the application and upload the documents related to Rail in the internal document or to ask the applicant to come to collect the Documents in a CD. Due to the sensitivity of Rail information, Rail agency will provide the minimum information that will help the applicant to implement the project.

Should the Applicant require more detailed information of the Railway Network, Cross Sections, structural details and other related details of Railway Infrastructure, the Applicant must submit a Request for Engineering Information (RFI) to the Rail Engineering & Information Section of the Rail Right of Way Department.

3.4. Design NOC

The following section outlines the information typically required for a Design NOC. The Applicant is encouraged to liaise with the Rail Agency prior to submitting a formal NOC application to determine the exact information required for their project.

A Concept and/or Preliminary Design NOC should be prepared once the design concepts have been established before the start of detailed design, to allow the Agency time to review.

To avoid delays, misunderstandings and abortive work, early communication shall be established between the various parties involved in the Concept and/or Preliminary Design NOC process.

The Concept and/or Preliminary Design NOC may be required for only some elements of the scheme.

A Detailed Design NOC is required for all elements of the scheme that may affect the safety, operation, and maintenance of the Railway. In addition to demonstrating that the development does not adversely affect the Railway, the submission of an application for Detailed Design NOC shall demonstrate that the Rail Agency or other stakeholder comments from earlier stages have been addressed.

The applicant is recommended to submit any of the following information in the Design NOC applications, to help describe the proposed design:

- Design Drawings.
- Design Reports.
- Design Risk Assessment.
- Survey Plans.

All the documents prepared by the Applicant shall be provided using the guidelines provided in hereunder, for example all plans and sections shall include Railway elements (i.e. Railway As-built, protection zone...etc),

3.5. Construction NOC Requirements

A NOC of this nature is granted to authorize the applicant to carry out construction of the intended project. The documents necessary for construction as specified by Rail Agency may vary depending on the nature of the work and its proximity to Railway assets. It is recommended that the applicant submit all drawings that indicate the relationship between the proposed project and Railway assets. The documents required for any submission might contain any of the following documents to describe the proposed construction works:

- Layout plans and relevant cross-sections showing locations of instruments relative to the Railway Infrastructure.
- The Construction Method Statement
- The Construction Risk Assessment

The following clauses explains the requirements for all type of projects and construction activities.

4. Projects Type

4.1. introduction

During the submission of the NOC, the applicant must specify the type of project, whether it is an Information, Design, or Construction NOC. Rail Agency may request different documents depending on the project type and NOC type. While the documents outlined in chapter three of this guideline are considered a generic requirement, this chapter provides more details on the required documents for different project types. Some of Rail Agency requirement are not changing due to project type, for example the required documents to obtain a Trial trenches NOCs are almost the same.

4.2. Trial Trenches NOCs

Trial trenches is an excavation with limited depth, the applicant might submit a Trial trench NOC is order to explore the existing utilities and to verify that it is as in utilities As-built provided by the Services authorities (DEWA, Etisalat, DU, DM, ..etc). the trial trenches in general are considered as low risk to Railway especially when it is located outside Railway critical protection zone or away more than five meters from Rail assets and its depth is less than 1.5 meters. The following documents are recommended to be submitted as attachment to any Trail trench NOC, or any other document to describe the location of the trial trenches:

- Rail agency recommends that Applicant to obtain information NOC, to be sure that the proposed work is located inside Railway protection zone or not.
- Layout showing location of Trial trenches, it is preferable to attached drawing in CAD format, the drawings shall be drawn in DLTM coordinate system.
- All layout and plans of the Trial trenches be implemented on Railway As built is preferred, however coordinates of the trial trench are enough.
- The layout shall contain table to summarize the coordinates of each trial trench corners and its depths.

- The applicant to clarify the method of excavation, in most cases all Trail trenches are done manually.
- The applicant to attach method statement for excavation
- In the event of using machinery to excavate the trench, the applicant shall follow guidance of machinery position clarified in Railway protection code of Practice.
- Trail trenches deeper than 1.5 meters are subject to the requirements specified in this guideline

The following figure represents sample of the trial trenches submitted in Rail protection Zone.

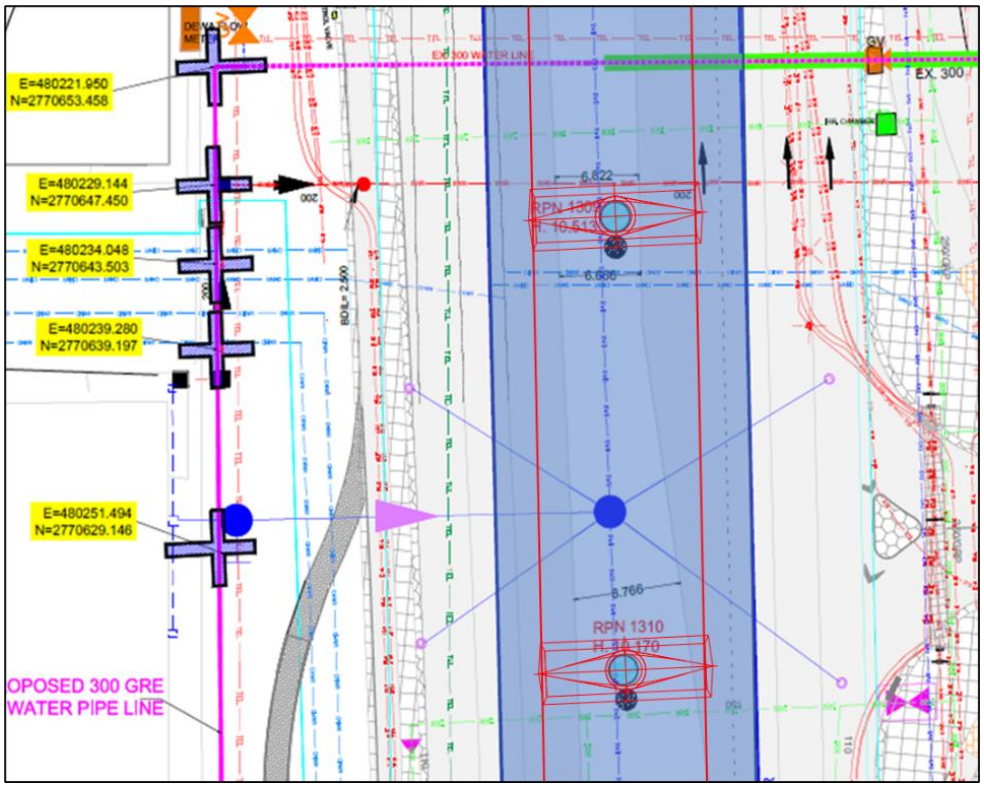

Figure 4.1: Trail Trenches layout

4.3. NOCs for Utilities Routes Approvals

Applicant might submit NOC to obtain route approvals for the various utilities' networks (DEWA, DM, Etisalat, DU, etc.). The Applicant shall provide Rail Agency with any of the following to study the proposed routes:

1. Obtain information of Railway As built or future lines corridors from Rail Agency.
2. Key plan showing the proposed routes in Dubai map.
3. Layouts with reasonable scale showing the proposed route, the layouts are required in PDF and CAD format. The provided drawings shall use DLTM coordinate system
4. Separate CAD file contains only the proposed work implemented on Railway As Built in DLTM format
5. Cross section of Right of Way clearly showing the vertical alignment of the proposed crossing line with existing services, including typical cross-section and proposed section as per actual site conditions.
6. in the event of the proposed route interfaced with Existing overground Railway, Section at each pier and wherever the distance from Railway assets changed.
7. Railway Tunnel or underground structures shall be indicated if the route interfaced with Existing underground Railway.
8. All sections to indicate the following:
    - Clear distances from Railway assets.
    - Depth of the proposed utilities.
    - Location of NDRCs and depth of the NDRC Driving/Receiving Pits.
9. The submitted plans and cross section shall indicate location of the proposed open excavation areas, showing distances from excavation edge to Railway assets.
10. Rail agency is considering the Route NOCs as approval of route, the applicant is supposed to submit separate construction NOCs for performing any of the restricted activities specified in Railway Protection code of Practice.
11. The applicant shall provide risk assessment for the proposed work, the risk assessment shall be in accordance with the requirements of Railway Protection Code of Practice

The following are considered as best practice for the drawings accepted by Rail Agency for routes.

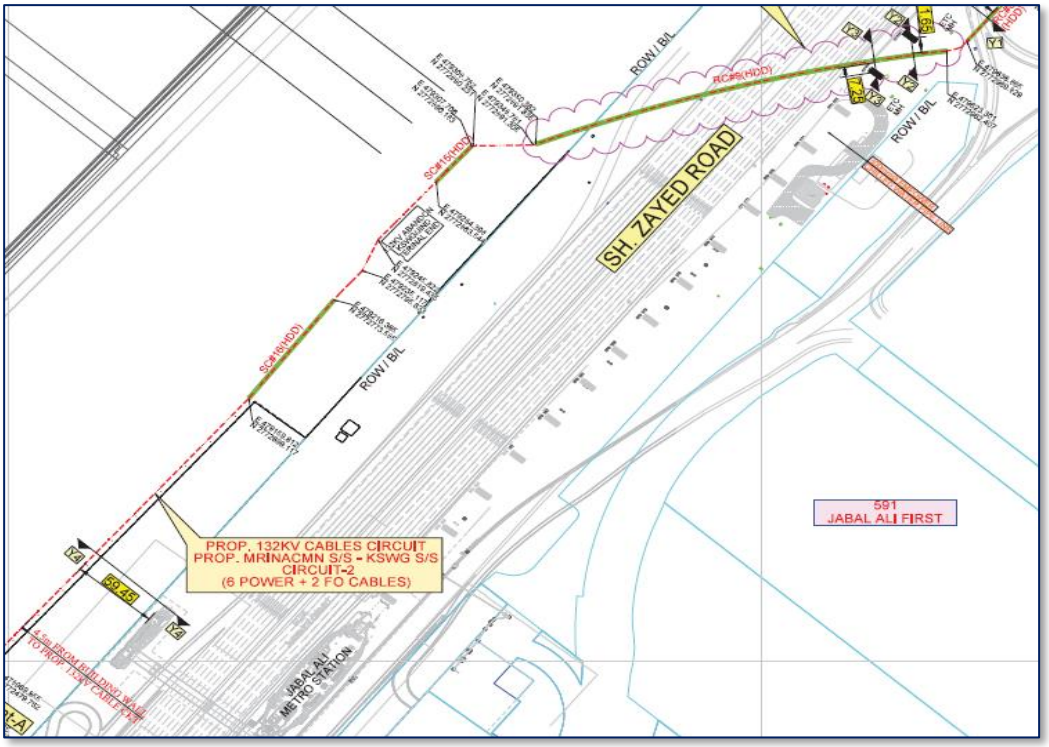

Figure 4.2: Route sample layout

The applicant shall prepare utility route layout to include the following details (whenever applicable):

- The distance from the rail line to the proposed route, to prevent any interference with rail operations.
- The pier numbers along the route, if applicable, for easy identification and installation.
- The locations of Non-Disruptive Road Crossings (NDRCs), if any, to avoid any conflicts with underground utility lines.
- The excavation edges, clearly marked, to ensure that the site is excavated accurately and without damage to existing utilities, structures, or environmental hazards.

