

# Navigating and Manoeuvring of a Ship from Pilot Boarding Area to the Precautionary Area in the Western Port of SHENZHEN.

## Abstract:

Pilotage waters in the Western Port of SHENZHEN are very congested with traffic, especially from Black Point to the Precautionary Area. There are three main fairways approaching Western Port; there is no central buoy; no Traffic Separation Schemes in the fairway and the width of navigable waters is restricted. In addition, these waters fall within two separate administrations and involve pilots from both Shenzhen and Hong Kong SAR. Careful procedures have been worked out to ensure this does not compromise safety. The aim of this paper is to act as a guide to ships' Captains as to which fairway to utilise when arriving or departing from Western Port, and for the safe manoeuvring of a ship within these restricted waters.

**Document Keywords: Main Fairway, Black Point, the Precautionary Area, Tidal Stream, Communication, and Action.**

## 1. Introduction

The Western Port of SHENZHEN is located in the southern part of the Pearl River Delta in GUANGDONG Province, China. It lies on the eastern shore of the Pearl River estuary to Ling Ding Ocean, adjacent to Hong Kong. Its nearest berth is about 3 nautical miles from Black Point. With the exception of a small number of vessels (with a draft of less than 6.5m) approaching via LONGGU Western Fairway, and deep draft vessels via the TONGGU Fairway, most vessels inbound to Western Port will approach via the UMSTON ROAD Fairway. In recent years, with the development of larger container ships, the density of fairway traffic has been increasing, with barges and fishing boats crossing randomly. There have been no significant changes to the navigable waters from Black Point to the Precautionary Area where there is an absence of separation schemes.

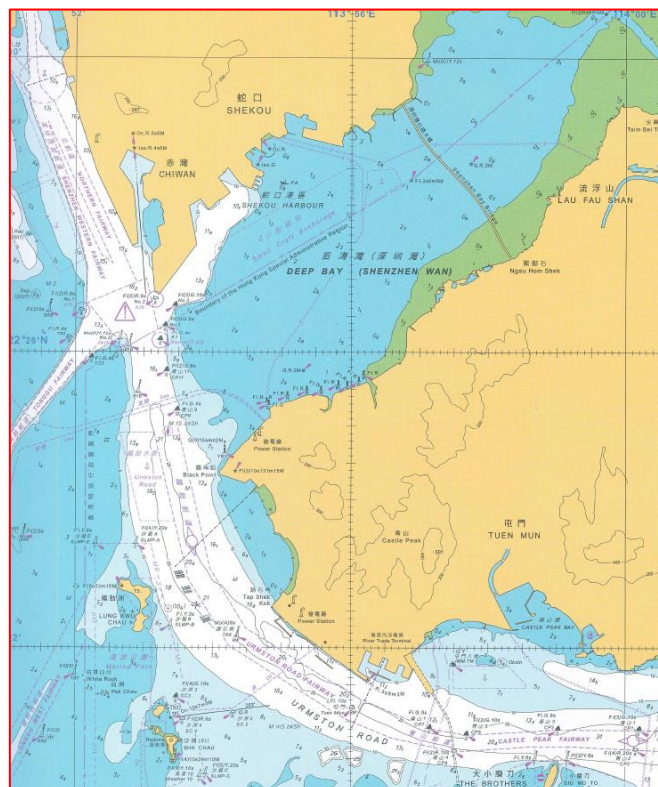


Figure 1 – Approaches Shenzhen via three inbound Fairways.

In the Precautionary Area which is fully defined in Section 4 of this paper, ships converge from five directions where the width of navigable waters in an east-west direction is about 0.45 nautical miles, leading to a heightened risk of collision. Action to avoid a close quarter-situation depends on good communication and co-ordination. Therefore, for the purpose of safe navigation, it is compulsory that a SHENZHEN pilot must board an inbound ship at the specified time and place.

