

قطر للبتروول  
Qatar Petroleum



**DEVELOPMENT PLANNING AND ENGINEERING  
TECHNICAL SUPPORT DIVISION**

**REGULATION FOR PROTECTION OF  
OVERHEAD PIPE BRIDGES IN INDUSTRIAL CITIES**

	<b>Regulation for Protection of Overhead Pipe Bridges in Industrial Cities</b>	<b>QRG-VI-001</b>
		Rev. No: 04 Draft No: Final Date: 15.03.2018 Page No.: 2 of 11

## Document Review History

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15.03.18	D5	IES(L)	Reviewed and advised changes	

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### Document Change History

Doc. Code	Rev. No.	Draft No.	Date	Revision Description	Page No.	Approved By
QPR-RLP- 007	0		08.11.2007	Introduction of a new document has become necessary to provide procedure/ Regulation for protecting the pipe bridges in common Corridor- Issued for Comments		
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QRG-VI-001	04	Final	15.03.2018	Issued for approval.		VI

Notes:

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## 1.0 OBJECTIVE

The objective of this regulation is to ensure that all Overhead Pipe Bridges located in Ras Laffan Industrial City (RLC), Mesaieed Industrial City (MIC) and Dukhan Concession Area (DCA) are adequately protected against accidental damage by vehicles.

## 2.0 SCOPE

This document is applicable to all the overhead pipe bridges in common areas controlled by Industrial Cities in DCA, MIC and RLC.

## 3.0 DEFINITIONS & ABBREVIATIONS

### 3.1 Definitions

Definition	Description
Approve	To accept as satisfactory, permit or officially agree.
Asset Owner	Asset owner of the existing or proposed overhead pipe bridge, to be protected as per this Regulation.
e-CPW	electronic Consolidated Permit to Work applicable in RLC & MIC
End User	A company or Firm or QP Department that uses services, facilities and occupies land within DCA, MIC or RLC, for the purpose of manufacturing a product or providing a service to the industrial cities or other entities within DCA, MIC, or RLC. Utilities providers such as Kahramaa, Ooredoo, Vodafone & QNBN, etc. are also included.
Guideline	Similar to a procedure but less prescriptive in nature. Contains general instructions/guidance to carry out a series of actions
Pipeline	Any pipeline which is fixed to transport water, hydro carbons or chemicals.
PTW	Permit to Work applicable in DCA
Regulation	An official rule, law, or order stating what may or may not be done or how something must be done
Shall	A mandatory action.
Should	A preferred course of action or activity.
Tell-tale System	A height restriction system to prevent vehicles of a limited / restricted height passing underneath a bridge/ overhead cable/ structure.

### 3.2 Abbreviations

Abbreviation	Definition
DCA	Dukhan Concession Area
e-CPW	electronic-Consolidated Permit to Work
ECS	Engineering Consultancy Services
EPIC	Engineering, Procurement, Installation and Commissioning
FEED	Front End Engineering and Design
FGL	Finished Grade Level (Civil)

<b>Abbreviation</b>	<b>Definition</b>
IE(D)	Manager, Development Planning & Engineering, DCA
IE(L)	Manager, Development Planning & engineering, Ras Laffan
IE(M)	Manager, Development Planning & engineering, Mesaieed
IEE(D)	Assistant Manager, Engineering, DCA
IEE(L)	Assistant Manager, Engineering, RLC
IEE(M)	Assistant Manager, Engineering, MIC
IET(L)	Asst. Manager, Industrial Cities Technical Support
IM(D)	Manager, Dukhan Concession Area
IM(L)	Manager, Ras Laffan Industrial City
IM(M)	Manager, Mesaieed Industrial City
m	Meter
MIC	Mesaieed Industrial City
PTW	Permit To Work (in DCA)
QNG95	Qatar National Grid 95
QP	Qatar Petroleum
RLC	Ras Laffan Industrial City
SPB	Speed Break Units
TTS	Tell-tale System
VBU	Vehicle Barrier Units
VI	Executive Vice President, Industrial Cities

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## 4.0 GENERAL CONCEPT

This is a general requirement for protecting the pipelines at road / maintenance track crossings. These guidelines may vary depending on the risk mitigation measures identified in the Risk Assessments for the common corridor pipelines.