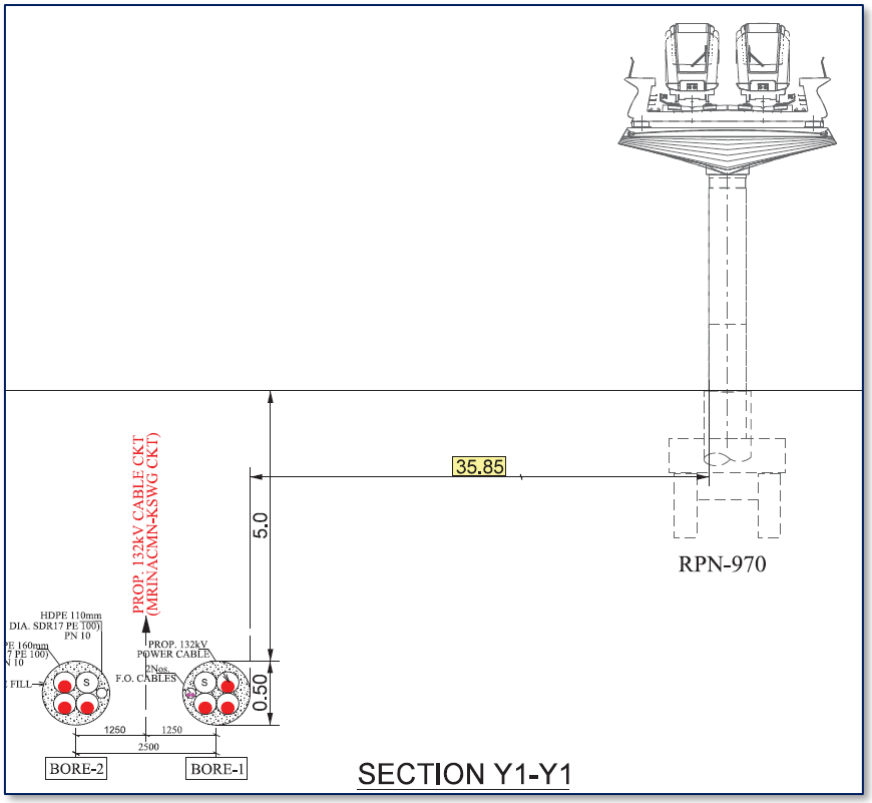

Figure 4.3: Route Cross section with Railway As-Built

To obtain approval from the Rail Agency for utilities section, it is recommended to include the following details:

- The distance between the proposed utilities and the nearest rail line shall be indicated
- The identification numbers of the piers along the utilities section.
- The depth of Non-Disruptive Road Crossing (NDRC) pits and along the proposed, if any.
- The type of shoring used for NDRC pits to support their walls and prevent any potential hazards.

4.4. NOCs for Proposed NDRCs

For any utilities Road and Transport authority are requesting submission of NDRC as separate NOC application. for example, in case if the proposed route contains ten NDRCs the applicant shall submit separate construction NOC for each one.

The following outlines the requirements of Rail agency for any submitted drawings for NDRCs:

- Copy of RTA Approved route NOC, along with the route layout drawings
- Layout showing exact location of proposed NDRC with coordinate points in DLTM, implemented on Railway As-Built
- Section showing the proposed NDRC with Respect to Railway assets.
- Cross section of Right of Way clearly showing the vertical alignment of the proposed crossing line with existing services, including typical cross-section and proposed section as per actual site conditions.
- Logistic plan, showing location of Storage areas, site exit/entry
- Machinery shall be indicated in Plan and cross section, toppling of lifting equipment shall be outside Railway critical protection zone.
- The applicant shall provide risk assessment for the proposed work, the risk assessment shall be in accordance with the requirements of Railway Protection Code of Practice
- In the event of the NDRC entry and exit pits are deep and might lead to any settlement of Rail Structure, Rail agency might ask for extra studies to ensure that the expected settlements are within acceptable limits.

The following are considered as best practice for the drawings accepted by Rail Agency for plan and profile of the proposed NDRC:

- The distance from the rail line to the proposed route, to prevent any interference with rail operations.
- The pier numbers along the route, if applicable, for easy identification and installation.
- The locations of Non-Disruptive Road Crossings (NDRCs), if any, to avoid any conflicts with underground utility lines.
- The excavation edges, clearly marked, to ensure that the site is excavated accurately and without damage to existing utilities, structures, or environmental hazards.

- Steps of excavations in case if Deep excavation have been presented.

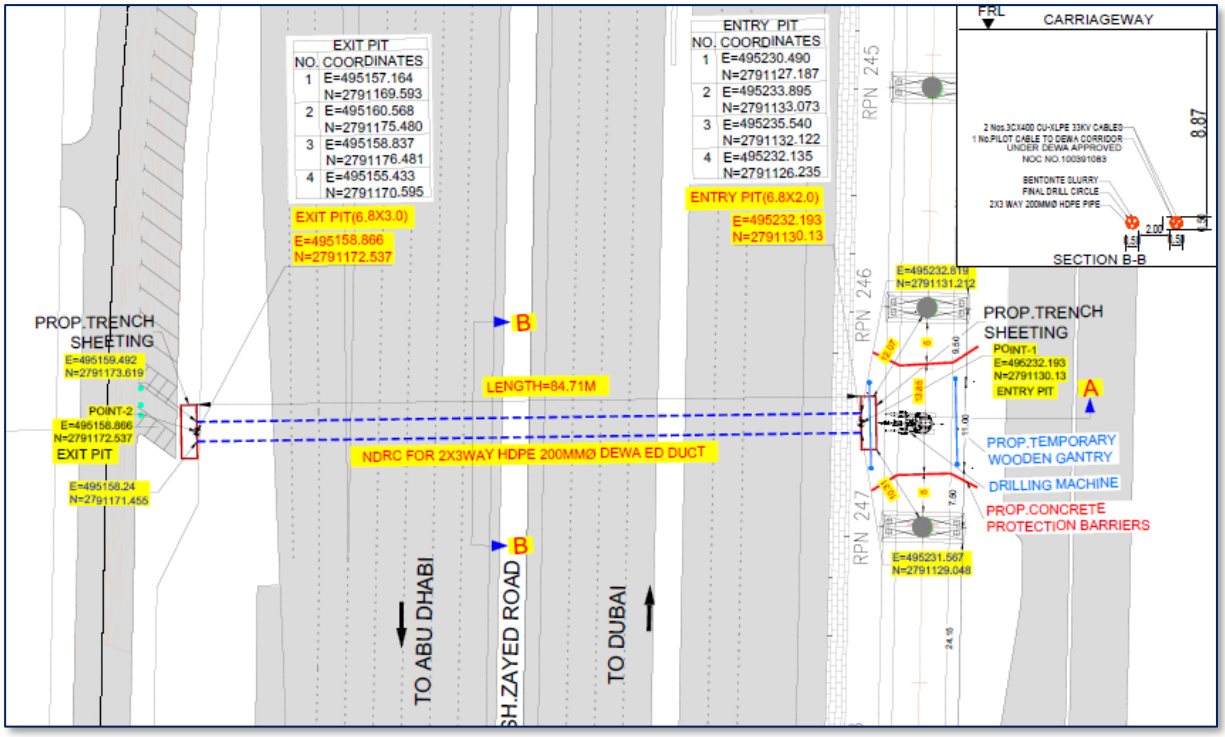

Figure 4.4: NDRC Layout with respect to Rail

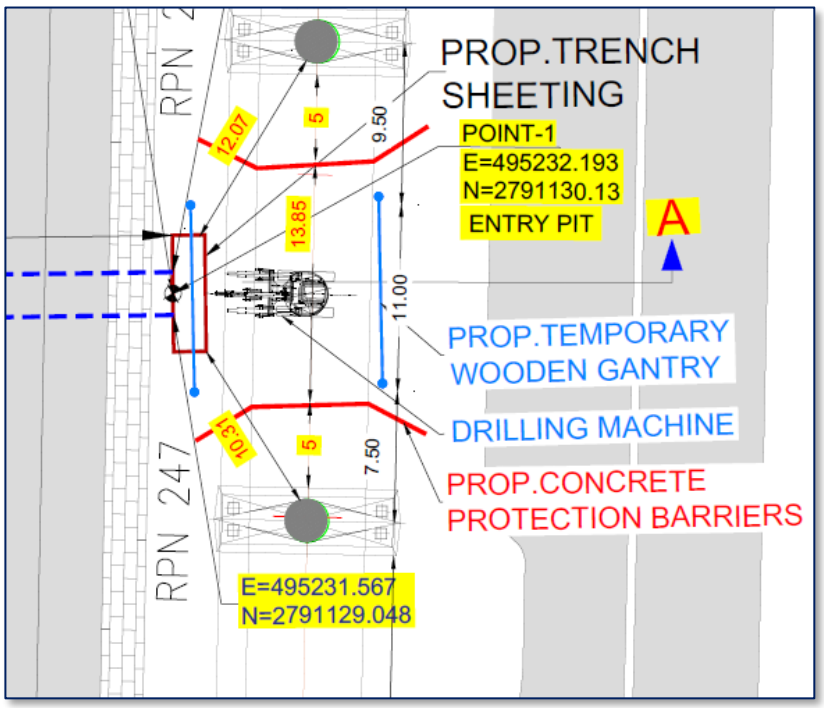

Figure 4.5: Details of NDRC pits inside Rail Protection Zone

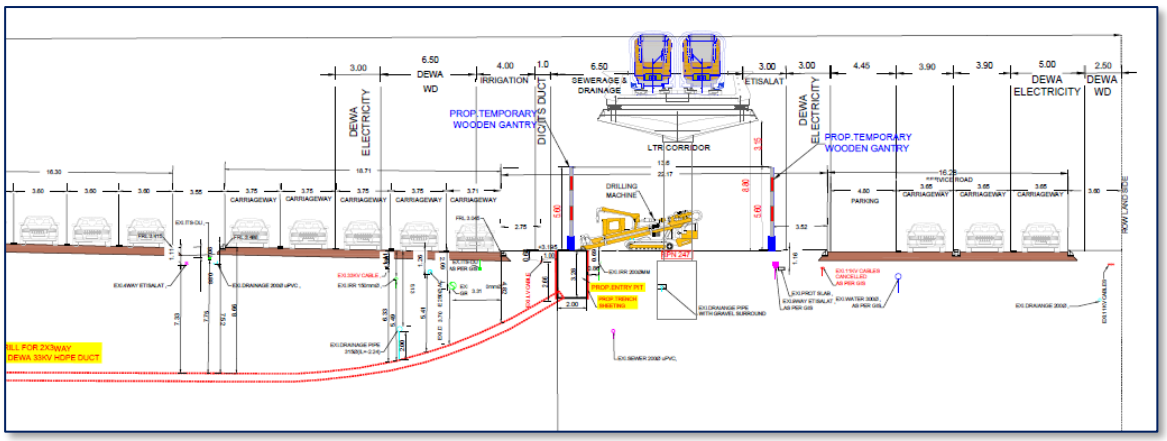

Figure 4.6: Details of NDRC Profile

The following information regarding the NDRC profile shall be provided:

- The height of the Rail Viaduct: This refers to the vertical clearance of the viaduct, i.e., the distance from the bottom of the viaduct to the ground level. It is an essential parameter to consider when designing the NDRC profile.
- Piers Numbers: This pertains to the identification of piers supporting Rail viaduct at the work area.
- Machinery used to construct work under Viaduct: This includes all the equipment and tools required to carry out construction activities under the viaduct. Examples of machinery used include cranes, excavators, and scaffolding.
- Height limit of the gantry to restrict the machinery working height under Rail viaduct: A gantry is a framework of steel bars that supports the machinery used during construction activities. The height limit of the gantry determines the maximum height of machinery that can be used under the viaduct.
- Protection of the Piers: This refers to measures taken to protect the supporting columns of the viaduct during construction activities. Protection can include the use of barriers or shields to prevent accidental damage to the piers.

The contractor is responsible for presenting detailed plans and sections that depict various aspects of the construction site. The following are the specific details that must be included in the plans:

- Site Exit and Entry: The contractor shall provide a plan for entry and exit points on the construction site. The plan shall include a clear and safe route for equipment, and vehicles to enter and exit the site with no risk towards metro.
- Limit height temporary gantry to limit the maximum height of the used machinery: The contractor must limit the height of the temporary gantry to ensure the safety of Railway structures. The plan should include location of the height restrictions, the types of machinery that can be used, and the measures taken to ensure compliance with the height restrictions, in compliance with Railway protection code of practice.
- Storage areas: The contractor shall show the location of storage areas for materials, equipment, and tools. The plan must include details on the types of materials that will be stored, the storage capacity, and the measures taken to ensure the safety of the stored items.
- Site boundary: The contractor shall present a plan and section that accurately depicts the site's boundaries. This plan should include a clear demarcation of the site's limits and any adjacent areas.
- Protection around metro piers: The contractor must provide a plan and section that shows the protective measures taken around metro piers during construction

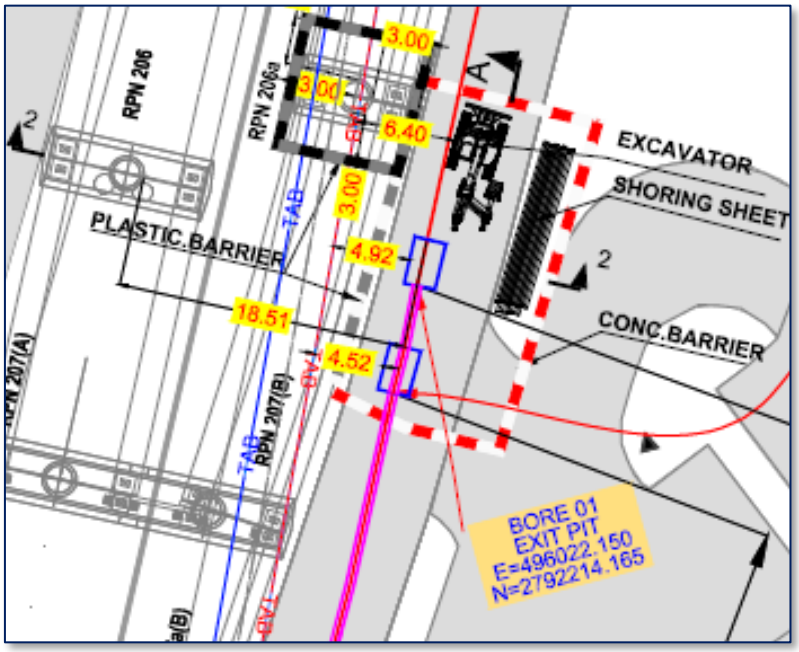

Figure 4.7: Site plan example

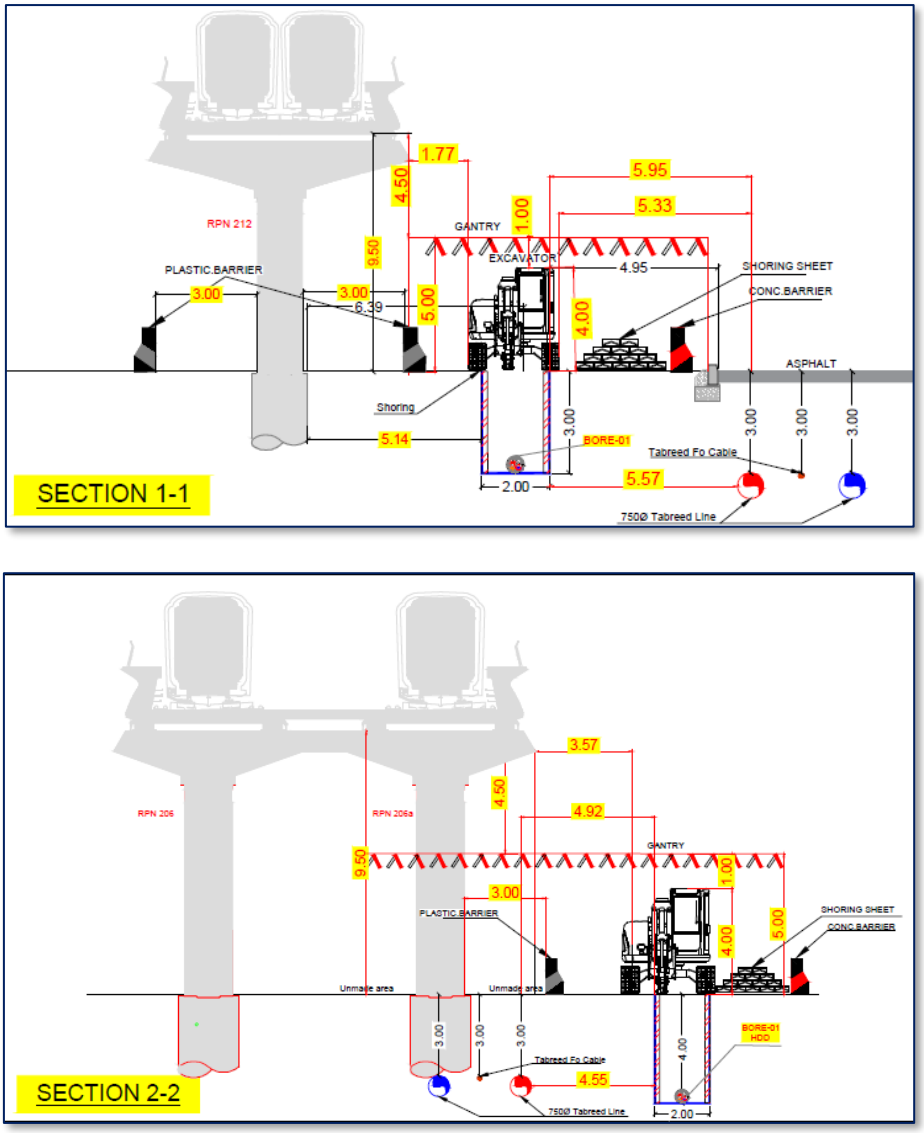

Figure 4.8: Cross section examples

Prior to submitting any construction NOC for horizontal direction drilling or micro tunnels interfaced with the railway underground part, the following considerations shall be considered:

- Obtaining design approval is necessary.
- The applicant shall provide a plan for the proposed NDRC, including the location of launching and receiving shafts, with coordinates in DLTM, as well as a clear distance from the metro tunnel.

- The applicant shall provide a cross section that shows the clearances between the proposed NDRC and pits to the railway tunnel. Depth of the proposed NDRC and distances to Railway Tunnel shall be indicated
- The applicant is responsible for coordinating with the Rail Agency to obtain the Tunnel As Built and accurately implement the rail level and tunnel cross section.
- The applicant shall comply with the technical requirements of the Railway Protection Code of Practice related to NDRC.
- Depending on the severity of the proposed NDRC, the Rail Agency may request technical studies to assess the impact of the proposed work on the railway tunnel. Additionally, monitoring of rail structures may be required. Third-party consultants approved by the Rail Agency shall prepare technical studies and monitoring plans.