This paper not only focuses upon the navigating and manoeuvring of a ship from Black Point to the Precautionary Area, but also introduces the applicable conditions of another important inbound route, namely the TONGGU Fairway, and additionally highlights key points of operation for an inbound ship at the pilot boarding area of GUIZHAN Island. This will be helpful in assisting Captains to choose the appropriate inbound fairway and to appreciate manoeuvring and control in these waters.

## 2. General Situation of Pilotage Waters in the Western Port of SHENZHEN

### 2.1. Pilotage Waters

Pilotage waters in the Western Port of SHENZHEN include the fairway south from GUIZHAN Anchorage, east from Black Point, and north to the BAOAN airport tanker wharf. Western Port has six regions: SHEKOU Harbour, CHIWAN Harbour, MAWAN Harbour, DACHANWAN Harbour, YOULIAN Shipyard and BAOAN airport tanker wharf.

The main fairway runs from Black Point to SHENZHEN Western Fairway Buoy No.7, where the maximum width of navigable water is 0.5 nautical miles, and minimum width is 0.4 nautical miles. The charted depth is from 12.0m to 16.0m, but the width of deep water in the fairway above 14.0m from Black Point to the Precautionary Area is only 0.3 nautical miles.

Since there is no central buoy or recommended route for inbound and outbound traffic, some vessels may navigate at their will and occupy the opposite fairway. At the same time, barges may cross the fairway at random, and in addition fishing boats routinely operate within it. All of these issues present collision risks to ship handling and may instigate avoiding action, which could result in a close quarter-situation with other ships.

### 2.2. Hydrology and Meteorology

#### 2.2.1. Hydrology

- i. Tide: The tide in the waters of the Western Port of SHENZHEN are half-diurnal - the maximum tidal difference is 3.44m, whereas the average is 1.36m.
- ii. The maximum velocity of a flood tide in SHENZHEN Bay is 0.78m/s, with a flow direction of 008°, and the maximum velocity of an ebb tide is 0.75m/s, where the flow direction is 167°.
- iii. The maximum velocity of a flood tide in the main fairway is 1.48m/s, where the flow direction is 350°, and the maximum velocity of an ebb tide is 1.91m/s, with a flow direction of 150°.

#### 2.2.2. Meteorology

- i. Wind condition: ESE and NNE winds prevail in SHENZHEN for most of the year, followed by NE and E winds. There is a NE wind in winter, and E to NE wind in summer - these follow the monsoons. The mean annual wind above strong breeze is 7.7 days.
- ii. Precipitation: the mean annual precipitation is 1578.4mm, the maximum being 2634.1mm. The mean annual daily precipitation of more than 25mm is 22 days.
- iii. Fog condition: the mean annual fog day is 12 days, and fog with a horizontal visibility less than 1

kilometre is 6.4 days – this occurs mainly in winter and spring.

- iv. Air temperature: the mean annual temperature is 22.4°C, whereas extreme maximum is 38.7°C, and the extreme minimum is 0.2°C.

### 3. The Main Fairways to the Waters of Western Port of SHENZHEN

#### 3.1. UMSTON ROAD Fairway

For an inbound or outgoing vessel via UMSTON ROAD Fairway, the pilot of SHENZHEN must board and leave the vessel near Black Point. Hong Kong and SHENZHEN Pilots do not normally meet each other on the bridge. With the exception of a closure of a port due to bad weather (e.g. typhoon approaching, poor visibility, etc.), there is no time restriction for incoming and outgoing ships (Ultra large container ships passing Tsing Ma Bridge may have to wait for a low tide due to in order to meet air draft restrictions).

