



Environment Arabia



# Alba Power Station 5 Block 4 Supplementary ESIA Construction Traffic Risk Assessment

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**Appendix 1A** ACOP no. 062 Traffic Management and Control Procedure

**Appendix 1B** Sepco III Traffic Management Plan

**Table of abbreviations**

ACOP	Alba Code of Practice
ALBA	Aluminium Bahrain
EACS	Environment Arabia Consultancy Services WLL
ESIA	Environmental and Social Impact Assessment
CCGT	Combined Cycle Gas Turbine
KBSP	Khalifa bn Salman Port
LOS	Level of Service
MW	Mega Watt
TMT	Traffic Management Team
PS5	Power Station 5

## 1 INTRODUCTION

This Construction Traffic Risk Assessment is a part of a suite of documents prepared as supplementary reports to the Environmental and Social Impact Assessment (ESIA), undertaken for the Aluminium Bahrain B.S.C. (Alba) Power Station 5 (PS5) Block 4 project.

This report describes the expected traffic associated with construction of the Alba Power Station 5 Block 4 Project including construction traffic routes, the potential impacts to sensitive receptors, a review of the adequacy of existing mitigation measures in place to minimise any disturbance from construction traffic along with recommendations for additional mitigation measures to be implemented where necessary. Consideration is given to the transport of personnel and equipment in the context of existing transport infrastructure and facilities within the Kingdom of Bahrain.

### 1.1 Scope of the Assessment

The objective of the assessment is to determine the nature and magnitude of risks to the public from traffic associated with construction of Block 4. The assessment will:

- Review construction related traffic volumes and map the Block 4 power station construction traffic routes,
- Review existing road safety risks and congestion along these routes, the potential for the construction traffic to lead to further congestion and disturbance and the potential to increase the risk to road safety;
- Identify any community-related receptors potentially affected by increased construction related traffic along the construction traffic routes and whether the increase in traffic may pose any additional risks to identified receptors;
- Identify the specific mitigation measures required to manage these risks and evaluate whether existing Alba and Block 4 power station 5 EPC contractor systems, procedures and requirements are sufficient to manage these risks; and,
- Identify any additional project-specific mitigations that are required to be delivered by Alba and the EPC Contractor to manage these risks.

### 1.2 Project Description

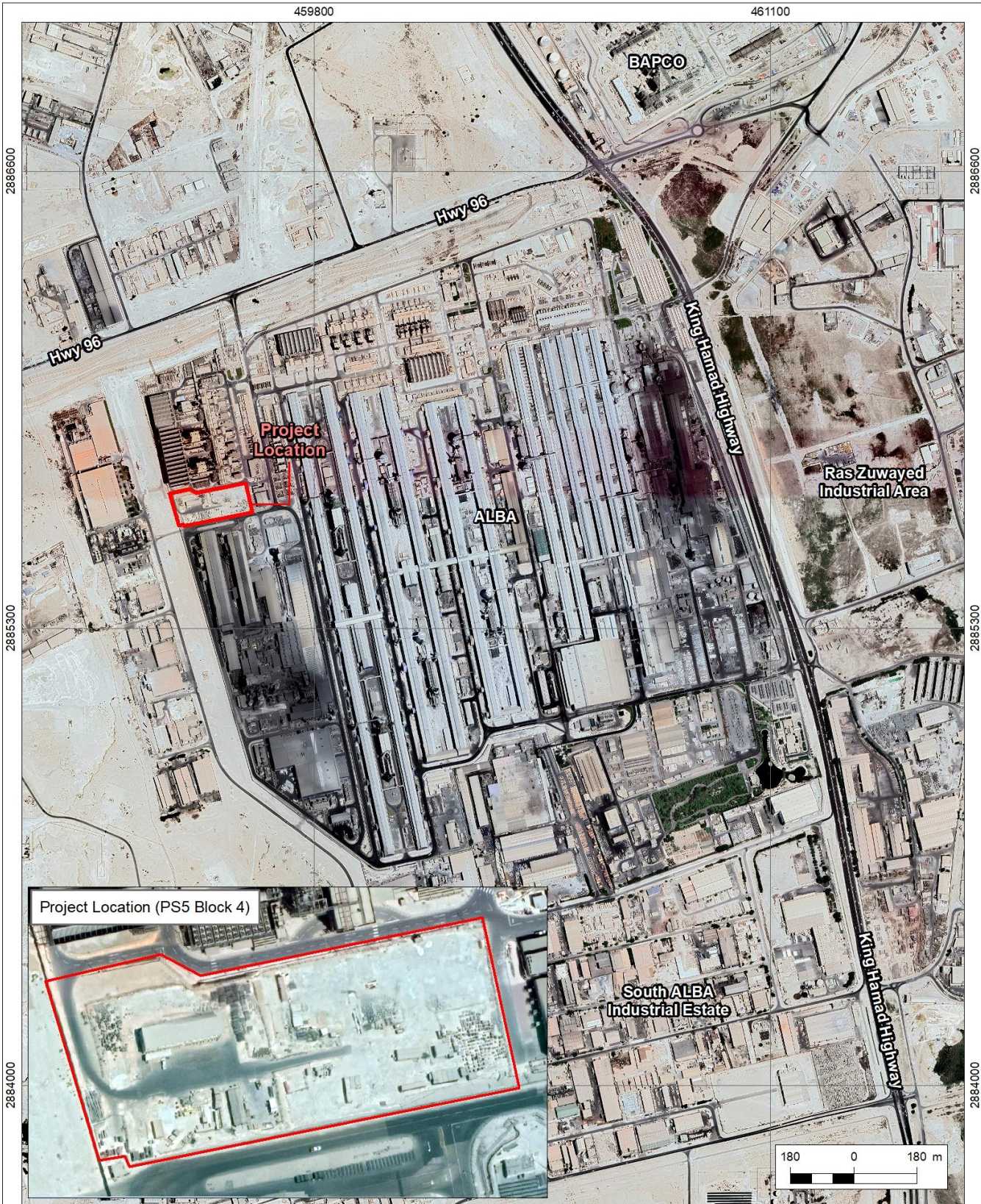
Alba is the largest single site smelter in the world outside China. In 2019, Power Station 5 was constructed within the northwest corner of the Alba site (**Figure 1.1**). It is a Combined Cycle Gas Turbine (CCGT) plant utilising latest and proven 'H' class gas turbine technology in a 1 x 1 x 1 multi-shaft configuration. The CCGT plant has a minimum net electrical output capacity of 1800 Mega Watts (MW) at ISO conditions. A minimum of three separate and independent generating blocks in a multi-shaft of 1:1:1 configuration are included at the Station. The gas turbine units are fired on natural gas although one unit has the capability of being fired on distillate for the purpose of emergency shutdown of the smelter plant in the event of total loss of natural gas supply.

Block 4 is an expansion of Power Station 5 and shall have a similar 1:1:1 configuration with J-class gas turbine technology and with minimum nominal ISO rating of 680.8 MW. It includes a connection to the existing 220kV Substation. This expansion will increase the capacity of Power Station 5 from 1,800 MW to 2,481 MW. The Block 4 gas turbine

unit will have the capability to operate on 100% Khuff gas, 100% residual will also have the capability to operate on any proportionate mixture of Khuff-residual gas.

The increased capacity and efficiency of Power Station 5 will eliminate the need for other power stations current operating at Alba. It is understood that Power Station 3, which is operating on a low load, will be shut down and will be kept as emergency standby and Power Station 4 will run partially.

A Consortium of Mitsubishi Power Ltd. and SEPCO III Electric Power Construction Co. Ltd. (SEPCO III) (hereby known as the Contractor) will execute the construction of Power Station 5 Block 4.