The following figures showing sample form the required plan and cross section in order to grant preliminary design approval for the proposed NDRC interfaced with Railway tunnel, addition requirement

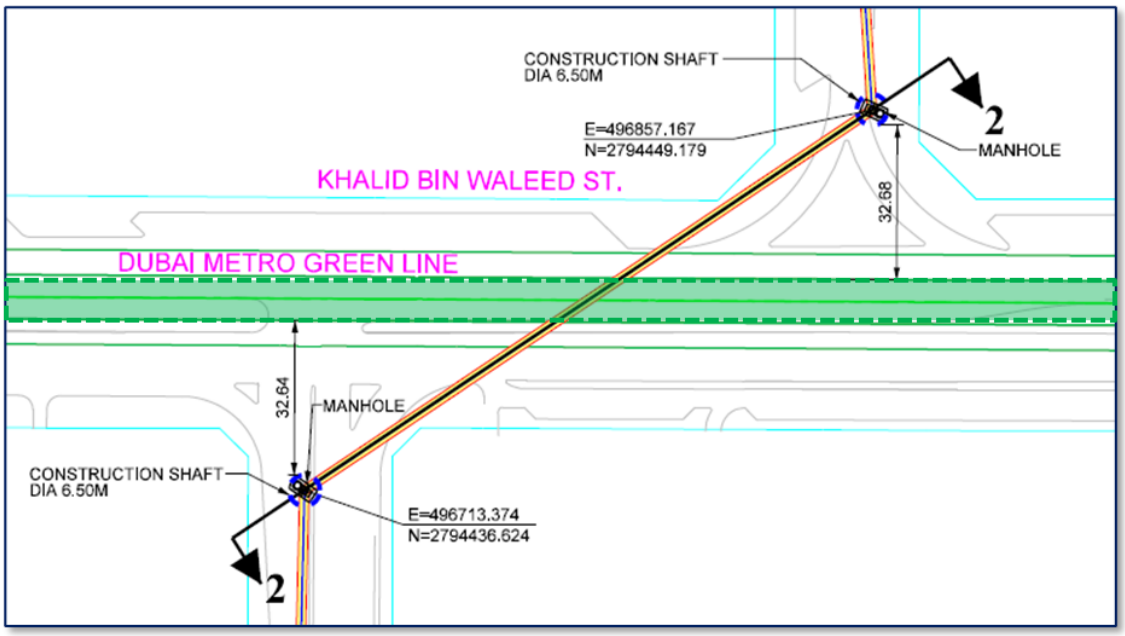

Figure 4.9: Layout for NDRC interfaced with Railway Tunnel

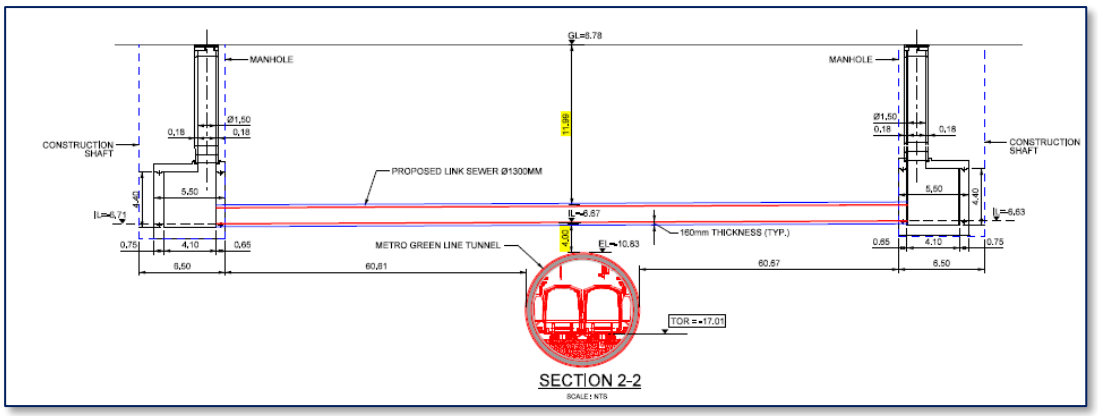

Figure 4.10: Section for NDRC interfaced with Railway Tunnel

The applicant shall provide details of the NDRC lunching and receiving pits in addition to boring methods, the following documents are required:

- Construction sequence showing the detailed stages of construction of the proposed shoring system, excavation, and dewatering.
- Method statement showing the machinery used in construction
- Risk assessment complying with Railway protection code of Practice.
- Monitoring plan (if required)

4.5. Development Buildings

4.5.1. Unfreezing plots

Generally, constructions take place within designated plots of land, and it is the owner's responsibility to engage a consultant for acquiring building permits from either the local authorities or free zone areas, and to hire a contractor for the actual construction work.

The Road and Transport Authority is placing a freeze on plots of land located within the railway protection zone of existing or future lines. This means that the applicant cannot apply for building permits from the local authorities without first obtaining an "unfreeze" letter from the Rail Agency. Once the applicant has received the necessary unfreeze letter, they can proceed with submitting their application for building permits.

The Rail Agency requires several documents to assess an application for unfreezing, including the latest plot affection plan, a letter from the building owner requesting the unfreezing, and a completed unfreezing application form.

If the plot in question falls under the jurisdiction of the Dubai Municipality, the applicant can apply directly for a planning permit from the DM.

For plots located in other free zone authorities, the applicant must coordinate directly with the Rail Right of Way department to submit the necessary documents and obtain the unfreeze letter.

4.5.2. Design NOC for buildings

Railway protection Code of Practice, clause 6.4. "Building Next to the Railway" identifying the requirements of building inside Railway protection zone, either for building at vicinity of overground or underground sections.

The design and construction of any building located adjacent to any above ground Railway Infrastructure must consider the following:

- Building setback.
- Risk of falling objects

The following are clarifying the documents and drawings required by Rail Agency to study and approve design of any building inside Railway protection Code of Practice:

1. Latest affection plan.
2. Design Plans for each level and site layout showing the proposed building, it shall be implemented on Railway As built.
3. Sections showing the setback distance from Rail assets, the section shall indicate the overground Railway asset and its foundations (if any)
4. Any provided layout and section shall indicate the existing Railway infrastructures (for example Chilled water network feeding Railway station, House connect to station, 33Kv Network serving Railway...etc)
5. If the proposed building includes any number of basements, the applicant shall provide cross section showing the proposed shoring and its supporting method (ground anchors, internal struts...etc)

6. Recommendations related to ground anchors facing metro tunnel stated in Railway Protection code of Practice shall be considered.

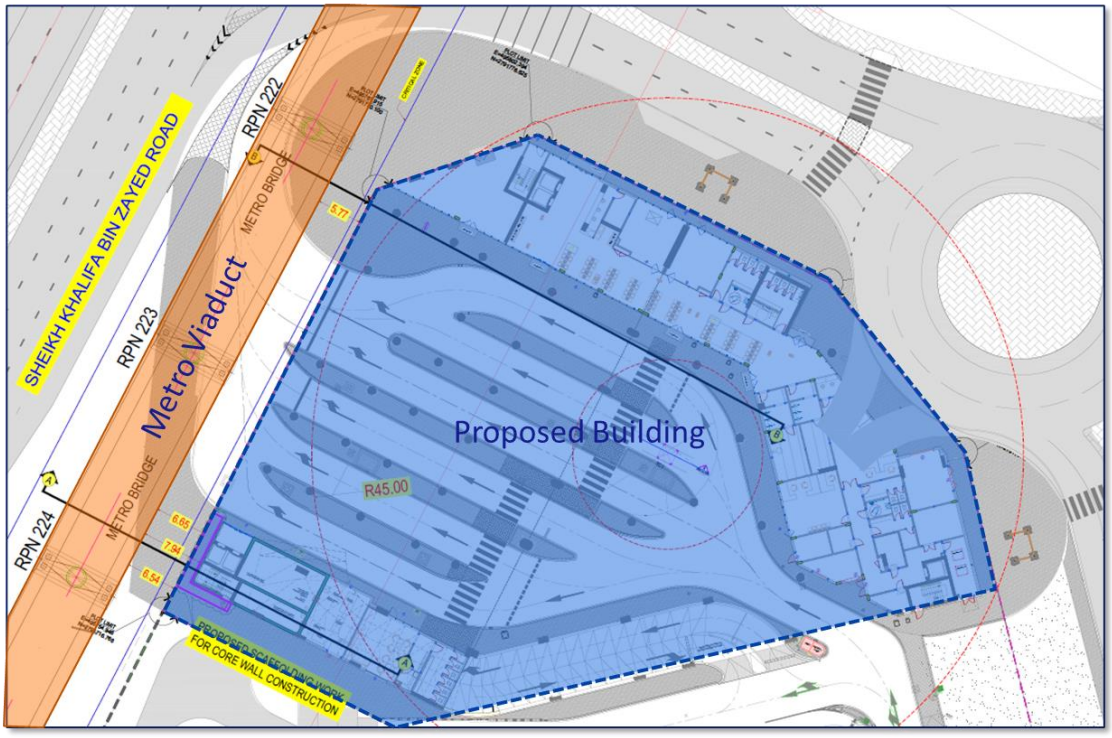

Figure 4.11: Building Layout

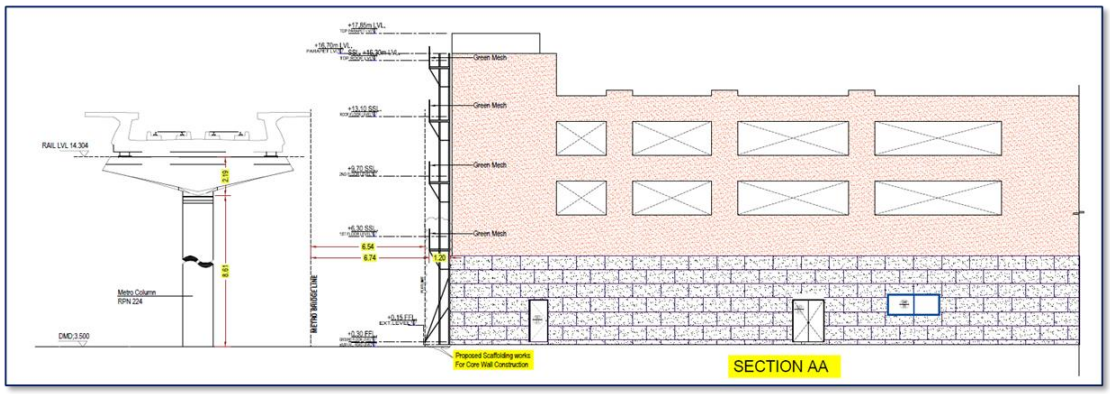

Figure 4.12: Building section with Railway bridge

7. Depending on the severity of the proposed building, the Rail Agency may request technical studies to assess the impact of the proposed work on the railway assets. Additionally, monitoring of rail structures may be required. Third-party consultants approved by the Rail Agency shall prepare technical studies and monitoring plans.

4.5.3. Construction NOC for buildings

Depending on the project complexity Rail agency advices the applicant to divide submission of NOC into stages, the following stages are the recommended:

1. Stage 1: site external fence and logistic plan
2. Stage 2: Submission of substructure NOC, in this submission Rail Agency recommends the applicant to submit substructure works including Shoring works, excavation, dewatering, and building of basement structures (if any)
3. Stage 3: Tower Crane NOC (if any)
4. Stage 4: Submission of Superstructure NOC: in this submission the applicant can obtain NOC for all superstructure works starting from ground level to the final floor level. For high rise buildings located within Railway protection zone, it is recommended to divide the superstructure to multiple NOC as some of the protection measures required from Rail Agency depending on the risk of falling objects and this can be only provided in the higher floor levels.
5. Stage 5: external finishes: in case if the external finishes type or its installation methodology are not specified during start of construction, it is recommended to submit separate NOC for external finishing works.