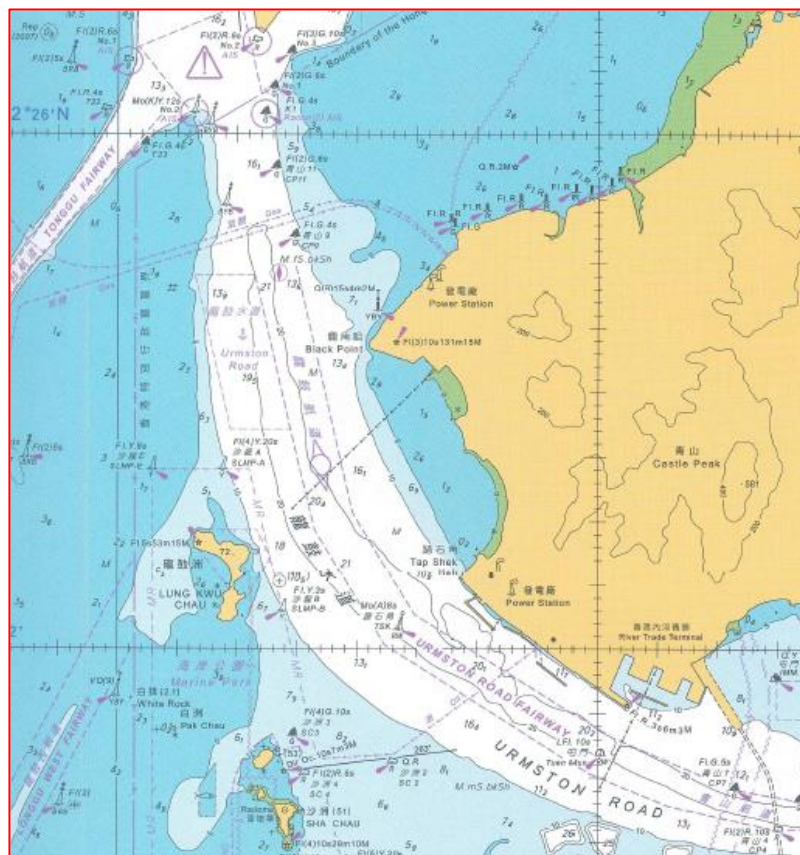


Figure 2 - Umston Road Fairway

Due to the restriction of navigation within these waters and whilst taking into consideration the possible obstacles for safe manoeuvring, collision avoidance, and communication between vessels, a Pilot on the bridge should not disembark the vessel for any reason unless he has confirmed that the other Pilot is about to board the ship. Hong Kong pilots on the inbound ship will generally control the speed of the vessel and confirm on VHF 30 minutes in advance whether SHENZHEN pilot can board the ship on time. For outbound vessels, Hong Kong pilots will generally wait in the pilot boarding area on time.

#### 3.2. TONGGU Fairway

A shipping company may consider applying for a pilot for a vessel calling at Western Port of SHENZHEN via

TONGGU Fairway, based on the following reasons:

- An incoming vessel will not call at Hong Kong but transit directly to the Western Port of SHENZHEN.
- An incoming vessel will initially call at Western Port of SHENZHEN then Hong Kong.
- A departing vessel will not call at Hong Kong.
- Ultra large container ships may be restricted from passing Tsing Ma Bridge by their net air draft.
- To save on cost and time.

The TONGGU Fairway has been manually excavated, looking similar to a trapezoidal groove where light buoys are symmetrically set to port and starboard, with the lights simultaneously flashing on and off. The transverse width between two buoys is about 400m, which are fixed in shallow water. The navigable width is only about 270m where maximum charted depth is 15.8m, thus a ship proceeding along the fairway must maintain her position in the middle. In determining the specific timing for navigation within the TONGGU Fairway, the following should be taken into account:

- For ships incoming and outbound in the same direction, the interval should be at least 1.5 hours;
- Ships incoming and outgoing in the opposite direction should be at least 2.0 hours apart;
- Ships are permitted to navigate in TONGGU Fairway only after sunrise and before sunset, except Cruise Ships;
- During the period of slow flood and ebb tide, the timing is generally between 1.0 hour before high or low tide and 2.0 hours after high or low tide.

TONGGU Fairway only permits vessels navigating with a single direction during these specific times because of traffic control - thus ships should never meet with others on opposite courses or overtake the other in TONGGU Fairway. Regardless of a flood or ebb tide, the tidal stream affects TONGGU Fairway almost transversely, which has a great influence on safe manoeuvring of a ship, especially when proceeding at low speed.