## 5.0 REGULATIONS

### Protection of Overhead Pipe Bridges in Industrial Cities Common areas

It is the policy of Industrial Cities that all overhead pipeline bridges in common corridors shall be protected against any accidental damage.

These pipelines carry dangerous hydrocarbons and other chemicals, which can result in major accident and loss in case of a rupture and hence protection is insisted upon.

The following minimum standards / requirements shall apply for protecting the pipeline bridges in common areas.

- a. All overhead pipe bridge structures shall be protected from possible damages due to movement of the vehicles by installing VBU's (Vehicle Barrier Units) underneath structures.
- b. At locations, as agreed / required by Industrial Cities directorate and / or relevant End User's or owner of the respective pipe bridge structures, shall be protected by a TTS (Telltale System) to facilitate access. Refer drawing #SK-VI-02447 Rev. 4 showing typical arrangement of TTS, VBU's and SPB's.
- c. End User or owner of the pipe bridge shall be responsible for the structural integrity of TTS structure.
- d. SPB's (Speed Break Units) shall be installed at 5.00m before TTS as shown in drawing #SK-VI-02447 Rev. 4.
- e. The clear height of TTS shall be 5.00m (from FGL) as the minimum height of the existing overhead pipe bridge will be 5.50m. The TTS shall be robust and properly anchored. The anchors shall be suitably located at site.
- f. Location of the TTS shall be approximately 20m from the overhead bridge/ corridor edge on both sides as shown in the above drawing.
- g. TTS supports/ columns are to be accommodated within the limits of the applicable maintenance track(s). End User shall provide location coordinates in QNG95 system (AutoCAD format) of the location of these supports/ columns as part of their technical submission.
- h. The bridge base support structure shall be protected by heavy-duty reinforced concrete VBU's, to be able to take the impact of one RTA (Road Traffic Accident) considering the maximum vehicle load of the respective road/ maintenance track.
- i. TTS structure & VBU's shall be colour coded with white and red. Concrete VBU's proposed along the pipeline corridor other than Tell Tale locations shall be colour coded with yellow and black.
- j. Warning signs shall be fitted indicating the maximum height restriction in meters.
- k. Sign boards indicating actual height of the pipe bridge shall be fitted to the TTS structure.
- l. Speed limit signs shall be posted at the approach to the pipe bridge. Maximum speed limit signs of 30 km/hr, shall be posted at the maintenance tracks (generally graded unpaved tracks) within the pipeline corridors. Speed limits at the main roads shall be as per the posted speed limits of the respective roads.
- m. Reflectors shall be affixed to the TTS and VBU's for direct illumination.
- n. Emergency Response Information Board (ERIB) shall be installed at all overhead pipeline bridge location to take action in case of emergency. This board must indicate the content of the pipeline/(s), contact details of the asset owner/(s), emergency telephone number and grid reference number as per Attachment – B: Drawing No. SK-

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VI-03386 Rev. 4 “Emergency Response Information Board”. The font size shall be big enough for the whole message to be accommodated within the board size and legible for reading. The information board shall be installed on either side of the pipe bridge at the TTS location.

- o. When new pipe bridge / pipelines are installed in the corridor where TTS already exists, the existing TTS and other associated installations shall be updated accordingly and shifted, if required.
- p. In case of emergency, contact the following telephone numbers:
  - Ras Laffan Industrial City : 135 (Toll Free)
  - Mesaieed Industrial City : 135 (Toll Free)
  - Dukhan Concession area : 4475-7999, 4475-6999
- q. TTS shall be installed prior to the commissioning of pipelines in any given corridor.

The above standards and requirements shall be applicable to install TTS to protect overhead bridges carrying other facilities at road / maintenance track crossings.

