

# C5

DREDGING AND DREDGE MOVEMENT

## SHIPPING TRAFFIC



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## 5.1 EXISTING CONDITION

The Port of Brisbane is Queensland's largest general cargo port and the fastest growing container port in Australia. The port is located at the mouth of the Brisbane River, and is managed and developed by the Port of Brisbane Pty Ltd (PBPL) under a 99-year lease from the Queensland Government.

There are a number of dedicated container wharves at the port in addition to crude oil wharves for Caltex and BP, and export terminals for grain, coal, and petroleum products. Approximately 2,650 vessels call at the port each year, requiring the shipping channels to accommodate more than 5,300 ship movements. Cruise ships are catered for at the cruise ship terminal at Hamilton (although very large cruise ships use the Fisherman Islands terminals) and naval vessels are frequent visitors.

### 5.1.1 Port services

A variety of services is available at the port for commercial and other vessels. The types of services at the port that may be used during the dredging operations are outlined below. In addition to services provided by the port, a number of shipping agencies operate from the port; the shipping agency will typically act on behalf of a vessel's owner to organise berths, tugs, shipping provisions, and so on while they are operating at the port.

Fuel oil and diesel for ships is available from bunker barges, road tanker and by pipeline at Shell, Caltex Products, BP Products, Pinkenba, and Maritime 2 wharves. Bunker barges may only service vessels in the inner anchorage in good weather during daylight hours only.

Fresh water is available at all berths at the port. During periods of drought, restrictions may be imposed on the quantity of water that is supplied.

Appropriate waste collection and disposal can be arranged for ships at commercial wharves for all waste, including quarantine waste, unless exempt by the Australian Quarantine Inspection Services. Quarantine waste is kept in sealed plastic bags on board the vessel until arrival of the collection vehicle.

A service is available at the port for the collection and disposal of tank washing slops, oily bilge water and oily mixtures containing chemicals, oil sludge, garbage, and sewage.

### 5.1.2 Operating procedures

Maritime Safety Queensland (MSQ), through the authority of the Regional Harbour Master (RHM), has jurisdiction over the safe movement of all shipping within the Brisbane pilotage area. The limits of the Port of Brisbane and the Brisbane pilotage area are shown in **Figure 5.1a**. The principal tool through which the RHM manages the safe and efficient movement of vessel traffic approaching, departing

and operating within the Brisbane pilotage area is the Port Control Centre – Vessel Traffic Services.

Operations within the port must comply with the Port of Brisbane Procedures and Information for Shipping (Department of Transport and Main Roads, Feb. 2012). This document defines the standard procedures to be followed in the pilotage area of the port; it contains information and guidelines to assist ship's masters, owners, and agents of vessels arriving at and traversing the area. It provides details of the services and the regulations and procedures to be observed. Additionally, vessels must comply with the requirements of any applicable law or regulation or direction given by the RHM.

Pilotage is compulsory for ships over 50 m length overall (LOA). All ships of 35 m LOA and over must report their movements to the Port Control Centre. A Pilotage Exemption Certificate may be granted to certain qualified masters who have satisfied the necessary legislative requirements and are authorised to navigate ships in the port area without a pilot.

Outside the port limits, vessels must operate in accordance with relevant legislation, standards, and guidelines as published on the MSQ website. Vessels must also comply with any Notices to Mariners as issued by MSQ.

As the fundamental principle of the Transport Operations (Marine Safety) legislation, the general safety obligation transfers the responsibility of safety to owners and operators and encourages risk management. The *Transport Operations (Marine Safety) Act 1994* imposes general safety obligations on persons involved with the operation of a ship to operate it safely. All owners and operators, masters and crew members must ensure the ship is safe, properly equipped and crewed and operated in a safe manner.