All Applicants applying for NOC's to carry out buildings within any Railway Protection Zone shall submit the required supporting documents as listed herein:

1. Latest affection plan.
2. Work Program
3. Method statement, method statement shall clarify the construction methodology for all construction activities in addition to list of machinery.
4. Plan showing the used machinery with respect to Railway infrastructures, the plan shall indicate all used machinery on all construction phases.
5. Cross section showing toppling of machinery, planning of machinery position shall be prepared after reviewing the recommendation of Railway protection code of practice.

6. Risk assessment for all the risks arising from building construction Towards Railway structures.
7. Monitoring plan (if required), this plan generally required when the proposed buildings are imposing risk of movement of Railway structure, the plan shall be prepared by a competent third-party approved from Rail Agency as a part of the Soil structure interaction study that might be requested by Rail Agency. Action plan are also required to specify action required by the contractor in case of exceedance of any alerts.

4.6. Shoring works

When seeking a NOC from the Rail Agency for deep excavation either in the right of way or inside a plot limit, the applicant shall comply with all requirements stated in Chapter 7 of Railway protection code of practice, the following are considered as the document may be required from the applicant either for design or construction.

4.6.1. Shoring Design NOC

1. Provide information about the project, including the purpose of the excavation, proposed depth, location within the right of way or plot limit, and any other relevant details.
2. Submit detailed drawings or plans of the proposed excavation, including cross-sections, profiles, and layouts. These drawings should clearly show the dimensions, depth, and proposed shoring system, the submitted drawing shall clearly indicate distances from Railway Structures either above ground or underground.
3. Rail agency might request the applicant to provide a soil structure interaction study prepared by approved third-party to study the effect of the proposed works on Railway structure.
4. Based on the project severity Rail agency might request the applicant Design Monitoring plan showing.

In addition, the design of shoring works shall consider the following;

- Hydrostatic pressures. The highest groundwater levels that could be experienced during the design life of the shoring system shall be considered.
- Toe level of the wall to ensure both structural and hydraulic stability.
- The effectiveness of the groundwater cut-off (if required) to restrict water inflows to the excavation to manageable levels and reduce external groundwater drawdowns.
- Temporary surcharge loads, e.g. construction traffic, crane loads etc.
- Permanent surcharge loads (e.g. existing building loads).
- Unplanned excavation allowances.
- Overall (global) wall stability.
- Stiffness of the wall and its supports.
- Nature of any preloading on temporary supports.

The issuance of a Design and Build NOC for a plot is made possible by the integration of the eNOC system and the Dubai Municipality building permit system. This NOC is granted to consultants, enabling contractors to commence construction activities on-site. In many instances, the designs provided by consultants are considered preliminary, and contractors often make alterations to the submitted design when applying for a shoring permit. Moreover, consultants may not have the necessary documents pertaining to construction activities. In such cases, if this situation arises, the Rail Agency will evaluate the submitted application through the Dubai Municipality building permit system as a Design NOC. The shoring contractor must then submit the final design and fulfil the requirements stated above prior to commencing work on-site, in addition to the documents required for construction NOC.

4.6.1. Exclusion of Design NOC Submission

In numerous instances, the submission of a design NOC is deemed unnecessary, specifically for work conducted within the Right of Way. This exemption is subject to the following criteria:

1. Utility works are carried out outside the Railway critical protection zone.

2. The proposed excavation has a depth of 4 meters or less, and dewatering is not required.
3. Trench sheet shoring is employed as the chosen method.
4. The work is not situated near a Metro Station or on a grade railway corridor (Tram and Metro).
5. If the criteria stated above are met, the contractor is required to submit all shoring details during the Construction NOC stage.

4.6.2. Shoring Construction NOC

The following documents are deemed required to study the construction NOC for any shoring works:

1. Approved design NOC for the proposed work.
2. In case if the shoring design in design NOC have been altered by the contractor, design of the proposed shoring shall be submitted considering the requirements stated above for design NOC.
3. Plan and cross section showing the proposed work with respect to Railway assets.
4. Proposed construction sequence drawings
5. Plan and cross section showing the used machinery, Railway assets shall be implemented in the submitted drawings, toppling paths of the used machinery shall not be located inside critical protection zone.
6. All submitted drawing shall indicate the clear distances between Railway assets and the proposed work or used machinery.
7. a method statement that outlines the proposed excavation methodology, including the sequence of activities, shoring techniques, construction equipment to be used, and safety measures.
8. Risk assessment complying with Railway protection code of practice
9. Monitoring plan and action plan (if required)

4.7. Road Bridge Crossing Railway structures

When roads need to cross over railway structures, such as bridges or viaducts, there are several considerations and potential risks that need to be addressed during submission of design, construction No objection certificate. Here are some key aspects to consider in different project stages.

4.7.1. Design NOC for Road Bridge

4.1.1.1. Alignment and Geometry

1. The horizontal and vertical alignment of the road bridge should align with the existing or planned railway track geometry to ensure safe and efficient train movement.
2. The vertical clearance between the road bridge and the railway structure must be carefully determined to ensure sufficient space for trains passing beneath. The vertical clearance is typically specified based on the maximum height of the rolling stock and any potential future modifications. Ensuring adequate clearance is essential to prevent collisions or obstructions. The designer shall submit the following in order to obtain Rail agency approval:
    - A layout plan should be provided, showing the proposed positioning of the road bridge relative to the Metro Viaduct. The plan must clearly indicate all horizontal clearances from the metro structures. The piers of the road bridge should be positioned outside the critical protection zone of the metro. However, if the piers need to be placed within the critical protection zone, the Rail Agency may consider accepting their placement subject to the used construction methodology and effective management of construction-related risks.

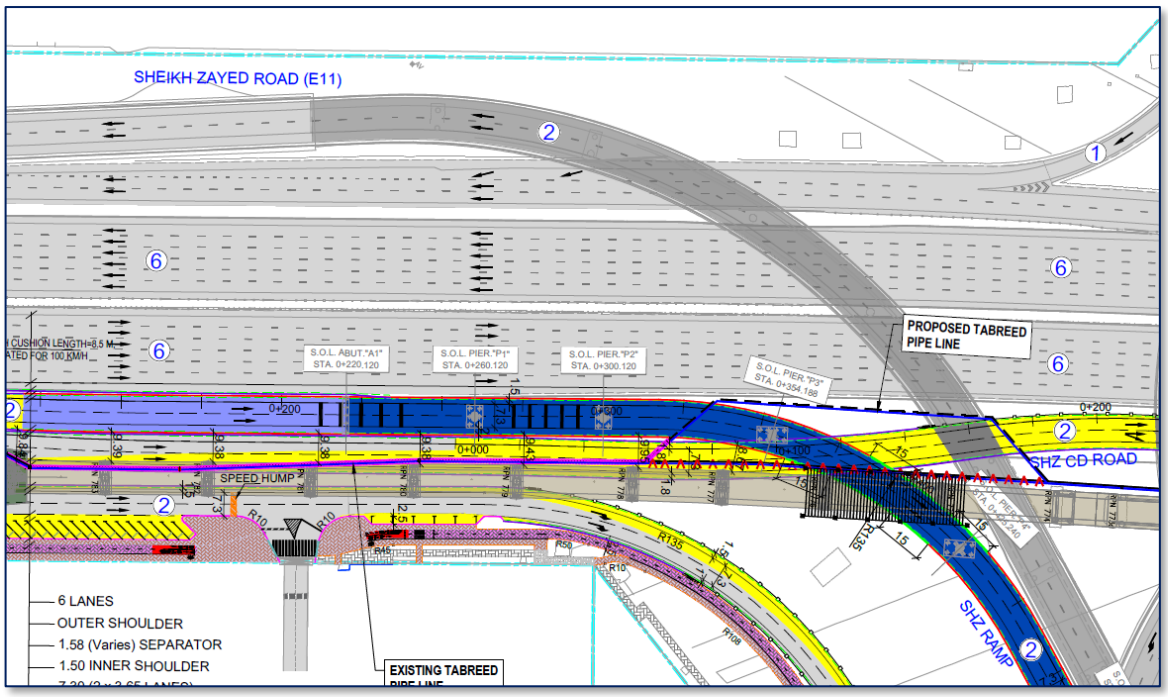

Figure 4.13: Bridge Layout

- The vertical alignment of the road bridge requires careful design, where the clearance form Rail Level to the soffit of the temporary structures required to build the road bridge shall consider the Railway structure gauge plus an additional 500mm for safe operation of the rolling stock beneath. Additionally, an extra vertical gap should be provided to accommodate temporary protection gantries or scaffolding used during the bridge construction. A schematic diagram illustrating the necessary vertical clearances for the safe operation of the Dubai Metro Red and Green lines is provided below. For other metro lines, it is important for the road bridge designer to consult the Rail Agency before developing the preliminary design to ensure adherence to the required vertical clearances.
- The required vertical clearance shall be considered from the lowest soffit level (considering the deflection of the proposed steel gantry) to Rail level.
- Provide Cross sections showing the proposed road bridge at each metro pier and the existing or future Railway line.