CLIENT:



Aluminium  
for the world

CONSULTANT:



Environment Arabia

LEGEND:


 Project location (PS5 Block 4)


FIGURE TITLE:

Project location

PROJECT TITLE:

Alba Power Station 5 Block 4 Supplementary ESIA

NORTH ARROW:



DATE:

February 2023

DATUM:

WGS 1984  
(UTM Zone 39N)

PREPARED BY:

MS

SCALE (A4):

1:13,982

D:\GIS Database\1. Projects\1B0114201 - ALBA Stn 5 Rd Traffic Safety Risk Assmt\mxd\1.1 Project location.mxd



## 2 TRAFFIC RELATED LEGISLATION, GUIDANCE AND PROCEDURES

### 2.1 National legislation

Existing Bahraini legislation relating to transport is centered primarily around the provision of public transportation. The two main laws in relation to transport are as follows:

- Traffic Law Number 23 of 2014 - Article 17 of the law specifies that the Ministry within the transportation sector is responsible for the regulation and management of the public transportation sector; and
- Traffic Law Number 23 for the Year 2014 – Article 18 specifies that the Ministry within the transportation sector is responsible for developing and issuing the regulations and Ministerial Orders to regulate the public transportation sector.

Government policy in relation to future transportation is driven by the Kingdom of Bahrain's Vision 2030 which aspires to deliver *“outstanding road, sea and air connections to global markets. Utilities (electricity, water and gas) and services (logistics, public transport and telecommunications) will be readily accessible and competitively priced, providing a stable base for businesses. Examples of initiatives to advance Bahrain's infrastructure include: improving overall planning processes for land utilisation, transportation networks”*.

There is no specific guidance on the environmental impacts of traffic and access under Bahrain law. However, the transport of abnormal indivisible loads is regulated by the Ministry of Works' Road Projects and Maintenance Directorate (RPMMD).

### 2.2 ALBA Traffic Procedures

Alba's traffic management controls are embedded in the Alba Code of Practice (ACOP) no. 062 Traffic Management and Control Procedure. This procedure provides a guideline for the appropriate and safe management of traffic at Alba workplaces and construction sites to ensure that workers, contractors, visitors, and other stakeholders are not exposed to the risks and hazards arising from road traffic at Alba and governing construction sites. The procedure sets out the requirements and procedures for protection of people and assets in areas where there are vehicles moving in and around workplaces roads/pathways and construction sites.

Key guidelines extracted from the ACOP 062 document:

1. Every person (employees, contractors and visitors), driving a vehicle of any type shall observe the traffic standards and speed limits imposed within Alba main site and Calcining & Marine. Alba Speed Limits are:
  - a. 40 km/hour at main roads inside Alba;
  - b. 20 km/hour at operational areas;
  - c. 20 km/hour at construction areas; and
  - d. 50 km/hour road outside between South and North Gate.
2. Any driver involved in any accident that results in personal injury or damage to a vehicle or property shall report it as soon as possible to security main gate. This is governed by ACOP-062 (if no injury is involved) and ACOP-054 (if injury is involved).





3. Drivers of privately-owned vehicles on Alba property must hold a current Bahrain driving licence (or valid International licence) issued under the Road Traffic Law, appropriate to the class of vehicle being driven.
4. Drivers of Alba owned vehicles that are for public road use must hold a current Bahrain driving licence (or valid International licence) issued under the Road Traffic Law, appropriate to the class of vehicle being driven.
5. A visitor or contractor driving a vehicle of any type on Alba property shall be authorised to do so by the relevant General Manager prior to entering the site and shall be in possession of a valid visitor/contractor pass and vehicle pass issued by Safety Health and Environment (SHE) department.
6. Any person who contravenes the site traffic rules and regulations shall be liable to disciplinary action and visitors/contractors may have their pass withdrawn and be banned from entering Alba property, either temporarily or permanently.
7. Disciplinary action shall be taken against any person who contravenes site rules and regulations.
8. Employees, contractors and visitors shall ensure that their vehicles have adequate insurance and registration coverage for vehicles over the prescribed age. Such certificates, driving licences and documentation shall be shown to any member of SHE Department upon request.
9. All drivers of vehicles (including riders of bicycles) shall be responsible for ensuring that vehicles are maintained in a safe and roadworthy condition in accordance with legal and company requirements.
10. The riding of motorcycles shall not be permitted inside Alba sites at any time except those ridden by Public Security officers.
11. All employees, contractors and visitors are provided with a SHE induction program, which includes Alba traffic standards and safe driving speed limits.
12. All employees, contractors and visitors are reminded of their obligation to insure their vehicles against Third Party risks and to have a current vehicle inspection certificate for all vehicles over the prescribed age. Insurance documentation, vehicle inspection certificates, driving licences or Alba driving permits must be produced to any member of Alba staffs or Security upon request.
13. All construction contractors shall adopt best transport safety practices across all aspects of construction project site, measures shall include:
  - a. Emphasizing safety aspects among drivers;
  - b. Improving driving skills and requiring licensing of drivers;
  - c. Adopting limits for trip duration and arranging driver rosters to avoid over-tiredness;
  - d. Avoiding dangerous routes and times of day to reduce the risk of accidents; and
  - e. Use of speed control devices (governors) on trucks, and remote monitoring of driver actions.
14. Equipment and vehicles that may be in use only intermittently to be shut down during idling periods, or throttled down to a minimum.
15. Vehicles using truck haul road shall follow this procedure in order to reduce the risks of incidents.

Alba Code of Practice (ACOP) no. 062 Traffic Management and Control Procedure is attached to this report in **Appendix 1A**.

### 2.3 Contractor Traffic Management Plan and Related Procedures

The Contractor has developed a Traffic Management Plan (TMP) (ref: 82902-999-8822-HS-SPC-00030) specific to the Project. This TMP is applicable to the vehicle operations inside the Project site and on the Bahraini public roads used by the Contractor,

Subcontractors, Suppliers, Vendors and Visitors. The TMP is attached to this report in **Appendix 1B**. The TMP provides responsibilities of all key staff and the requirements for the following:

- Vehicle drivers and equipment operators;
- operation of vehicles, buses and equipment;
- safety;
- vehicle maintenance and inspections;
- refuelling;
- noise management;
- night time works;
- incidence reporting;
- monitoring;
- training;
- parking;
- transportation of goods;

The TMP also includes controls for traffic and load movement along all routes utilized by construction traffic.

In addition, the Contractor has also developed a Traffic Emergency Preparedness and Response Guide (ref: PS5-B4-01-YDC-GGP-SEP-00004) specific to the project. The Plan is intended to provide steps to manage traffic emergencies in public roads occurring to the Consortium, Subcontractors, Suppliers and/or Vendors engaged in Alba PS5 Block 4 Project.

The plan covers the following key topics:

1. Responsibilities of key personal.
2. Emergency response procedures for different traffic related scenarios as follows:
  - Vehicle malfunction;
  - minor collision with a 3rd party vehicle and/or with public/private property which only involves property damage;
  - collision of any severity involving injuries to company employees and/or members of the public;
  - accident with/without collision involving loss of bulk loads, severe damage to owned, private and/or public property;
  - accidents with/without collision involving fires, spillage of hazardous chemicals and/or leak of hazardous gases; and
  - accidents during transportation of abnormal loads.
3. Monitoring requirements.

Furthermore, the TMP provides a risk assessment for traffic movement along all routes to be utilized by construction vehicles and places specific controls on each route. These controls will be reference in the assessment as and when appropriate.

Specific control measures will be considered in the assessment (**Section 6**) and listed in the relevant subsections.