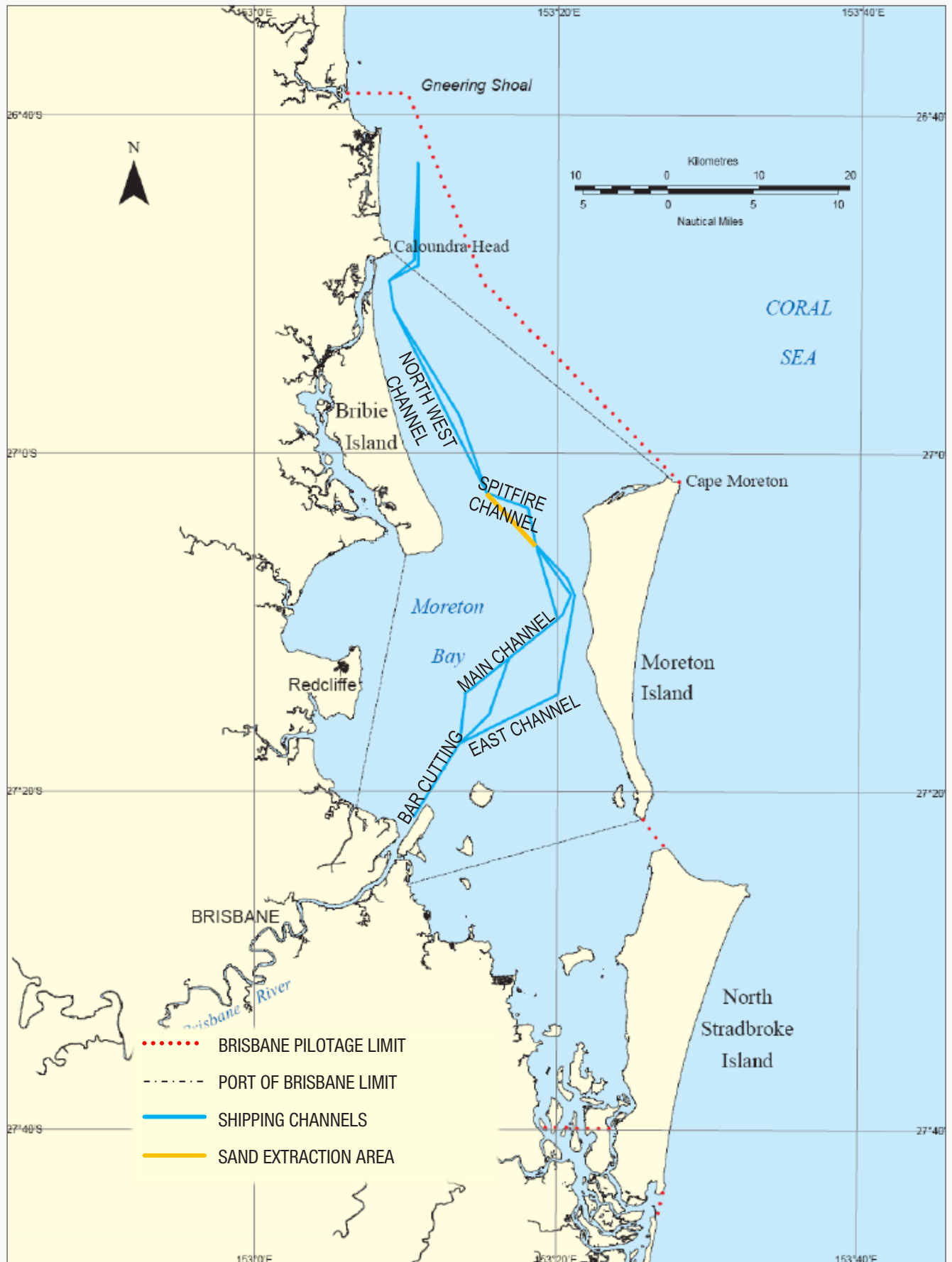
### 5.1.3 Shipping channels

PBPL maintains the shipping channels within the port. The location of the channels is shown in **Figure 5.1a**. The declared depth and width of the channels is summarised in **Table 5.1a**.

*Table 5.1a: Declared depth and width of Port of Brisbane shipping channels*

Channel	Minimum Depth at Lowest Astronomical Tide	Width
North West Channel	15 m	280 m
Spitfire Channel	15 m	590 m
East Channel	15 m	300 m
Main Channel	14.7 m	300 m
Bar Cutting (River Entrance)	14 m	180 m

Figure 5.1a: Port of Brisbane limits (TMR, Feb 2012)



## 5.2 IMPACT ASSESSMENT

### 5.2.1 Introduction

Dredging is proposed as part of the Sunshine Coast Airport Expansion Project (the Project). The nominated sand extraction area requires dredging and vessel operations within the Port of Brisbane. The dredge vessel would be operated in accordance with the Port Procedures. Given the location of the dredging and the route to the pump-out location, the dredge vessel would interact with other vessels in the port area.

It is anticipated that a single dredge vessel would be used for extraction and delivery of the sand to the site. Operation of the dredge vessel would be supported by a tug, predominantly based at the pump-out site where it would be used to pull the floating pipeline into position at the start and end of pump-out operations. Additional tugs may be required on site to manoeuvre the pipeline into position during installation, perform pipeline maintenance and to assist with the removal of the pipeline at completion of the sand pump-out operations.

It is expected that up to three dredging cycles would be completed each day during the dredging campaign. It is anticipated that fortnightly replenishing and maintenance would be undertaken at the Port of Brisbane for the dredge vessel and tug.

SCA undertook consultation with MSQ and the RHM in 2012 as part of preparation of the EIS. MSQ and the RHM raised no specific issues with the Project, and indicated that the vessels associated with the Project would be treated as normal shipping traffic within the Port and other areas.