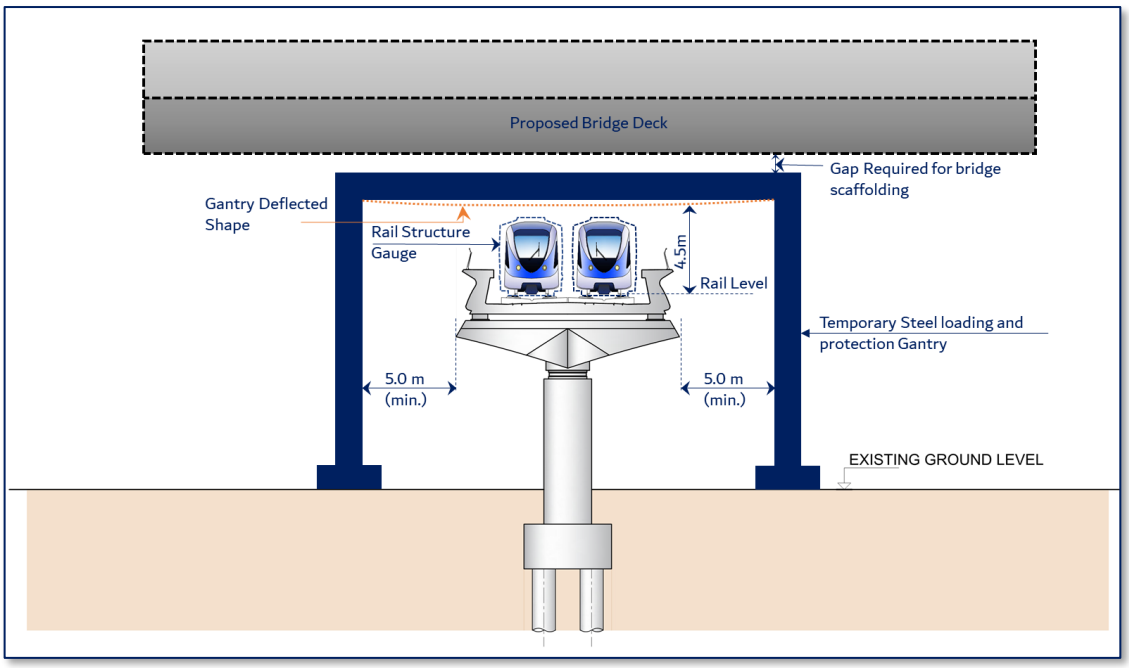

Figure 4.14: Vertical clearance from Rail Level

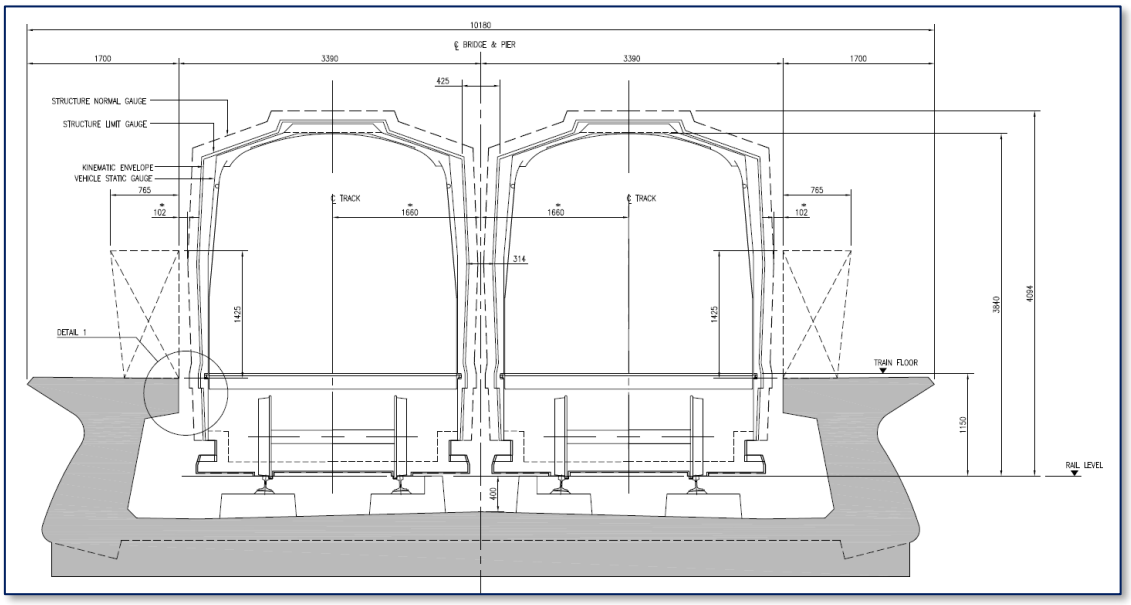

Figure 4.15: Structures General Gauge Sample: Twin Track Straight Deck

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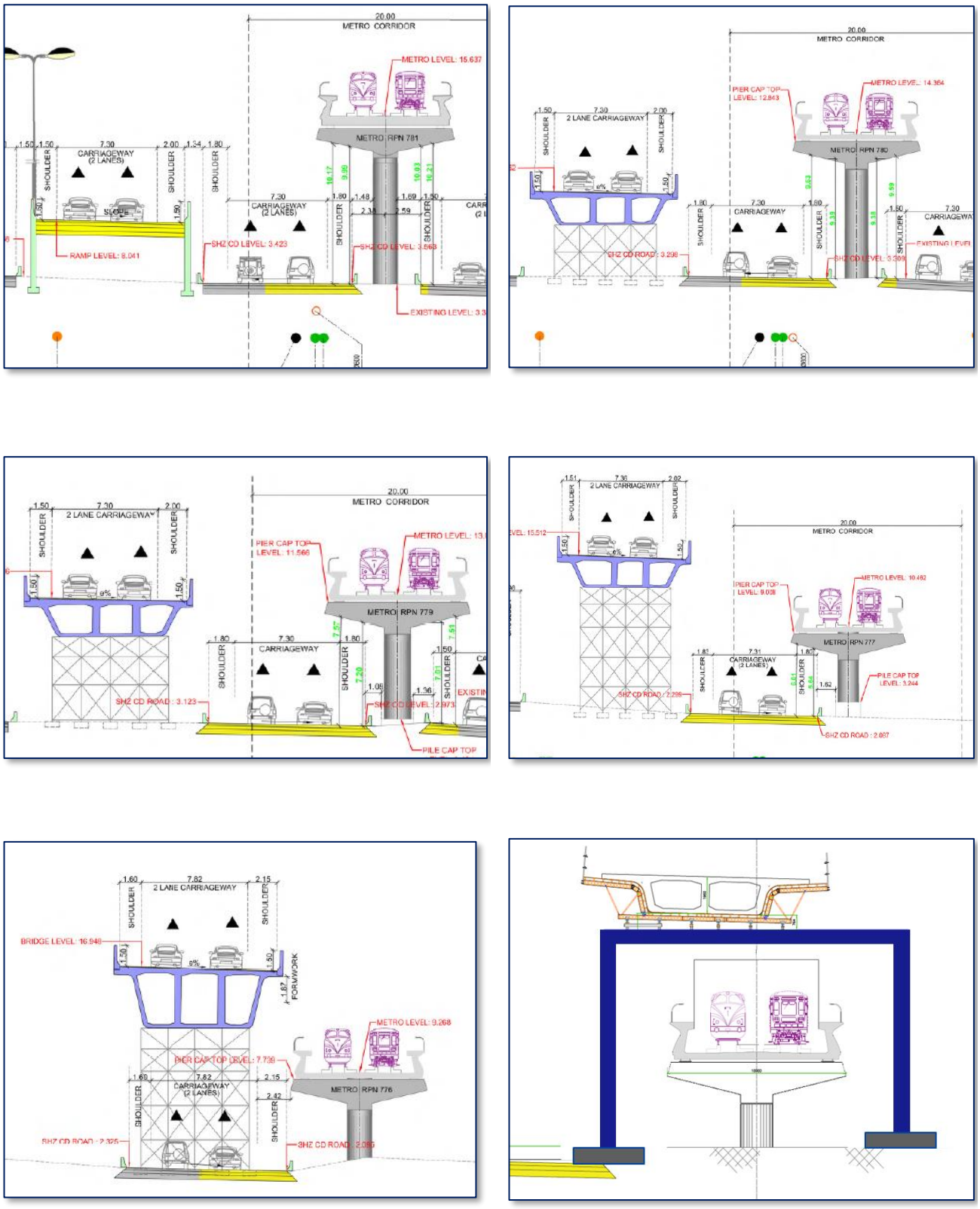

Figure 4.16: Road Bridge Cross sections interfaced with Rail Viaduct

4.1.1.2. Safety Measures

Safety features should be incorporated into the road bridge design to prevent accidents and ensure the well-being of both road users and railway operations. These may include guardrails, safety barriers, signage, and appropriate lighting systems. Additionally, measures should be in place to prevent unauthorized access to the railway tracks from the road bridge.

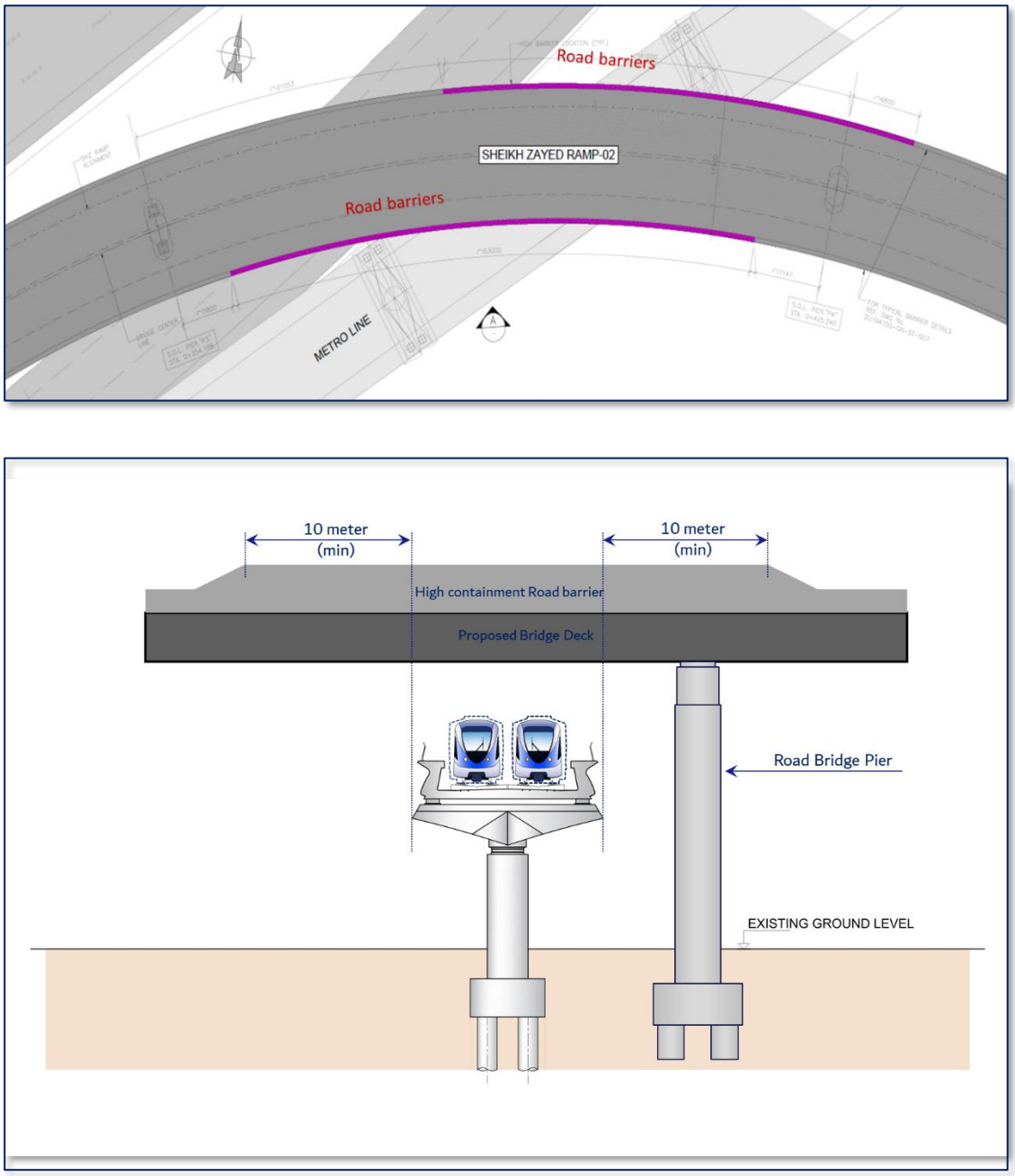

Figure 4.17: Road Bridge Barrier at interface with Railway

4.1.1.3. Geotechnical Considerations:

The foundation and soil conditions at the bridge site play a critical role in ensuring stability and preventing settlement especially when the Road are in the influence zone of Rail bridge foundation or emergency egress structures (EEP) located.