### 3 IMPACT ASSESSMENT METHODOLOGY

This Section present the methodology used to determine the magnitude and significance of impacts associated with construction traffic on sensitive receptors. A discussion of sensitive receptors and there assigned sensitives will be presented in **Section 4** of this report.

The significance of an impact is a factor of the receptor sensitivity, as well as the magnitude of the impact. **Table 3.1** provides a definition of what constitutes high, medium and low receptor sensitivity.

**Table 3.1 Determining traffic receptor sensitivity**

Sensitivity	Description/Examples
High	<ul style="list-style-type: none"> <li>• Communities for which no alternative routes are easily available.</li> <li>• Transport infrastructure in residential areas or that which connects vulnerable groups and/or locations, e.g. hospitals, schools, nursing homes or similar facilities.</li> <li>• Transport infrastructure with physical restrictions (e.g. limited width, poor visibility) that would not accommodate Project traffic.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Communities for which a limited number of alternative routes areas available.</li> <li>• Transport infrastructure in commercial or industrial areas.</li> <li>• Transport infrastructure with physical restrictions that will have some difficulty accommodating Project traffic.</li> </ul>
Low	<ul style="list-style-type: none"> <li>• Communities for which convenient alternative routes are available.</li> <li>• Transport infrastructure that is physically capable of accommodating Project traffic.</li> </ul>

The impact magnitude describes the change that the impact of project activities is likely to impart upon the resource / receptor.

The designation of magnitude is a function of the following evaluation criteria:

- **Extent:** whether the impact would occur locally (e.g., within 5 km of the site); regionally (e.g., beyond 5 km); nationally; or transboundary (i.e. impacts extending beyond the country's territorial sea).
- **Duration:** whether the impact would be temporary (i.e. less than one year), short-term (i.e. one to four years), medium term (i.e. five to ten years), long-term (i.e. over ten years), or permanent.
- **Scale:** the scale of the impact is the degree of change in the qualitative and quantitative conditions of resource/ receptor from its baseline status:
  - *Not distinguishable* or hardly measurable change from the baseline conditions, or impacts affect a limited amount of the specific component, or impacts are likely to be well within statutory limits or ambient / seasonal range;



- *Distinguishable* change from baseline conditions, or impacts affect a small portion of a specific component, or impacts are expected to be within/close to statutory limits or ambient seasonal range;
- *Evident* difference from baseline conditions, or impacts affect a substantial portion of a specific component, or impacts are likely to result in occasional exceedances of statutory limits or ambient seasonal range (over limited periods); and
- *Major* change in comparison to baseline conditions, or impacts affect the entire or significant portion of a specific component, or impacts are likely to result in routinely exceedances of statutory limits or ambient seasonal range (over extended periods).

The calculation of impacts magnitude is described in **Table 3.2**.

**Table 3.2 Determination of impact magnitude**

Ranking	Evaluation criteria			Magnitude
	Duration of the impact	Extent of the impact	Scale of the impact	
1	Temporary months) (1-3)	Local	Not distinguishable	Ranging from 3 to 12
2	Short-term months) (3-6)	Regional	Distinguishable	
3	Long-term months) (6-12)	National	Evident	
4	Permanent (more than 12 months)	Transboundary	Major	
Score	(1; 2; 3; 4)	(1; 2; 3; 4)	(1; 2; 3; 4)	

By combining the assessed value of the three criteria listed, the overall magnitude of the potential impact can be derived, and then ranked in different classes, as shown in **Table 3.3**: Negligible (score 3-4), Minor (score 5-7), Moderate (score 8-10) and Major (score 11-12).

**Table 3.3 Ranking of impact magnitude**

Ranking	Magnitude level	Magnitude level
3-4	Negligible	Either no impact or the impact is neutral (neither adverse nor beneficial).
5-7	Low	The impact is minor and of little concern (it is undesirable but acceptable), additional mitigation should be considered.
8-10	Medium	The impact gives rise to some concern but is likely to be tolerable in the short-term (e.g. during construction), additional mitigation measures will be required or would require a value judgement as to its acceptability.
11-12	High	The impact is large scale, it should be considered unacceptable and requires mitigation or a significant change to the development.

As previously mentioned, the significance of an impact is a function of both receptor sensitivity and the magnitude of impact. Predicted significance of environmental effects will be classified according to whether they are considered to be Major, Moderate, Minor

or Negligible; and Beneficial or Adverse. **Table 3.4** demonstrates how these parameters are considered in the assessment of significance.

**Table 3.4 Determination of impact significance**

Importance / sensitivity of receptor	Magnitude of impact				
		High	Medium	Low	Negligible
Very High	Major	Major	Moderate	Minor	Negligible
High	Major	Moderate	Minor	Minor	Negligible
Medium	Moderate	Minor	Minor	Minor	Negligible
Low	Minor	Minor	Minor	Negligible	Negligible

### 3.1.1 Approach to mitigation

A hierarchal approach to the mitigation of risk and impact is followed where the aim is to eliminate the hazard that creates the risk and impact is the highest priority. If elimination is not possible, mitigation measures are developed for implementation to minimize the impacts to as low as is reasonably practicable.



## 4 TRAFFIC BASELINE CONDITIONS

### 4.1 Existing Bahrain main transport infrastructure

Bahrain as an island nation is very well serviced in terms of basic transport infrastructure and offers a number of key facilities in terms of air, sea and road infrastructure, as follows:

- Bahrain International Airport, which has been modernised in recent years and has an airport design capacity of 14 million passengers with around 130,000 air traffic movements per annum;
- Khalifa Bin Salman Port (KBSP) is Bahrain's only commercial port located at the strategic heart of the Gulf region, with strategic transport links to the Hidd Industrial area, together with links to the airport and the Kingdom of Saudi Arabia (via the King Hamad Causeway) and the Arabian Peninsula generally. The port itself comprises container operations, general cargo services, roll on / roll off, breakbulk projects, and passenger terminal services, as well as marine and logistics services;
- The Bahrain Logistics Zone is the region's first boutique logistics park and is situated in proximity to the Kingdom's main sea, air, and land transport hubs. It offers tenants shortened transit times and access to surrounding markets, including the KSA. The zone is regulated and managed by the Ports and Maritime Affairs at the Ministry of Transportation and Telecommunications and facilitates operating freely in a customs-bonded area. Its availability to new developments provides a means of importing equipment and machinery from overseas and ensuring smooth customs clearance and onward dispatch; and
- There is a limited public bus transportation network within Bahrain, operated by the Bahrain Public Transport Company. 140 buses move across 29 routes daily; however, these routes are centred around the densely populated areas in the north of the island, including the areas of Budaiya, Isa Town, Salmabad, Manama and Muharraq. These buses generally run between 4:30 am and 11:30 pm on week days, with more limited timings on week-ends.

### 4.2 Planned infrastructure

The Bahrain Economic Vision 2030, which was launched in October 2008 by His Majesty King Hamad bin Isa Al Khalifa, provides a clear direction for the continued development of the Kingdom's economy, including the development of "a world-class infrastructure" linking Bahrain to the global economy by 2030. To achieve this, the Government plans to attract public and private funds to create and maintain the required infrastructure and services. Examples of initiatives to advance Bahrain's infrastructure include: improving overall planning processes for land utilisation, new transportation networks such as the Bahrain Metro development, and accelerating private-sector involvement in the provision of public infrastructure services. The King Hamad Causeway project, a proposed second causeway to connect the KSA and Bahrain, is also expected to commence construction in 2024. This new rail and road causeway will run parallel to the existing 25 km-long King Fahd Causeway and will deliver new lanes to support additional passenger and cargo traffic, as well as a rail line to link Bahrain with the main GCC railway and the existing Saudi Arabian rail network. The line will link the proposed freight yard at Khalifa Bin Salman Port to the existing trans Saudi Arabia railway station in Dammam.