Figure 3 - GUISHAN pilot boarding area

A vessel intending to use TONGGU Fairway must apply to GUANGZHOU Maritime Bureau and SHENZHEN Maritime Bureau at least 24 hours in advance and can only enter the fairway with their consent.

A vessel applying to use TONGGU Fairway must enter and leave it at the scheduled time and this is subject to restriction. If the schedule is not achieved, other vessels using the fairway may be affected. A vessel may be banned from using TONGGU Fairway in cases of serious violations.

An inbound vessel must arrive at GUISHAN Anchorage on time, and the pilot waits at the GUISHAN pilot boarding area in advance. Normally, it takes about 1 hour from GUISHAN pilot boarding point to the entrance of TONGGU Fairway. A vessel is not permitted to enter the traffic lane prior to a pilot boarding except in bad weather (e.g. strong winds or heavy swells). Otherwise, that vessel may be banned from entering the traffic lane by the GUANGZHOU Maritime Administration.

Before approaching TONGGU Fairway, a vessel must keep watch on VHF CH09 for supervision and advice from GUANGZHOU Maritime Bureau, whilst also keeping watch on VHF CH69 for any advice from SHENZHEN VTS.

An outbound vessel via TONGGU Fairway when approaching the intersection should note that it is not uncommon to develop a crossing situation with vessels proceeding via the LINGDING Fairway, where the waters are under the jurisdiction of GUANGZHOU Maritime Administration. If the vessel encounters a crossing situation with other vessels at the intersection, they should promptly communicate with them on VHF CH09 as early as possible and take best action to prevent a close quarters-situation developing. If necessary, she may request GUANGZHOU VTS to intervene and co-ordinate the situation.



Figure 4 – TONGGU and LINDING Junctions intersection

### 3.3. LONGGU Western Fairway

A vessel with a draft of less than 6.5m inbound from the GUISHAN or DAYUSHAN Anchorage or outbound is not permitted to use TONGGU Fairway, so the LONGGU Western Fairway is an alternate to the waters of Western Port. There is no time restriction for a vessel proceeding via LONGGU Western Fairway.

The minimum charted depth in the middle of LONGGU Western Fairway is 4.8m, so larger ships using the fairway would normally have to wait for a high tide.

Vessels inbound to YOULIAN Shipyard or outbound from there usually utilize the LONGGU Western Fairway.



Figure 5 – TONGGU & LONGGU Western Fairway.

## 4. The Pilot Boarding Area of Black Point to the Precautionary Area

### 4.1. Complexity

Vessels inbound and outbound via the UMSTON ROAD Fairway will exchange a pilot in the waters of the pilot boarding area, sometimes there are as many as 8 compulsory piloted vessels of all kinds incoming and outgoing at the same time. In addition, quite a number of barges are waiting for opportunities to cross the fairway, whilst fishing vessels are also operating within it. This can result in very congested waters from Black Point to the Precautionary Area.

At present, no central buoy or Traffic Separation Schemes exist in the UMSTON ROAD Fairway. Ships proceeding in the fairway are free to navigate as they deem fit, resulting on occasion, in these vessels occupying each other's fairway. As required, all barges are fitted with AIS and VHF equipment, however identification is not always available on radar, and no response on VHF communication is a routine occurrence.

The Precautionary Area may be defined as being located at the intersections of SHEKOU Harbour, CHIWAN Harbour, the SHENZHEN Western Fairway and the TONGGU Fairway, which is about 2 nautical miles away from Black Point. The width of navigable water is only 0.4 nautical mile. Ships are converging from five directions in this area: northbound ships via UMSTON Road Fairway, outgoing ships from SHEKOU Harbour, outgoing ships via CHIWAN Fairway, outgoing ships via SHENZHEN Western & Northern Fairway, and incoming vessels via TONGGU Fairway.