## 6.0 RESPONSIBILITIES OF ASSET OWNER

- a. The exact location of TTS, emergency response information board, etc. along with the details of supports shall be submitted to Industrial Cities directorate, both in hard copy and Soft copy (AutoCAD ‘dwg’ format) in QNG95 Co-ordinate system for review and approval. This is necessary to ascertain the actual location of the TTS and to carry out any interference check with other corridors/crossings.
- b. It shall be the responsibility of the respective owner or End User of the pipe bridge to comply and ensure that all overhead pipe bridges carrying their products / facilities are adequately protected.
- c. TTS and the associated components shall be inspected and maintained periodically by the respective End User or owner who installed the TTS, with prior approval from Industrial Cities directorate. Such inspection and maintenance report shall be submitted for VI’s information and records.
- d. Necessary concurrence shall be obtained in e-CPW / PTW from the respective End User / owner of the adjacent corridors for installing TTS and other associated installations.
- e. When new pipe bridge / pipelines are installed in any corridor where TTS is already exists, it is responsibility of the new End user / owner to verify the adequacy / completeness of the existing TTS including all other associated installations. If required, the existing TTS shall be relocated / updated suitably by the new End User/ owner. End User / owner shall obtain necessary prior approval from Industrial Cities directorate for these changes.
- f. Emergency response information board (ERIB) shall detail all the pipelines' information including all existing End User’s sub-corridor pipeline details to avoid duplication. Accordingly the board size can be increased to accommodate the complete information. Installation of such boards would be the responsibility of the End User who has laid the pipeline at the outer side of the corridor.
- g. The ERIB installation shall not hinder the access to pipeline for maintenance. The board foundation sizes to be big enough to withstand the prevailing wind speed for overturning and to have breakaway coupling joint for easy removal and fixing.
- h. As-built drawings shall be provided to Industrial Cities directorate in AutoCAD ‘dwg’ format in QNG 95 Co-ordinate system.



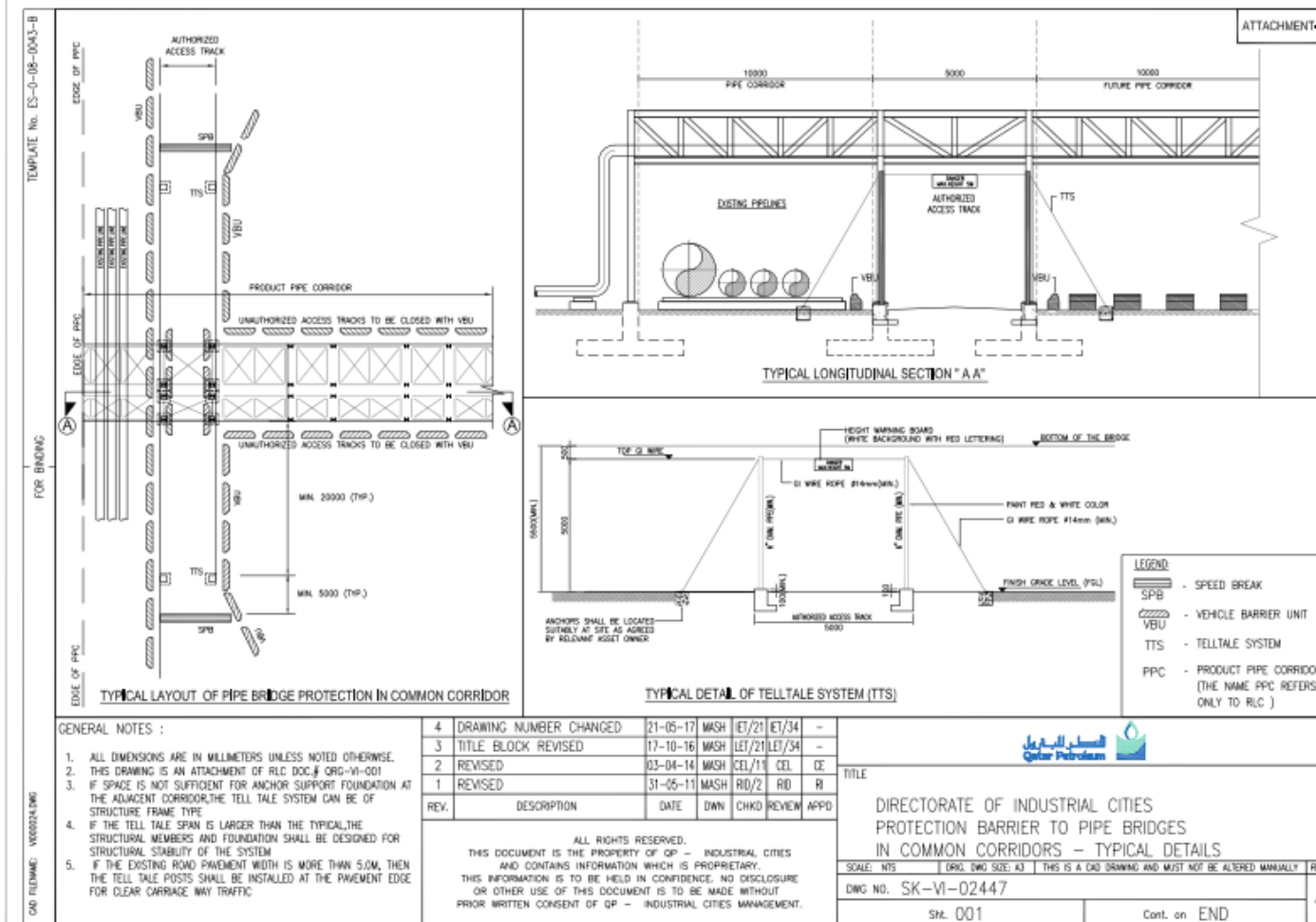
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## 7.0 RELATED DOCUMENTS