### 4.3 Key Bahrain transportation statistics

The road density in Bahrain, which has been tracked across all GCC countries since 2015, is considered relatively high on a regional basis. During this time period, the road density was about 582 per 100 km<sup>2</sup>, compared to 5 per 100 km<sup>2</sup> in the United Arab Emirates (UAE)<sup>1</sup>. The second highest density within the GCC is Qatar, which has a density of 85 per 100 km<sup>2</sup>. Bahrain also has a relatively high car ownership rate, which has been reported in the media as being 342 cars per 1,000 people, making it the third highest amongst the Arab nations, and 40th globally<sup>2</sup>. The most recent car ownership data from 2019, provided by the General Directorate of Traffic, outlines that there were 711,000 vehicles registered in Bahrain which shows an upward trend as it was an increase of 10% on the previous year.

The high car ownership rates are also reflected in the fact that Bahrain is ranked 11<sup>th</sup> globally in terms of traffic congestion levels according to the Economist magazine<sup>3</sup>. This equates to 154.8 cars per kilometre of Bahrain's road network.

As discussed above, Bahrain, unlike larger Gulf countries, has a fully functioning, affordable and extensive public bus service which comprises a fleet of 140 buses across 29 bus routes, including peak time express routes. The take up of the service is also relatively high.

### 4.4 Bahrain Road Classification

As per Kingdom of Bahrain, Ministry of Municipalities & Agriculture Urban Planning Affairs, Traffic Impact Assessment Guide for Developers, the peak hours periods in Bahrain are as follows and capacities of typical mid-block roads in urban locations are as follows:

- AM Peak (07:00 to 08:00)
- PM Peak (13:00 to 14:00)
- Evening Peak (16:00 to 19:00)

As per Kingdom of Bahrain, Ministry of Municipalities & Agriculture Urban Planning Affairs, Traffic Impact Assessment Guide for Developers, level of service (LOS) is used as the performance standard for different roads. The LOS is a factor of speed, volume of traffic, geometric features, traffic interruptions, delays and freedom to manoeuvre. There are six levels of LOS:

**Level of Service A:** This, the top level is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.

**Level of Service B:** This level is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic

<sup>1</sup> Statista (2022), Road density in the Gulf Cooperation Council from in 2015, by country, <https://www.statista.com/statistics/732351/gcc-road-density-by-country/> (Accessed 10 March 2022).

<sup>2</sup> News of Bahrain (2021). Bahrain has 343 cars per 1000 people. <https://www.news-of-bahrain.com/bahrain/74797.html> (Accessed 10 March 2022).

<sup>3</sup> News of Bahrain (2021). Bahrain ranked 11th globally in traffic congestion. <https://www.news-of-bahrain.com/bahrain/75230.html> (Accessed 10 March 2022).



stream, although the general level of comfort and convenience is little less than that of the level of Service A.

**Level of Service C:** This service level is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.

**Level of Service D:** This level is close to the limit of stable flow but is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.

**Level of Service E:** This occurs when traffic volumes are at or close to capacity and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause a traffic-jam.

**Level of Service F:** This service level is in the zone of forced flow. With it, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow break-down occurs and queuing and delays result.

**Table 4.1** sets out peak hour flows for one and two lanes of unidirectional travel, based on volume / capacity ratios applicable for rural roads in level terrain with no sight distance restrictions on overtaking. It should be noted that these are indicative figures based on the rural volume / capacity ratios with a lane capacity of 1400 vehicle/hr.

**Table 4.1** presents the capacity of each LOS at peak traffic flow.

**Table 4.1 Capacity per LOS at peak traffic flow**

Level of Service	One Lane (vehicle/hr)	Two Lane (vehicle /hr)
A	200	900
B	380	1,400
C	600	1,800
D	900	2,200
E	1,400	2,800

#### 4.5 Construction Route Baseline

A description of the project construction traffic, routes, adjacent land use and identification of sensitive receptors is presented in **Section 5**.

## 5 PROJECT RELATED TRAFFIC

Over the life span of the construction Project (29.5 months), there will be a need to transport workers, equipment, material and goods to the Project site from various locations including the labour accommodation, laydown area, KBSP and Muharraq Engineering Jetty where shipments are received. The following subsections discuss construction related traffic and provides a description of the utilized routes.

### 5.1 Marine based traffic

The construction at Block 4 will require import of certain abnormal loads such as gas turbines, transformers via the KBSP. Following clearance and unloading, these loads are then taken to the Muharraq Engineering Port in Askar by sea. The impact of this offshore traffic movement is not considered in this assessment as it is outside the scope of community safety.

### 5.2 Land based traffic

#### 5.2.1 Worker transportation

Presently, there are only 78 workers on site. During peak construction a total number of 1100 workers will be required. The Contractor labour accommodation is located in Al Dur, in the south east coast of Bahrain (**Figure 5.1**). Workers are transported to the Project site on board buses as per the following daily schedule:

- 06:00 hrs: Trip from the Al Dur accommodation to the Project site at the start of the work day.
- 11:30 hrs: Trip from the Project Site to the Al Dur accommodation for the lunch break.
- 13:00 hrs: Trip from the Al Dur accommodation to the Project site (*considered peak afternoon period*) for the second part of the work day.
- 17:00 hrs: Trip from the Project Site to the Al Dur accommodation (*considered peak evening period*) at the end of the work day.

Considering a 50-seat bus capacity, it is predicted that the number of buses at the peak construction time will be 22 buses making four trips per day.

The route from the Al Dur accommodation to the Project site is via the King Hamad Highway (North Direction), then through a series of internal dual lane roads (Road no. 5156, 5141, 5136 and 5146) leading to the Project site. These roads run through industrial areas and are considered access routes to the businesses and industries present in the area.

The total distance from the labour camp to the Project Site is approximately 20 km, most of which is along the Kind Hamad Highway. After exiting the Kind Hamad Highway, the distance along each dual lane road to the Project construction site is as follows:

Road 5156-5141: 1.01 km  
Road 5141-5136: 0.30 km  
Road 5136-5146: 0.31 km

Road 5146- the Project site: 1.88 km.