A ship may experience a crossing situation with others in the Precautionary Area, and in addition, barges heading north and south are also waiting for opportunities to cross the fairway near to the Precautionary Area. Therefore, the density of traffic in the area is the largest in the Western Port of SHENZHEN and this can result in close-quarter situations developing.

## 4.2. Particularities

**Compulsory piloted ships:** An inbound or outgoing vessel applying for compulsory pilotage service must exchange the pilot within the scheduled time. Vessels may be delayed from arriving at the pilot boarding area due to various reasons. As a result, other ships may have to wait for the pilot in this area.

**A ship inbound to, or outbound from SHEKOU Harbour:** Whether the tide is flood or ebb, tidal streams affect a ship almost transversely between CPV1 (virtual AIS) and buoy No.3.

**A ship at the SHEKOU Container Terminal berth 8** may swing for berthing and/or un-berthing because of tide. The turning area is about 0.2 - 0.3 nautical miles from the wharf, which occupies the northern part of the Precautionary Area and seriously affects incoming and outgoing traffic via CHIWAN Fairway.

**Navigable waters south of CPV1 (virtual AIS):** The waters south of CPV1 (virtual AIS) belong to Hong Kong and are under the jurisdiction of the Hong Kong Marine Department. They continuously monitor and supervise all vessels navigating in UMSTON ROAD Fairway, and the SHENZHEN Marine Department can only support with a supervisory and coordinating role.

**UMSTON Road Anchorage:** Is situated at the south-west side of the fairway (south of 22°24'.92N) and is under the jurisdiction of the Hong Kong Marine Department. Without exception, a ship is not permitted to anchor without a Hong Kong pilot on board, even for a failure of the main engine or other cause. There is no deep-water anchorage in the Western Port of SHENZHEN, which can increase pressure on the SHENZHEN pilots for the safe manoeuvring of a ship.

## 5. The Application of International Regulations for Preventing Collision at Sea

Without exception, the International Regulations for Preventing Collision at Sea apply to all navigable waters in the Western Port of SHENZHEN. When considering the complexity and particularity of the waters, all ships are required to communicate promptly on VHF in advance and co-ordinate each other's actions, so as to avoid a close quarter-situation if they determine that a risk of collision exists.

## 6. Safe Manoeuvring of a Ship

### 6.1 From Black Point to the Waters of the Precautionary Area

Barges head north, south, and cross the fairway whilst fishing boats routinely operate within it, resulting in a potential danger to safe ship manoeuvring. Fishing boats normally operate at their will. Vessels may sound whistles to warn them to leave the fairway as quickly as possible. For barges, calling and communicating by VHF as early as possible is helpful in coordinating each other's actions for safe passing. If a barge does not take action or fails to respond to a VHF call, a vessel will have to independently take best action to avoid a close quarter-situation adapted to the prevailing circumstances and conditions.



*Figure 6 – Black point to the Precautionary Area*

Before approaching the Precautionary Area, a ship proceeding in the fairway should communicate on VHF with any other vessels which may pose a risk of collision and coordinate each other's actions in order to avoid a close quarter-situation developing.

## 6.2 A ship Inbound to or Outgoing from SHEKOU Harbour

Regardless of a flood or ebb tide, a ship inbound to or outgoing from SHEKOU Harbour will encounter predominantly transverse tidal streams in the fairway from CPV1(virtual AIS) to buoy No.3. Vessels should pay special attention in this respect in order to avoid losing steerage due to the strong tidal stream, stopping the engine is inadvisable.

The northern part of the exit Fairway is completely blind where it is obscured by berthed vessels at SHEKOU Container Terminal 7/8 and port cranes. A tug assisting as the pilot boat will alert southbound barges in advance and inform the pilot about traffic conditions in the waters of the northern part, so that the pilot can take prompt action in ample time.

A ship outbound from SHEKOU Harbour may proceed southward to UMSTON ROAD Fairway, westward to TONGGU Fairway, or northward to SHENZHEN Western Fairway & Northern Fairway. The navigable width of the exit fairway is only about 0.25NM, and so there can't be any other ship rendezvous at this exit.