4.7.2. Construction NOC for Road Bridge

Construction activities for the road bridge and the railway structure should be carefully planned and coordinated to minimize disruptions to train operations and ensure worker safety. Temporary structures or detours may be required during construction, and clear communication between the road and Rail Agency is essential for successful execution.

In preparation for construction, it is necessary for the contractor to obtain a construction NOC from the Rail Agency. To expedite the commencement of work, it is advisable to divide the construction activities into distinct NOCs. This approach will allow the contractor to initiate their tasks at an earlier stage. The subsequent activities are anticipated to require separate NOCs and should be submitted accordingly:

1. A NOC is required for work conducted outside the Rail protection zone, encompassing construction activities that do not pose risks to Railway structures. However, in instances where working with machinery outside the Metro protection zone may potentially impact Railway safety, specifically if toppling paths lie within the protection zone, a NOC from the Rail agency is necessary.
2. Mobilization and logistical operations at the construction site.
3. Utilities diversion works.
4. Execution of piling and pile cap construction works.
5. Construction of piers for road bridges.
6. Installation of temporary protection gantries.
7. Construction of the bridge deck

8. Bridge painting works
9. Road furniture including street lighting works and road marking

Splitting the NOCs is recommended due to the varying risks on Railway assets by different activities. By submitting separate NOCs for each activity, the Rail agency can promptly assess and make informed decisions regarding the associated risks. This approach enables efficient risk management and allows the Rail agency to take timely actions as needed.

When applying for No Objection Certificates to carry out bridge construction within the Railway Protection Zone, applicants are typically required to submit the following supporting documents:

1. A detailed layout and cross-section drawing illustrating the proposed construction works in relation to the affected Railway line. The distances from Railway infrastructures should be clearly indicated.
2. plans and sections drawings indicating the machinery to be used for all sub-activities. The location of the machinery should be clearly marked on the submitted drawing, highlighting any potential toppling paths in relation to the metro system.
3. If lifting activities are proposed, the contractor must adhere to the requirements outlined in the lifting activities guidelines specified in this document.
4. A comprehensive method statement and risk assessment that aligns with the Railway Protection Code of Practice. This document should outline the planned approach for the construction activities and assess the associated risks, considering the protection of the railway infrastructure
5. Depending on the criticality of the proposed construction activities Rail Agency might require third parties to certify any of the submitted activities including but not limited to submitted studies, lifting plan, monitoring regime...etc

4.8. Machinery and Lifting Activities NOC

An operation concerned with the lifting and lowering of a load which has the potential to have an adverse effect upon the existing Railway system. A load is the item or items being lifted which could include a person or people. A lifting operation may be performed manually or using lifting equipment.

Movement or operation of cranes, hoists, other lifting equipment and use of any machinery and heavy equipment is considered one of the restricted activities specified in by Road and Transport authority.

This Site Activity is the movement or operation of any crane, whether fixed or mobile, machinery, hoists, ladder, drilling or piling equipment, excavator or any other mechanical equipment or vehicle. The following equipment is considered.

- Mobile cranes.
- Tower cranes (fixed or luffing jib).
- Hoists, Lifts and Mobile Elevated Work Platforms (MEWPs).
- 360 degree excavators used as cranes.
- Telehandlers.
- Concrete pumps.
- Aerial lifting.

Any work involving plant, equipment, or materials within the Railway Protection Zone, may only be undertaken with the prior written agreement of the Agency.

4.8.1. General Requirements of NOC

- Ensure compliance with the requirements of the latest version of the Code of Construction Safety Practice published by the Dubai Municipality.
- Include location and fixing details of all heavy equipment in the Applicant's NOC application.
- Avoid the use of construction plant, equipment, or materials that, in the event of mishandling or failure, could encroach within the Critical Zone.
- Agree a safe method of work with the Agency.

- Ensure minimal dust and debris created by activities especially near station entrances and ventilation inlets.
- Provide lifting operation plan that considers:
  - The load, its characteristics and the method of lifting.
  - The suitability of the type of lifting equipment used for the lifting operation.
  - Lifting equipment position and location of the load before, during and after the operation supported with drawings.
  - The sequence of the operation (e.g. from site preparation, arrival of the equipment and mobilisation, positioning of the lifting equipment, lifting and placing of the load, dismantling the lifting equipment, to demobilisation).
  - Clearances between the load, the lifting equipment and the Railway Infrastructure.
  - The type of accessories for lifting.
  - The weight to be considered in assessing the load on the lifting equipment.
  - Installation procedures, as per the manufacturer recommendations.
- Provide method statement that includes the following:
  - A step-by-step description of the safe system of work for the entire lifting operation.
  - The schedule of responsibilities (e.g. type of hire, road closures, base preparation, isolation of live services).
  - The required pre-use checks to be completed.
  - A clear statement of the allocation of tasks to all parties involved in the lifting operation.
  - Full details of the lifting equipment(s) including certificates.
  - Details of ancillary equipment.
  - Details of any lifting accessories.
  - The name of the lifting equipment supervisor and certification.
- Appoint independent 3rd party Lifting Supervisor to supervise critical lifting operations. 3rd party Lifting Supervisor shall be approved by the Rail Agency.

- Design working platforms of lifting equipment to resist all loads including wind load.
- Provide barriers (e.g. Vehicle Containment Barriers, VCBs) or ensure sufficient distance is maintained to ensure separation of lifting equipment to prevent collision with construction traffic, moving vehicles or other lifting equipment.
- Provide safe access routes to the public around the worksite to prevent risk of public being struck by moving loads or traffic.
- Verify the bearing capacity is sufficient to support the lifting equipment. Full design checks should be demonstrated based on suitable codes such as BRE 470.
- Method statement and lifting plan for critical lifts shall be approved by the project consultant and endorsed by independent 3rd party testing facility approved by the Rail Agency.
- Wind speed records shall be available, and the method statement shall specify the maximum allowed wind speed in accordance with the equipment manufacturer recommendations.
- The critical limiting environmental conditions where the lifting operations shall be put on hold (e.g. wind speed, rains, lightning, foggy weather, etc.) shall be clearly specified.
- Avoid blind lifting operations toward Railway Infrastructure.

4.8.2. Machinery Positioning

- Avoid lifting of materials/equipment in the Critical Zones.
- Position lifting equipment such that any boom or extension, whilst stationary, in movement or operation, will not encroach on the Critical Zone directly adjacent to the Railway Infrastructure.
- Provide physical barriers to control the movement of equipment.
- Ensure the lifting equipment is positioned greater than the collapse radius from the Critical Zone, where collapse radius of the lifting equipment is greater than the sum of the maximum extent of a lifting equipment collapse (whether

by rotation of the boom about its pivot or rotation of the whole lifting equipment about its most heavily loaded outriggers) plus half the length of a horizontal load or the full height of any vertical load (whichever is the greater). Refer to figures outlined in Railway Protection code of practice

- Avoid lifting materials and equipment over the area directly adjacent to the Railway Infrastructure.
- Position machines so that the fumes and exhaust gases are directed away from the air circulation shafts of Railway Infrastructure and station entrances.
- Establish exclusion zones to prevent the unwanted interaction of lifting equipment, suspended loads and people.
- Where operation of equipment within the Critical Zone below elevated Railway sections is unavoidable, ensure equipment cannot encroach within minimum 1m clearance of underside of elevated structures as shown in Figure 4.4 of Railway Protection code of practice
- The ground supporting the crane / machinery shall be stabilized and in case of non-stabilized platform, a compacted road base layer or concrete planks can be provided.
- Check the existing services / utilities within the equipment / crane proposed positions and at the outrigger locations. The existing services / utilities shall be protected against loading resulting from lifting activities. NOC shall be obtained from the utilities owner for such loading activity.