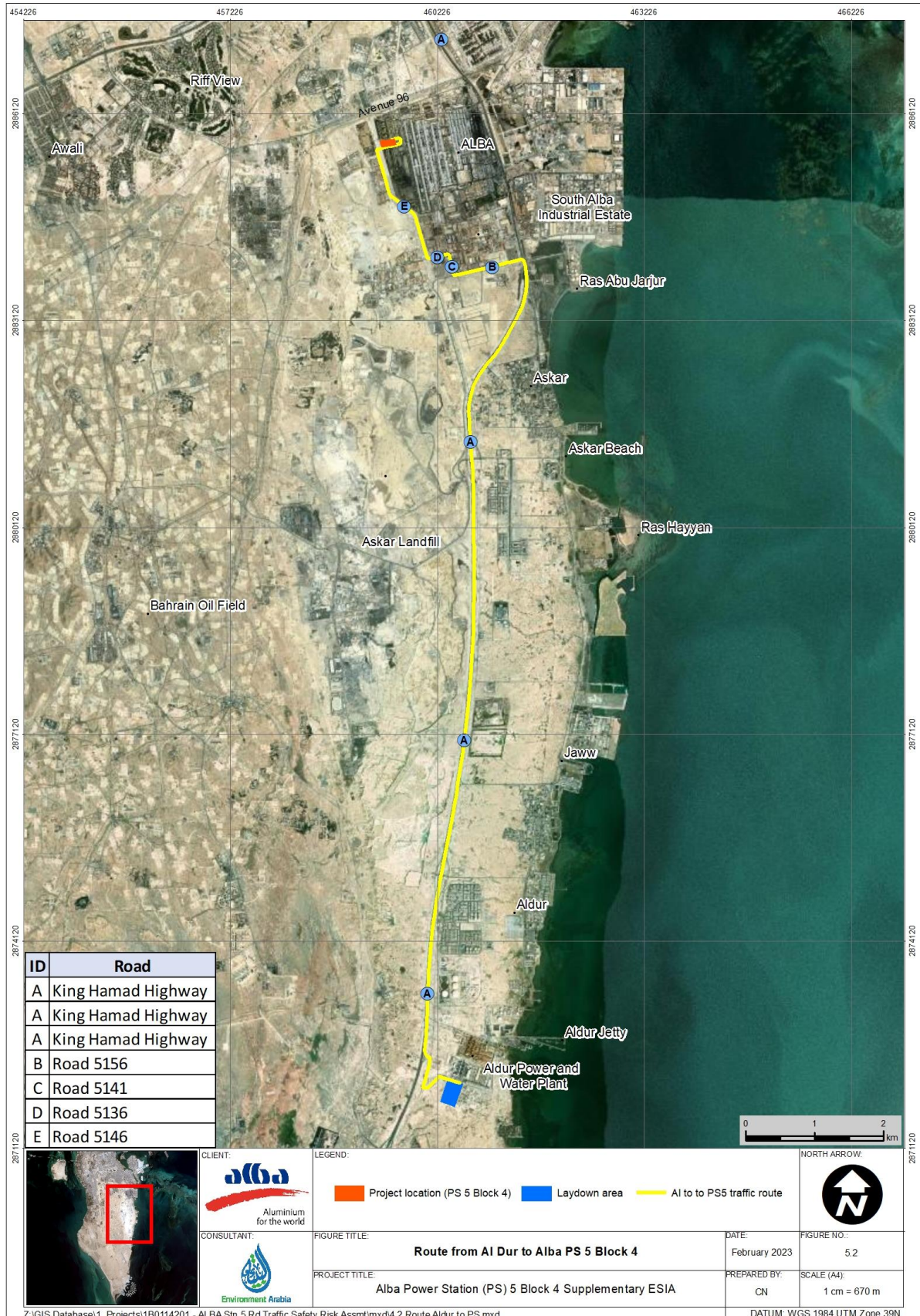
The King Hamad Highway is an arterial carriageway running north-south of the island of Bahrain from the intersection of Shaikh Jaber Highway and Al Estiqlal Avenue in the North to Durrat Al Bahrain in the South. It is considered the main access route from the north of the island to areas in the south such as Askar, Jaw, Al Dur and Durrat Al Bahrain. The Highway is not congested normally except at the Alba Junction (the point of entry to the Alba main gate not the Project site) during peak times. The King Hamad causeway is a six lane highway from the North until the intersection with road 5156 after which it turns into a four lane highway.

The route from the labour accommodation to the Project is shown in **Figure 5.2**.

**Figure 5.1 Location of Al Dur labour accommodation and laydown area**



**Figure 5.2 Route from Al Dur to the Project site**



### 5.2.2 Light to medium vehicle transportation

Adjacent to the Contractor labour accommodation is the Al Dur material and equipment laydown area where construction material and equipment used in the Project is stored. Vendors and suppliers will be unloading materials directly inside the laydown area. No other laydown area will be utilized for the purpose of this Project. The route from the Laydown area to the Project site is the same route used for transportation of the workforce as shown in **Figure 5.2**.

During peak construction, it is expected that the number of light/medium duty vehicles used for the purposes of this Project will be 40 vehicles, including vehicles used by management and staff. An estimate of the number of daily trips has not been provided, therefore, for the purposes of the assessment the maximum number of vehicles per day is considered.

### 5.2.3 Heavy Vehicles

With regard to heavy/plant equipment, it is expected that a total of 36 heavy-duty vehicles will be required during the construction phase of the Project. These are transported to site from the Al Dur laydown area via the route shown in **Figure 5.2**.

**Table 5.1** presents the type of heavy equipment and machinery required during construction and their respective numbers.

**Table 5.1 Number of construction heavy equipment**

Type of Heavy/Plant Equipment	Peak No.	Type of Heavy/Plant Equipment	Peak No.
Excavator	6	Forklift	1
Skid Loader	3	Crawler Crane 150T	1
Backhoe Loader	2	Crawler Crane 260T	1
Wheel Loader	1	Mobile Crane 85T	1
Telehandler	2	MEWP	4
Roller Compactor	1	Mobile Crane 55T	2
Boom Truck	3	Crawler Crane 600T	1
Mobile Crane 50T	1	Tower Cranes	2
Mobile Crane 75T	1	Mobile Crane 100T	1
Concrete Pump	1	Water Tanker	1

This equipment will be transferred to site as needed from the Laydown area. Some will be kept on the Project site and others will be returned. The type of equipment and the frequency its transport is dependent on construction and the details of expected movements was not available at the time of writing this report.

### 5.2.4 Large Shipments

Large equipment and structures required for the Project will arrive via the KBSP. Approximately 1500 of these shipments is expected over the course of work (83 of these shipments are considered abnormal load and are discussed in the following **Subsection**

**5.2.5).** In addition, 700 container shipments of smaller items such as tools, and spare parts are expected to arrive via KBSP over the course of 29 months.

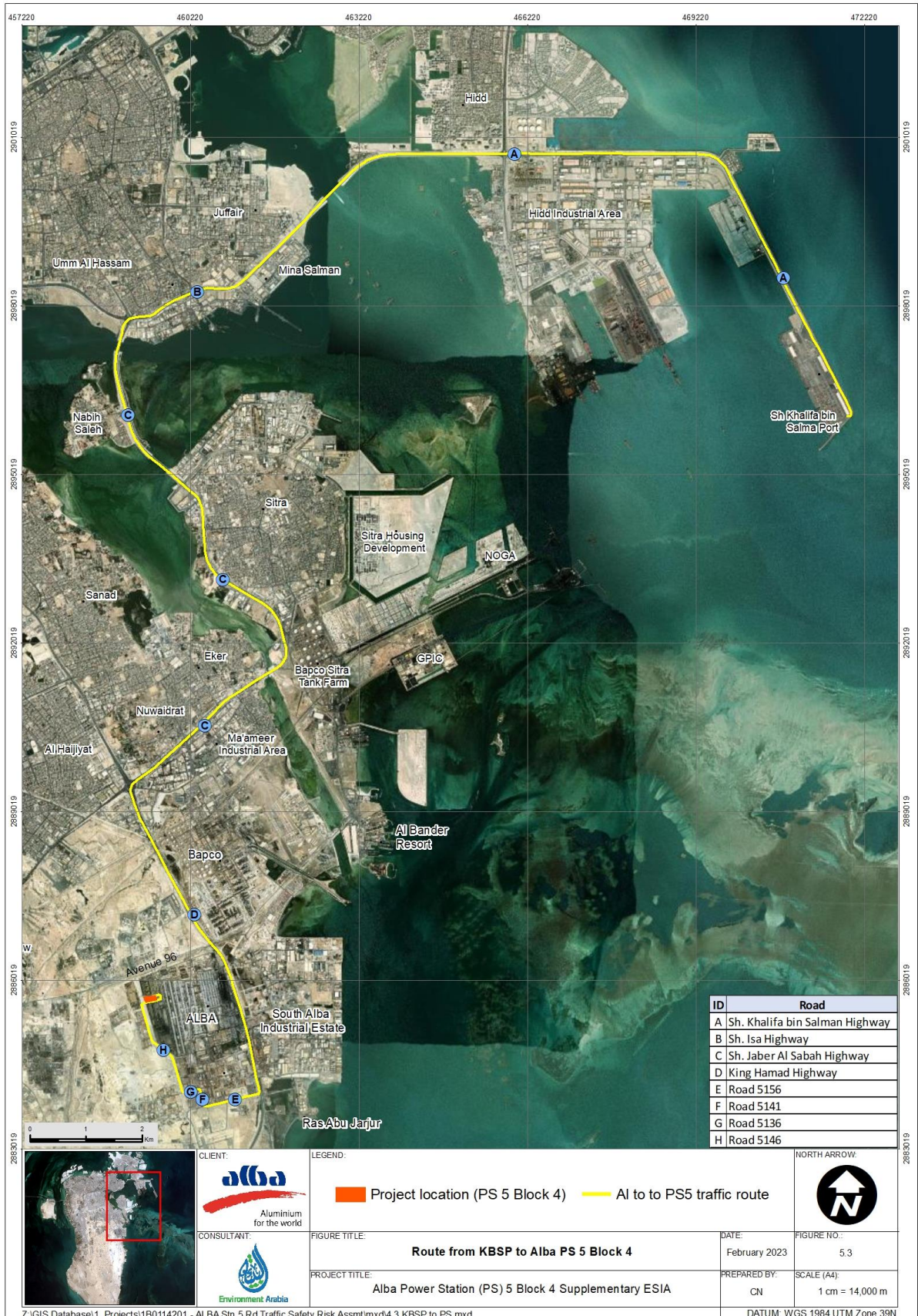
The Contractor will use 12m flatbed trailers to transport them from KBSP for immediate installation in the Project site or to the Al Dur Laydown area where they will be transported to the Project site when required. Loads which require assembly offsite are transported from the KBSP to the Al Dur Laydown area.