Regardless of a flood or ebb tide and where operations, safety and circumstances permit, an outbound ship should proceed as close to the wharf side as possible. Speed should be controlled at 5-7kts whilst passing SHEKOU Container Terminal 6/7 so that navigation will not affect the safety of the berthed ships. Generally, a ship can take reversing action at 5-7kts. After making sure the fairway is clear, the vessel can increase speed and alter course as appropriate.

During the ebb tide, special attention should be paid to the transverse distance between the vessel and buoy No.1/ CPV1. For a ship southbound to the UMSTON ROAD Fairway, where the transverse distance is sufficient, the vessel should continually alter course to port where practicable, even if the ebb tidal stream is strong. This



will help to avoid other ships approaching too close and remind them as early as possible of her intention to manoeuvre.

The northern part of the Precautionary Area is relatively spacious and in accordance with Part B of International Regulation for Preventing Collision at Sea, altering course to starboard or stopping, reversing or even stopping the ship is the best action to avoid imminent danger or collision.

### 6.3 An outgoing Ship via CHIWAN Fairway

A ship outbound from CHIWAN Harbour may proceed southward to UMSTON ROAD Fairway; westward to TONGGU Fairway; and northward to SHENZHEN Western Fairway & Northern Fairway. There is therefore no need to approach the Precautionary Area. The navigable width of the CHIWAN Fairway is only 0.1NM, thus under no circumstances can there be any vessels meeting at the exit of the fairway.

The starboard side of the CHIWAN Fairway is completely blind where it is obscured by berthed ships at the CHINWAN Container Terminal and port cranes. A tug assisting as the pilot boat will alert barges not to cross the fairway and inform the pilot about traffic conditions on the starboard side of the fairway, so that the pilot can take prompt action in ample time.

Regardless of a flood or ebb tide, an outbound ship should proceed as close to the wharf side as possible where operations, safety and circumstances permit. Speed should be controlled at 5-7kts whilst passing SHEKOU Container Terminal 8/9 so that navigation will not affect the safety of the berthed ships.

A ship berthing or un-berthing at SHEKOU Container Terminal 8/9 may need to swing and occupy the waters of the Precautionary Area due to a flood or ebb tide - this can seriously affect ships proceeding via CHIWAN Fairway. If this occurs, prompt communication on VHF combined with the need to co-ordinate each other's actions is required as early as possible.

The northern part of the Precautionary Area is relatively spacious and, in accordance with Part B of the International Regulation for Preventing Collision at Sea, altering course to starboard, stopping, reversing or even stopping the ship is the best action to avoid imminent danger or risk of collision

### 6.4 An outbound Ship via SHENZHEN Western Fairway & Northern Fairway

An outbound ship via SHENZHEN Western Fairway & Northern Fairway may proceed south-westward to the TONGGU Fairway, southward to the UMSTON ROAD Fairway, or eastward to SHEKOU Container Terminal.

An outbound ship proceeding south-westward to TONGGU Fairway will neither approach the Precautionary Area nor have a crossing situation with other incoming vessels but should be aware of barges and fishing boats operating near the entrance of the TONGGU Fairway.

An outbound ship proceeding southward to UMSTON ROAD Fairway will converge with outbound vessels from CHIWAN and SHEKOU Harbour. Prompt communication on VHF as early as possible is recommended and co-ordinated action taken as required. A ship with a draught greater than 14.0m should keep as close to the middle of the fairway as possible. The vessel should always maintain the transverse distance to CPV1 (virtual AIS) of not more than 0.35NM when abeam of it.

An outbound ship proceeding eastward for berthing at SHEKOU Container Terminal, requires prior confirmation that there is no other ship entering or outgoing from SHEKOU Harbour during that period. However, she may have a crossing situation with other incoming vessels via the UMSTON Road Fairway, or outbound vessels via the CHIWAN Fairway. There is a requirement to communicate on VHF in advance and take co-ordinated action in order to control the ship speed at 5-7kts whilst approaching the Precautionary Area, and to make tugs fast early in order to assist the ship with steering. Not only is there transverse tidal stream in this area, it is also congested. The ship should try to keep in the middle of the fairway and only enter SHEKOU

Harbour when it is safe to do so.