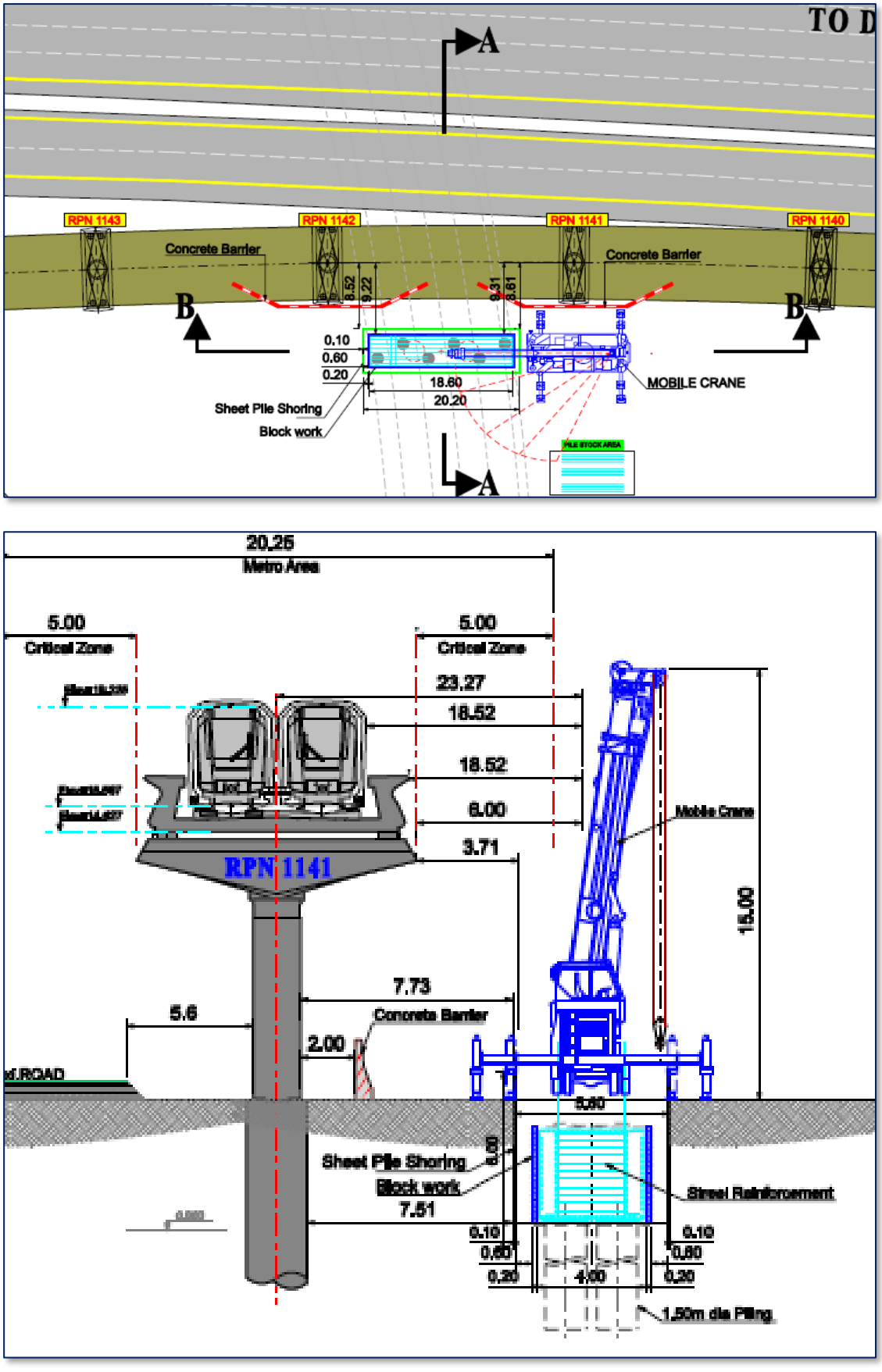

Figure 4.18: Machinery position to avoid toppling in critical zone

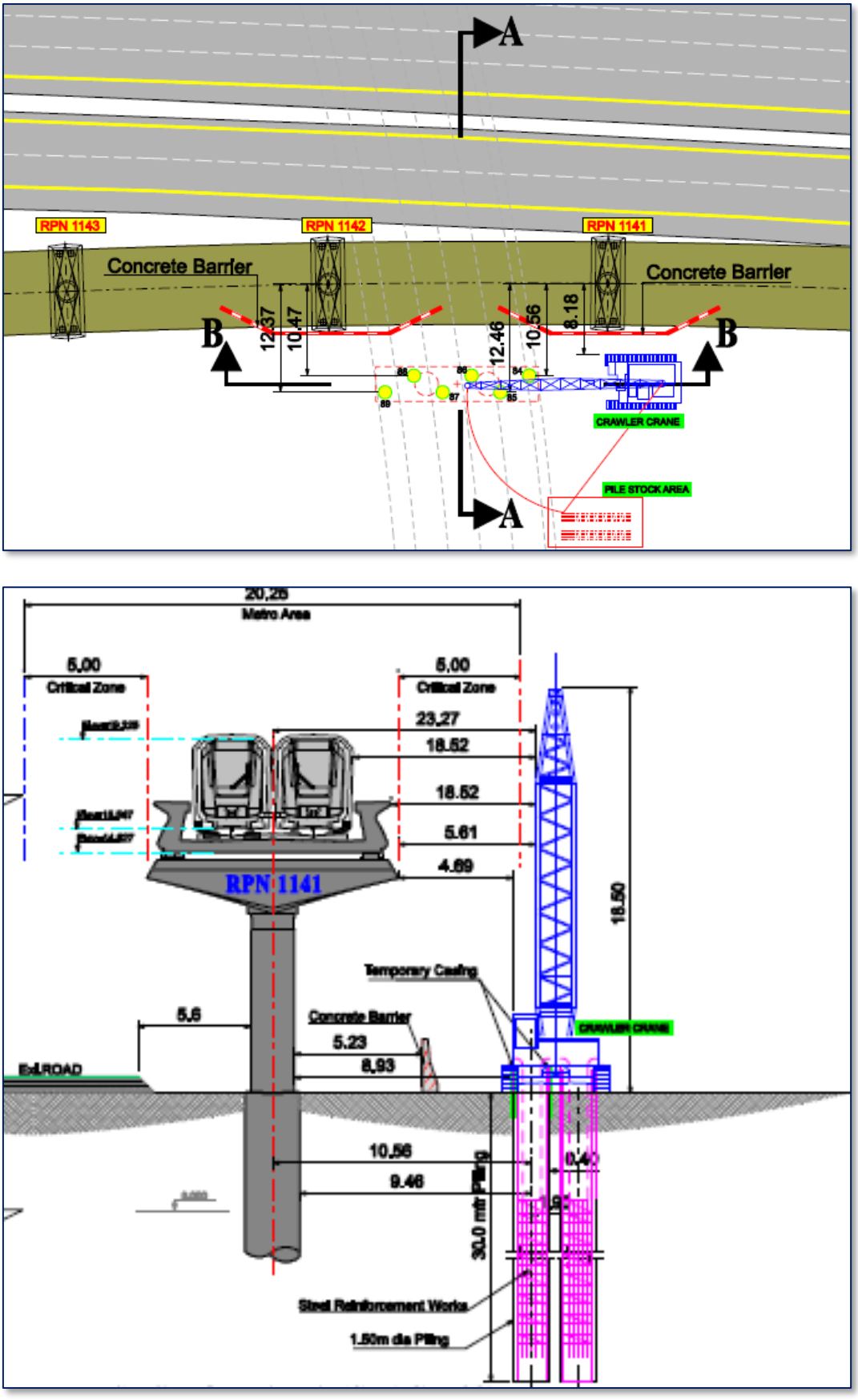

Figure 4.19: Machinery position to avoid toppling in critical zone

5. Specific Requirements

5.1. Third Parties

When it comes to ensuring the safety of existing railway structures during proposed construction activities, rail agencies may involve various types of third-party entities. These third parties can perform independent studies and supervise specific construction activities that have a significant impact on the existing railway structures. Here are some examples of the different types of third parties and their roles

5.1.1. Geotechnical third-party

Geotechnical experts specialize in Soil Structure interaction studies might be requested by Rail Agency. They can evaluate the impact of the existing railway structures due to new proposed projects. This includes assessment of the existing Railway structures, the potential for settlement of ground, deformation of Railway Structures, and any geotechnical risks that may arise during the construction process. For instances, The Geotechnical third-party's involvement is necessary in the following cases

- Deep Excavations within the Railway Protection Zone affecting existing.
- Foundations within the Critical Zone of the Railway Protection Zone.
- Shoring or Dewatering within the Railway Protection Zone.
- To facilitate the development of a future railway network, the geotechnical third-party's responsibility is to collaborate with the applicant and conduct a comprehensive study. This study ensures that the proposed project considers the potential impacts resulting from the construction of the railway network.

The following reports are expected to be submitted by the Geotechnical third-party

- Soil-Structure interaction report to check the impact of the new project on Railway structures.
- Monitoring plan for both the existing Railway structures and the proposed activities associated with the new project. The purpose of this plan is to

establish a systematic approach to monitor the condition and behaviour of the Railway structures throughout the project's lifecycle. It may include various monitoring techniques such as instrumentation, surveys, visual inspections, and data analysis. The report should describe the monitoring parameters, frequency, methodology, and reporting mechanisms to ensure timely detection of any changes or potential issues.

- Design Risk assessment identifying potential risks and hazards associated with the proposed project.

Action plan defining the actions to be taken based on the monitoring results. It should outline the thresholds or triggers that indicate the need for specific responses or remedial actions. This may include initiating further investigations, implementing safety measures, adjusting construction procedures, modifying designs, or engaging relevant experts or authorities.

5.1.2. Structural third party

A structural third party is typically an engineering firm with expertise in structural engineering. Their role is to assess the impact of proposed Projects on existing railway structures. They conduct independent studies, analyse the structural integrity of the railway structures, and provide recommendations for ensuring their safety during construction. This may involve evaluating the impact of changes on the existing Railway structures. The Structural third-party's involvement is necessary in the following cases

- Connections to existing Railway Infrastructure (e.g. stations, footbridges, etc.).
- Any works potentially affecting Railway bridges.

5.1.3. Lifting third-party

The primary objective of involving a lifting third party is to prevent accidents associated with lifting activities by ensuring safety during the planning and execution phases especially during the use of heavy and/or tall equipment (e.g. cranes, etc.) within the Railway Protection Zone. Rail agency may assign any of the following roles to the third party to achieve this goal.

- Reviewing the proposed lifting plan submitted by the construction team.

- Assessing the feasibility and safety of the proposed lifting operations and evaluating the adequacy of the lifting equipment, rigging arrangements, and procedures.
- Supervising specific lifting operations during construction activities near railway structures.
- Ensuring safe handling of heavy machinery, equipment, or materials to prevent damage to existing structures.
- Collaborating closely with the construction team, crane operators, riggers, and other personnel involved in lifting.
- Overseeing proper implementation of lifting techniques, safety protocols, and regulatory compliance.
- Conducting pre-lift assessments and monitoring lifting operations in real-time.
- Intervening in case of hazards or issues.

5.2. Anti-collision

To mitigate the risk of collisions resulting from the manual operation of multiple cranes at a construction site, it is essential to implement an anti-collision system. This precautionary measure helps hazardous situations that could lead to severe incidents that might affect Railway Safety.

According to the European standard EN14439, it is mandatory for every tower crane to have the capability of being equipped with an anti-collision device. This device plays a crucial role in preventing the crane from entering restricted areas and enables it to move in reverse when necessary. To facilitate the installation of the device on the crane, all the required connection points should be consolidated in a designated collector or a dedicated cable. This arrangement is applicable to all cranes except for Self-erecting cranes, where the specific collector or dedicated cable is not required to be installed.

The applicant shall provide zoning and anti-collision system where multiple cranes are operating and may interface with each other within the Railway Protection Zone as illustrated in figure 4.6. of Railway Protection code of Practice, the installation of zoning and anti-collision system shall consider the following:

- The location or rotation of the jib of tower cranes within railway protection zone.
- The toppling of tower crane with railway protection zone.
- Falling object can be reached railway infrastructures

Zoning and anti-collision system shall be provided where tower cranes are operating and interfacing with each other within the Railway Protection Zone, as per following cases:

- For installation and operation of single tower crane, zoning and rotation of tower crane shall be controlled either by providing automatic zoning system or limit switches.
- For installation and operation of multiple tower cranes (two or more tower crane), zoning system and anti-collision system shall be applied.