Transport of these shipments and containers from KBSP directly to the Project Site begins on the Prince Khalifa Bin Salman Causeway which links the Hidd Industrial Area to the rest of the mainland as shown in **(Figure 5.3)**. Prince Khalifa Bin Salman Causeway is a 6 lane dual carriage way with a speed limit of 100 km/hr. Congestion is often encountered at the intersection of the causeway with the Dry Dock Highway **(Figure 5.4)**. After exiting the Prince Khalifa Bin Salman Causeway to the Shaikh Jaber Al-Subah Highway, a 4 lane dual carriage way running north – south, connecting with King Hamad Highway at the Alba Junction. A Section with considerable congestion across this Highway is the Sitra Bridge **(Figure 5.5)**. The route then follows Route 34M and Route 80M, merging onto King Hamad Highway to the Project site via Road 5136 and Road 5146. The total distance of this route is 32 km.

For shipments which require transport from KBSP to the Al Dur Laydown area, the route is via the Prince Khalifa Bin Salman Causeway then exiting to the Shaikh Jaber Al-Subah Highway via Route 34M and Route 80M, merging onto King Hamad Highway to Bridge no. 3 cross over then turning right to the Laydown area. The length of the route from KBSP to the Al Dur Laydown area is approximately 45 km in length and is shown in **Figure 5.6**.

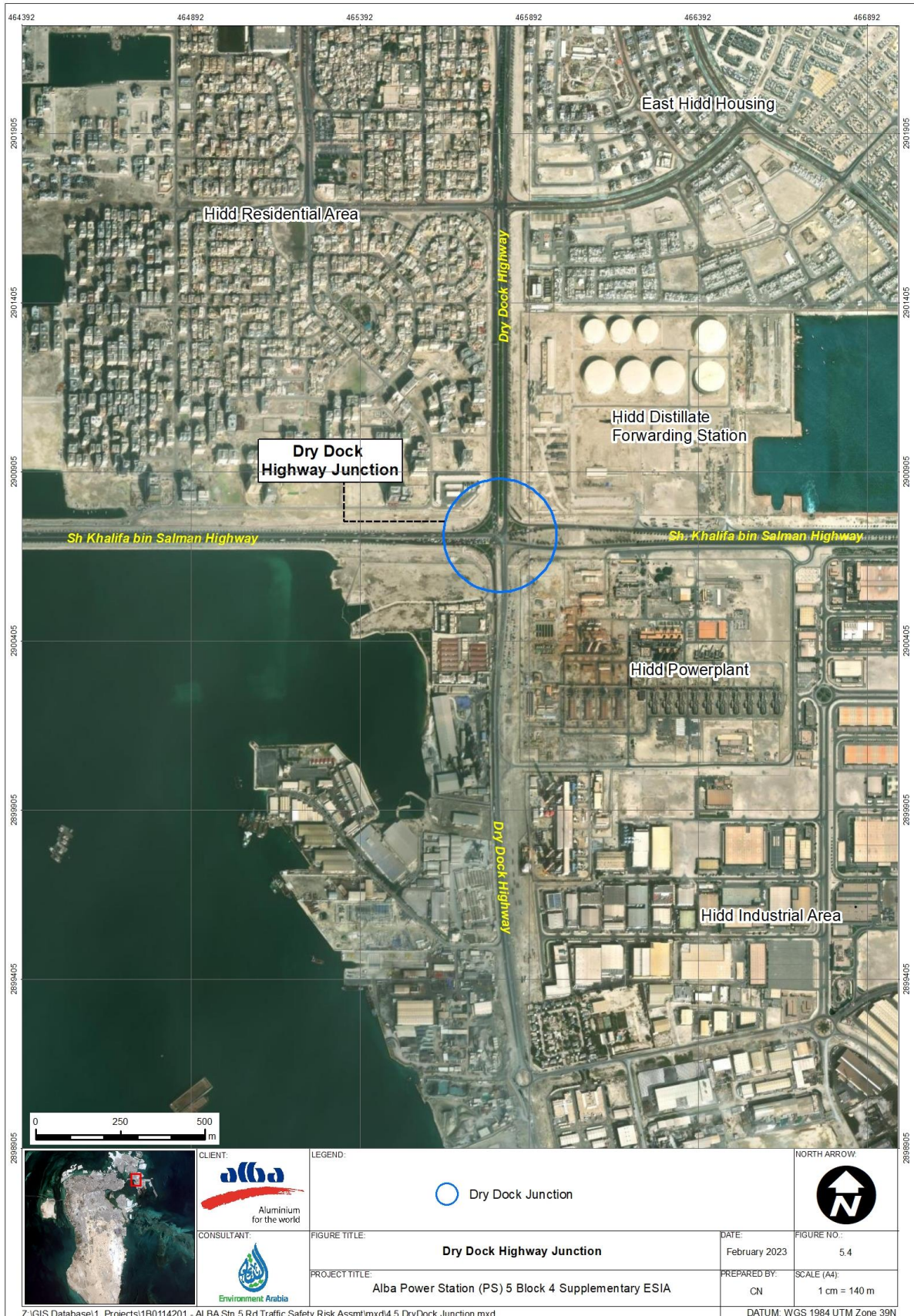
The schedule for deliveries of these shipments has not been provided at this stage.