### 6.5 An incoming Ship via TONGGU Fairway

A vessel inbound via the TONGGU Fairway may proceed north-eastward to SHEKOU Harbour, northward into the CHIWAN Fairway, and north-westward to the SHENZHEN Western Fairway & Northern Fairway, or berth at CHINWAN Container Terminal.

The TONGGU Fairway is under strict traffic control so that ships only navigate in a single direction and must pass within the scheduled time, so as not to disturb other ships using it.

Regardless of a flood or ebb tide, tidal streams affect vessels almost transversely whilst proceeding along TONGGU Fairway, thus vessels should not stop their engines in order to avoid losing steerage or being set off course and running aground (especially between buoys 17/18 and 22/23).

A ship bound to SHEKOU Harbour must cross the Precautionary Area and may have a crossing situation with ships outgoing via the CHIWAN Fairway, the SHENZHEN Western Fairway & Northern Fairway, and incoming ships via the UMSTON ROAD Fairway. Vessels should promptly communicate on VHF in advance and take co-ordinated action. The speed of the vessel should be controlled at 5-7kts whilst approaching the Precautionary Area, and tugs should be made fast early in order for them to assist the ship with steering. Not only is there transverse tidal stream in this area, it is also congested. The ship should try to keep in the middle of the fairway and only enter SHEKOU Harbour when it is safe to do so.

A ship bound to CHIWAN Harbour must cross the Precautionary Area and may have a crossing situation with outgoing vessels via the SHENZHEN Western Fairway & Northern Fairway, and incoming vessels via the UMSTON ROAD Fairway. This may affect a ship berthing or un-berthing at SCT8/9. If this occurs, vessels should promptly communicate on VHF as soon as possible and take co-ordinated action. In addition, vessels should confirm in advance that there is no other ship incoming or outgoing via CHIWAN Fairway at that time. The speed of the vessel should be controlled at 5-7kts whilst approaching the Precautionary Area, and tugs should be made fast early in order to assist the ship with steering.

A ship bound for the SHENZHEN Western Fairway & Northern Fairway will not approach the Precautionary Area but may have a crossing situation with outgoing ships via the SHENZHEN Western Fairway & Northern Fairway, and incoming ships via the UMSTON ROAD Fairway or from SHEKOU Harbour. If this occurs, vessels should communicate on VHF as early as possible and take co-ordinated action.

### 6.6 An incoming Ship via LONGGU Western Fairway

An inbound ship via the LONGGU Western Fairway is usually bound to YOULIAN Shipyard. This vessel will cross the main fairway when able to do so, and then proceed in the same direction as other incoming vessels. The Pilot may control the ship along the western edge of the main fairway adapting to the prevailing circumstances and conditions if there are other incoming and outgoing vessels in the vicinity of the intersection. Vessels should promptly communicate on VHF as early as possible and take co-ordinated action.

An incoming ship via the LONGGU Western Fairway is likely to encounter a crossing situation with barges proceeding along the western edge of the main fairway – vessels should promptly communicate on VHF as early as possible and take co-ordinated action.