### 5.2.2 Shipping traffic

The activities of a vessel within the port limits have the potential to affect shipping traffic through delays and changes to shipping safety. The potential shipping traffic impacts from the vessel movements associated with dredging and delivery of the sand fill for the Project are discussed below.

It is expected that dredging for the Project would occur before the Spitfire Realignment Channel is opened for shipping. Consequently, sand extraction at the Spitfire Realignment Channel will occur outside the existing active shipping channels.

Some vessels, such as oil tankers, require clearance zones as they navigate the shipping channels, and the dredge vessel would need to remain outside those clearance zones. The dredge vessel captain would be responsible for coordinating vessel operations with Port Control to maintain the necessary clearance. Port Control may require changes to the dredging schedule to accommodate the other vessel or finishing a dredging cycle early to clear the area for the other vessel.

Within port limits, the dredge vessel would use the North West Channel to travel between the sand extraction area and the sand pump-out site. The inner channels would be used to travel into port for maintenance and resupply. During vessel movements outside the sand extraction area, the dredge vessel would be scheduled through Port Control's systems as for other vessels at the port. MSQ identified the opportunity for passing manoeuvres in parts of the North West Channel subject to approval from Port Control and the vessels' captains.

As the dredge vessel would mostly travel within the North West Channel, its movements are expected to cause minimal delays to other ships at the port.

The dredge vessel would not be carrying hazardous cargo, and consequently would not increase risks to shipping safety in that regard. Approximately two weeks of fuel would be carried on the ship after refuelling; this is typical for shipping activities and does not represent an increased safety risk for the port. The safety of shipping movements is achieved through the Port Procedures and directions from the RHM. The dredge vessel would operate in accordance with the Port Procedures and directions from RHM, and therefore it is not expected to affect the safety of shipping operations at the port.

Beyond the limits of the port, a navigation route would be determined appropriate to the dredge vessel that maintains an adequate under keel clearance and avoids any areas of high shipping or recreational activity. Given the relative speed and manoeuvrability of most dredge vessels, it would be most economical to identify a navigation route that minimises interactions with existing shipping traffic, to avoid delays in completion of the works. The navigation route would be developed in consultation with the RHM and MSQ. Once agreed, the RHM would issue a Notice to Mariners if required. **Table 5.2a** shows the risk assessment for shipping traffic.

### 5.2.3 Recreational craft

MSQ has published recommended small craft routes within the Port of Brisbane, as shown in **Figure 5.2a**. The recommended routes generally avoid the shipping channels and do not cross the proposed sand extraction area. Consequently, it is expected there would be negligible impacts on recreational craft from the dredge vessel manoeuvring within the port.

At the dredge pump-out site, it would be necessary to have some restrictions on recreational craft to ensure the safe operation of the dredge vessel and control of the floating pipeline. A temporary exclusion zone may be required at this location during the works with approval from MSQ and the RHM. This would be advertised through Notices to Mariners in addition to consultation with local recreational boating groups. The exclusion zone would be adequately marked and lit by buoys.

Figure 5.2a: Recommended small craft routes in Moreton Bay (courtesy: MSQ, Queensland Government)