**Figure 5.3 Traffic route from KBSP to Project site**

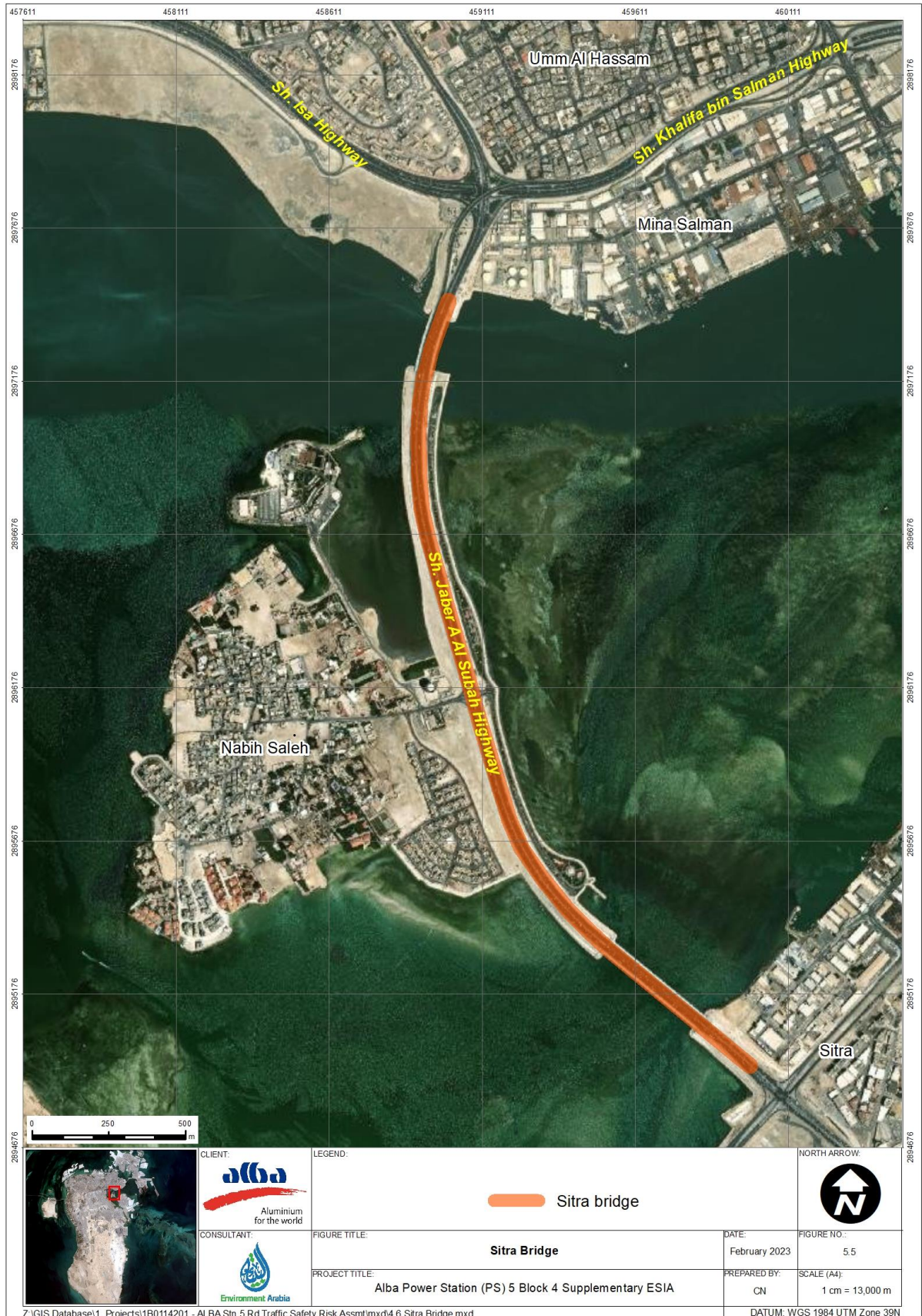




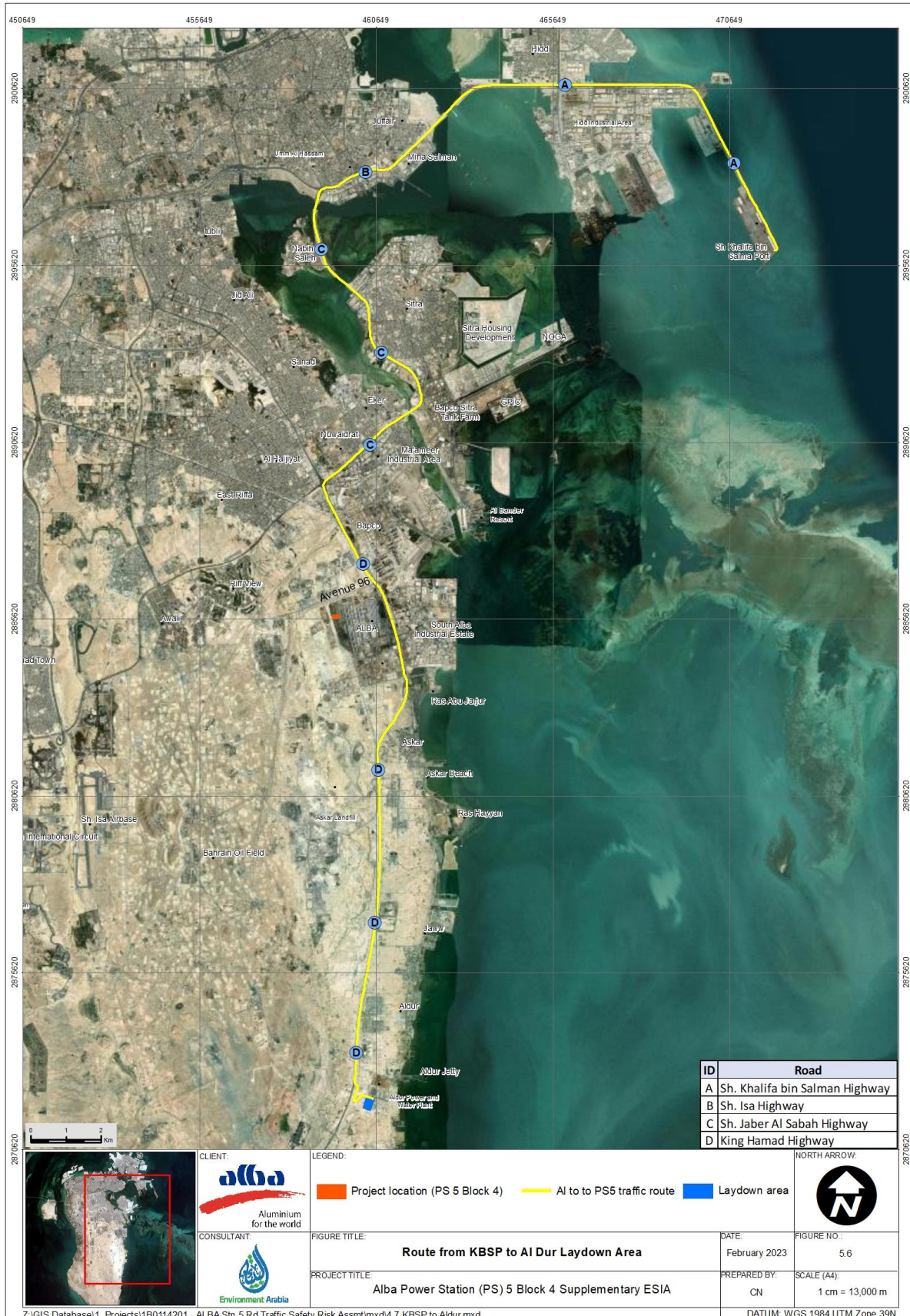
**Figure 5.4 Dry Dock Highway Junction**



**Figure 5.5 Sitra Bridge**



**Figure 5.6 Traffic route from KBSP to AI Dur Laydown area**



### 5.2.5 Abnormal loads transportation

According to the Ministry of Works Roads Projects and Maintenance Directorate (RPMD) Roads Maintenance Section (RMS), an abnormal load is considered any load which exceeds a gross weight of 40 tonnes, a length of 18 m, height of 4 m and width of 2.5 m. The construction project will require the following abnormal load:

- Large parts from the Air-Cooled Condenser;
- Transformers;
- By-pass and Main Stack Components;
- Heat Recovery Steam Generator Components (including module harps and LP/IP/HP Drums);
- Gas Turbine (GT) and its components;
- Steam Turbine (ST) and its components; and
- Generators.