- QGDL-VI-008: Guidelines for Technical Submissions to Industrial Cities
- QGDL-CL-001: Guidelines for Corridors and Corridor Crossings in RLC
- QGDL-CM-014: Guidelines for Corridors and Corridor Crossings in MIC
- QGDL-CK-003: Guidelines for Corridors and Corridor Crossings in DCA
- QRG-VI-007: Regulations for Colour Code Identification for Pipe work in MIC and RLC
- QP-SPC-L-18: Specification for Onshore Pipeline Constructions

## 8.0 ATTACHMENTS

### Attachment A: Drawing # SK-VI-02447 Rev.4 Protection Barrier to Pipe Bridges in Common Corridors – Typical details



Attachment B: Drawing # SK-VI-03386 Rev 4 Emergency Response Information Board- Typical details

TEMPLATE No. ES-0-08-0043-B

FOR BINDING

1200(\*)

1500

200

200

Emergency Response Information

CONTENT	PIPELINE	CONTACT	OWNER
A: FUEL GAS		XXXX-XXXX	XXXX
B: INSTRUMENT AIR		XXXX-XXXX	XXXX
C: NITROGEN AIR		XXXX-XXXX	XXXX
D: BUTANE		XXXX-XXXX	XXXX
E: PROPANE PROCESS		XXXX-XXXX	XXXX
F: FIELD CONDENSATE		XXXX-XXXX	XXXX
G: SERVICE WATER		XXXX-XXXX	XXXX
H: NITROGEN		XXXX-XXXX	XXXX
I: FUEL GAS		XXXX-XXXX	XXXX
J: INSTRUMENT AIR		XXXX-XXXX	XXXX
K: BUTANE		XXXX-XXXX	XXXX
L: PROPANE		XXXX-XXXX	XXXX

IN CASE OF EMERGENCY CALL: XXX

TAG No. 2 XXX - ERIB - ###

WHITE LETTERING

DARK GREEN BACKGROUND (REFLECTIVE)

30mm WHITE BORDER

EMERGENCY RESPONSE GRID REF.

YELLOW BORDER AND TEXT

RED BACKGROUND (REFLECTIVE)

EMERGENCY RESPONSE GRID REF.

NOTES:  
INFORMATION BOARD COORDINATES LOCATION  
CGIS QNG - E XXXXXX.XXX  
CGIS QNG - N XXXXXX.XXX

TAG No.  
XXX - ERIB - ###  
OWNER CODE SEQ.NO.  
RG,OG,DEL,etc.

ATTACHMENT 'B'

REV.	DESCRIPTION	DATE	DWN	CHKD	REVIEW	APPD
4	DRAWING NUMBER CHANGED	21-05-17	MASH	IET/21	IET/34	-
3	TITLE BLOCK REVISED	17-10-16	MASH	LET/21	LET/34	-
2	REVISED	01-10-14	MM	CEL/14	CEL/21	CH
1	REVISED	01-06-11	AF	RIQ/2	RHT	RH

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DIRECTORATE OF INDUSTRIAL CITIES  
EMERGENCY RESPONSE INFORMATION BOARD  
(TYPICAL)

SCALE: NTS | ORIG. DWG SIZE: A3 | THIS IS A CAD DRAWING AND MUST NOT BE ALTERED MANUALLY | REV.

DWG NO. SK-VI-03386

Sht. 001 | Cont. on END | 4

CAD FILENAME: WOODDAD.DWG