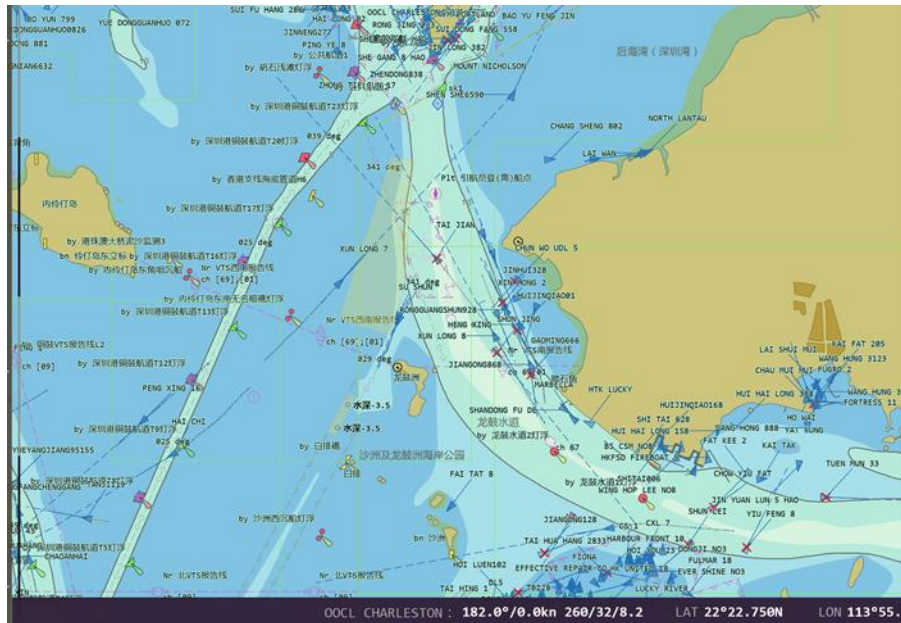


Figure 7 – Incoming vessels via LONGGU Western Fairway

### 6.7 An incoming Ship via UMSTON ROAD Fairway

An inbound vessel via UMSTON ROAD Fairway normally has a Hong Kong pilot on board, who will confirm prior to disembarking, that the SHENZHEN pilot is about to board the vessel. Through negotiation between the two parties, an inbound vessel will exchange her pilot before passing abeam of Black Point – without exception, an inbound vessel shall not pass 022°25.2N (Buoy CP9) if no SHENZHEN pilot is on board.

If there is an outbound vessel from SHEKOU Harbour, and a crossing situation is likely, a vessel should take prompt communication on VHF and take co-ordinated action. The inbound vessel should not impede the safe passage of the outbound vessel and should avoid crossing ahead of her when the circumstances of the case permit.

During the period of flood tide the maximum tidal stream is about 1.48m/s, with a flow direction of about 350°. A vessel will tend to drift to starboard due to the tidal stream and it may be difficult to control her position when stopping. The danger is that it is easy to develop a close quarter-situation with other vessels. Therefore, inbound vessels should confirm that the SHENZHEN pilot will board on her arrival at least 30min before scheduled. Otherwise, she should slow down as early as possible, and try her best to control her position in the waters south of Black Point.

At all times, inbound vessels should try to avoid occupying the navigable waters of outbound traffic so as to avoid the risk of collision.

## 7. Conclusions

The pilotage waters from Black Point to the Precautionary Area are relatively complicated – in particular, inbound and outbound vessels will probably converge in this area. The width of navigable waters is limited where the traffic separation schemes have not been implemented, and strong tidal streams, fishing boats or barges crossing the fairway present additional risks. All of these factors impact upon the safe manoeuvring of a ship.

The competent authorities should strengthen fairway supervision and ship-reporting systems, supervise the

navigation dynamics of all ships in real time, and remind ships to maintain sufficient sea room between each other. If a ship is found to manoeuvre unsafely and/or approach a dangerous situation, VTS should warn her in good time and give a reasoned suggestion to avoid danger.

A vessel proceeding in the fairway shall strictly comply with requirements and procedures for inbound and outbound routes, be inspected and equipped with normal and emergency equipment, and shall at all times proceed at a safe speed adapted to the prevailing circumstances and conditions, whilst maintaining a safe distance from other ships.

Overtaking vessels shall not overtake without communicating, coordinating and without the permission of the vessel being overtaken. The vessel to be overtaken may take appropriate actions adopted to the prevailing circumstances and conditions to permit safe passing if she agrees.

**Remarks:**

- (1) Buoy K1 was removed and replaced by virtual AIS on 25/June/2018
- (2) Refer also to Sailing Directions NP30 10<sup>th</sup> Edition (2016) pages 287 onwards

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