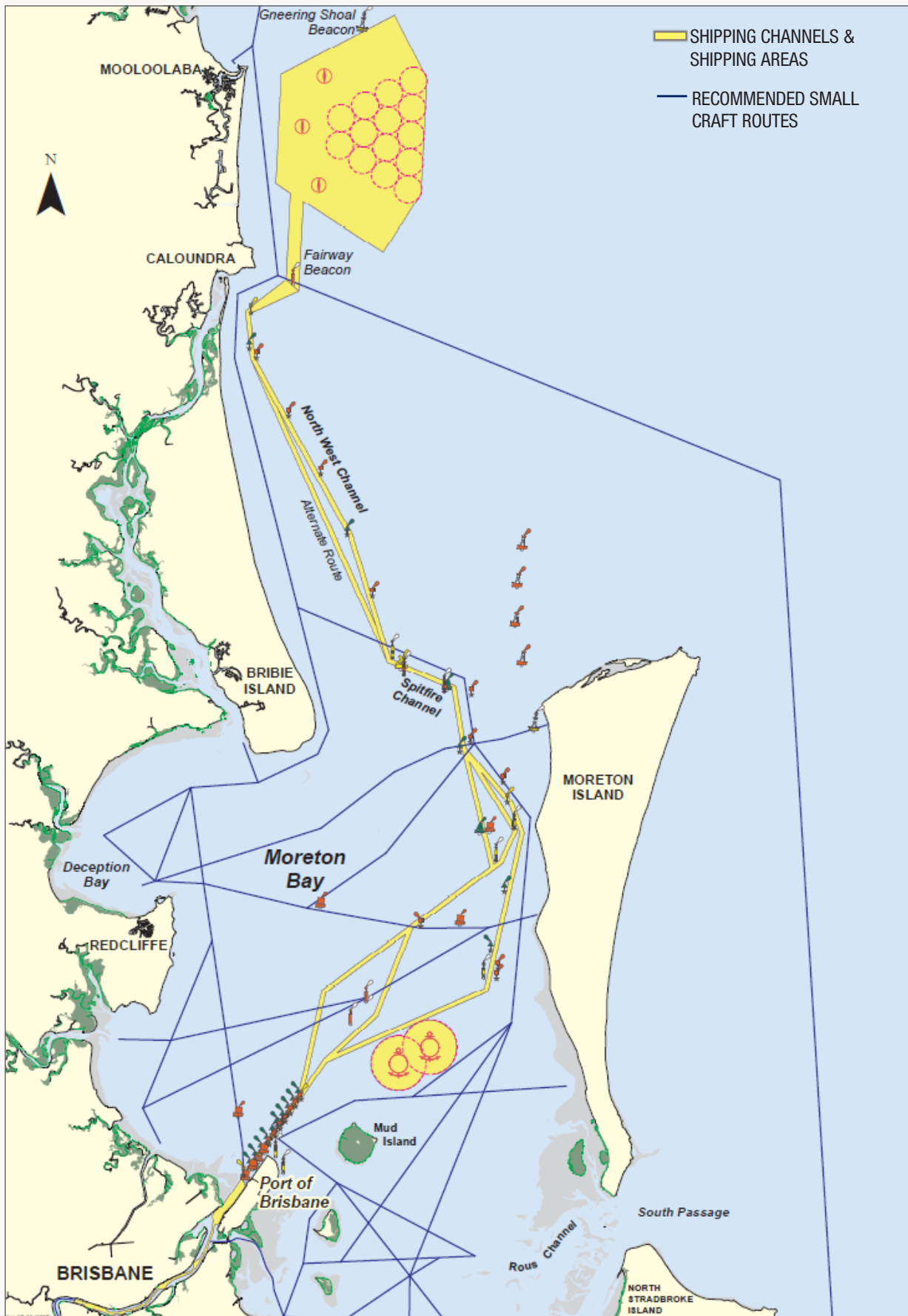


Table 5.2a: Risk assessment for shipping traffic

Primary Impact Process	Initial Assessment with Mitigation Inherent in the Preliminary Design				Residual Assessment with Additional Mitigation			
	Mitigation Inherent in Design	Significance of Impact	Likelihood of Impact	Risk Rating	Additional Mitigation Measures	Significance of Impact	Likelihood of Impact	Residual Risk Rating
Disruption of shipping traffic by dredge vessel movements	The sand extraction area is not within shipping channels The dredge vessel must comply with Port Procedures and directions from Port Control	Negligible	Almost Certain	Negligible/ Low	None	Negligible	Almost Certain	Negligible/ Low
Disruption of recreational vessels at sand extraction area	The sand extraction area is within a commercial shipping area, and not along a recommended small craft route	Negligible	Almost Certain	Negligible/ Low	None	Negligible	Almost Certain	Negligible/ Low
Reduced safety for recreational vessels at the pump-out site	Maritime Safety Queensland (MSQ) would initiate Notices to Mariners as deemed necessary by them Warning signs at the pump-out site	Minor	Almost Certain	Medium	Consultation with local recreational boating clubs to notify members of restricted area during pipeline installation and pumping operations	Negligible	Almost Certain	Negligible/ Low
Modification to shipping channels through dredging process	Dredging for the Project may accelerate the delivery of a navigable shipping channel through the Spitfire Realignment Channel. This would offer benefits to shipping traffic at the port	Negligible	Almost Certain	Negligible/ Low	None	Negligible	Almost Certain	Negligible/ Low

## 5.3 MITIGATION

### 5.3.1 Shipping traffic

While minimal additional delays to shipping traffic are anticipated, if Port Control identifies that additional measures are required to address delays, the dredge vessel would comply with any special directions from the RHM and Port Control.

### 5.3.2 Recreational craft

Minor, temporary disruption to recreational craft is expected to occur around the dredge pump-out site. During construction, this would generally be managed through Notices to Mariners and notices to local recreational boating groups. Consultation with recreational boating groups would also be undertaken during the Environmental Impact Statement process.

During installation of the pipeline, additional measures may be required to ensure public safety. This may include patrolling the temporary exclusion zone while the pipe is being manoeuvred into place and sunk. Enforcement agencies may also be engaged at this time to assist in securing the temporary clear zone. The final requirements for securing the area would be negotiated and agreed with MSQ before construction.