As discussed in **Section 5.1**, abnormal loads arriving from KBSP are transported to the Muharraq Engineering Port in Askar by sea to be later transferred to the Project site via King Hamad Highway. The Contractor has conducted a survey to preliminary identify the safest route to transport the abnormal loads from the Muharraq Engineering Jetty to the Project Site. This preliminary route requires removal a line of 14 concrete jerseys in the middle of the King Hamad Highway just in front of the South Gate of ALBA B.S.C. The preliminary route indicates that Roads 5135 and 5156 shall be avoided and that route 5136 will be used to enter the industrial area turning then onto Road 5146 as indicated in **Figure 5.7**.

The Contractor will subcontract a third-party transportation company for abnormal loads. The transportation company will use a hydraulic module trailer which will be compatible with the dimensions and weight of the abnormal loads to be transported.

The expected total number of trips for abnormal loads from the Port to the Project site during the life span on the Project is 83 trips. **Table 5.2** provides the schedule for these deliveries.

**Table 5.2 Abnormal load transport schedule**

Estimated Arrival Date	Transport Vehicle Type	No. trips
July 2023	Hydraulic Trailer 12 Axles	2
July 2023	Hydraulic Trailer 8 Axles	9
August 2023	Hydraulic Trailer 16 Axels	53
August 2023	Hydraulic Trailer 12 Axels	1
August 2023	Hydraulic Trailer 18 Axels	8
September 2023	Hydraulic Trailer 8 Axels	4
September 2023	Hydraulic Trailer 14 Axels	1
September 2023	Hydraulic Trailer 18 Axels	1
October 2023	Hydraulic Trailer 10 Axels	1
October 2023	Hydraulic Trailer 8 Axels	2
October 2023	Hydraulic Trailer 12 Axels	1

**Figure 5.7 Route from Muharraq Jetty to the Project site**



#### 5.2.6 Parking and deliveries

Due to the restrictions of space in the Project site, the Consortium has applied for a permit to use a land in the west side of the Project site, 150 meters long by 15 meters, affronting Road 5146. This parking space has the capacity for 100 lightweight vehicles.

Parking of HGVs and delivery of equipment/shipment will be within a designated area inside the Project site boundaries.



### 5.3 Land Use Around Project Traffic Routes

To identify land use patterns and sensitive receptors alongside each project route as outlined in **Section 5.2**, a 200 meter wide zone was established on either side of the road corridor. Land use maps and existing data was utilized along with evidence from visits along the routes by EACS staff. A sensitive receptor is defined as any residential, commercial, education, recreational or health establishment that could potential be impacted by Project related traffic.

#### 5.3.1 King Hamad Highway

As previously mentioned, the King Hamad Highway is a 27 km arterial dual carriageway running north-south of Bahrain from the intersection of Shaikh Jaber Highway and Al Estiqlal Avenue in the North to Durrat Al Bahrain in the South. It is considered the main access route from the north of the island to areas in the south such as Askar, Jaw, Al Dur and Durrat Al Bahrain.

On the east side of the King Hamad Highway (from the Al Dur accommodation and laydown area to the project site) the following receptors are identified:

1. Housing complex (Al Ma'adeer); and
2. Ali bn Juma Al Kaabi Mosque.

No sensitive receptors were identified on the west side of this highway segment. Only sections of the highway used for the purposes of this Project were considered.

#### 5.3.2 Road 5156

From the King Hamad Highway stems Road 5156 heading west. This segment of the Project route is 1.01 km long. The following commercial and industrial receptors have been identified north of the road corridor:

1. Al Moayed workshop;
2. Madem Gulf Industries;
3. Golden Neon Bahrain Development;
4. Rehal warehouse;
5. JB Agriculture;
6. Service Centre Jashanmal; and
7. Fareed Aluminium.

South of the road corridor are the following receptors:

1. Esmaily Lenxhom Electrical.

#### 5.3.3 Road 5141

From Road 5156 stems road 5141 heading north towards Road 4136. This segment is 0.3 km long. The following commercial and industrial receptors have been identified on the east of the road corridor:

1. Middle East Trader Warehouse;
2. Jashanmal Warehouse;
3. Crown Industries;
4. Corrosion and Technical Services; and
5. Al Jishi Corporation.

West of the road corridor the following receptors are noted:

1. Bahrain Recycling Plant;
2. SAM Veterinary Clinic;
3. Pyrotec;
4. Bahrain Welding Product; and
5. BWWP Aluminium Welder.

#### **5.3.4 Road 5136**

Stemming from the King Hamad highway, Road 5136 intersects with Road 5141. This segment is 0.310 km long heading north towards the site. North of the road corridor the following receptors were identified:

1. Westpoint Home; and
2. Ascon Control.

The receptors south of the road are the same as receptors identified west of Road 5141.

#### **5.3.5 Road 5146**

From Road 5136, Road 5146 heads north toward the project site for a length of approximately 1.88 km. The following commercial and industrial receptors are identified on the east side of the road corridor:

1. Ashbee Metal Cladding W.L.L;

To the west are the following receptors:

2. Middle East Recycling Company
3. Al Salam Furniture Company
4. Middle East Fiber Glass Factory
5. Gulf Pump Factory
6. Polycon Bahrain
7. Kingdom Oil Company
8. Gb Asphalt and Concrete
9. Tylos Plastic Company
10. Polycon Bahrain
11. Gulf Pump Factories
12. V-marine
13. Deltron Precision Technology
14. Doma Stores
15. Kitchen Supplies
16. Ascon Control W.L.L

**Figure 5.8** presents the landuse around Roads 5141, 5156, 5136 and 5146.



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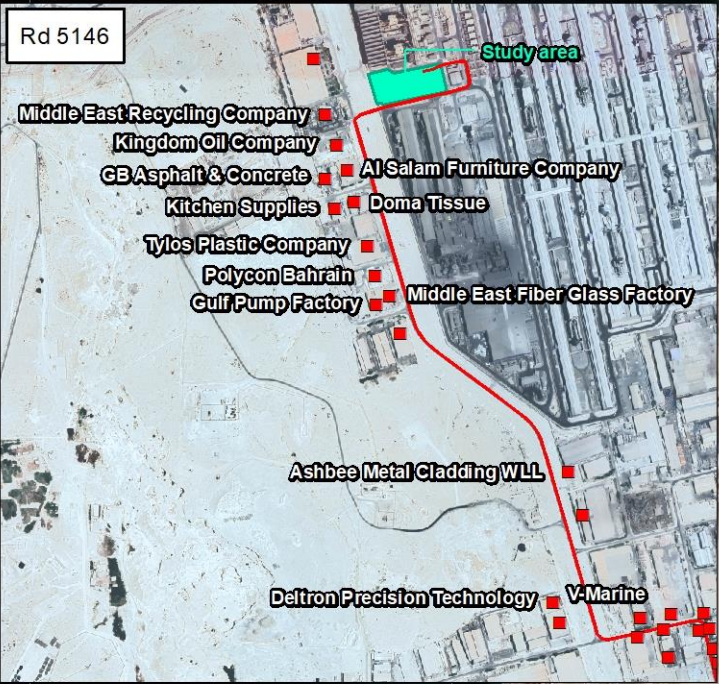
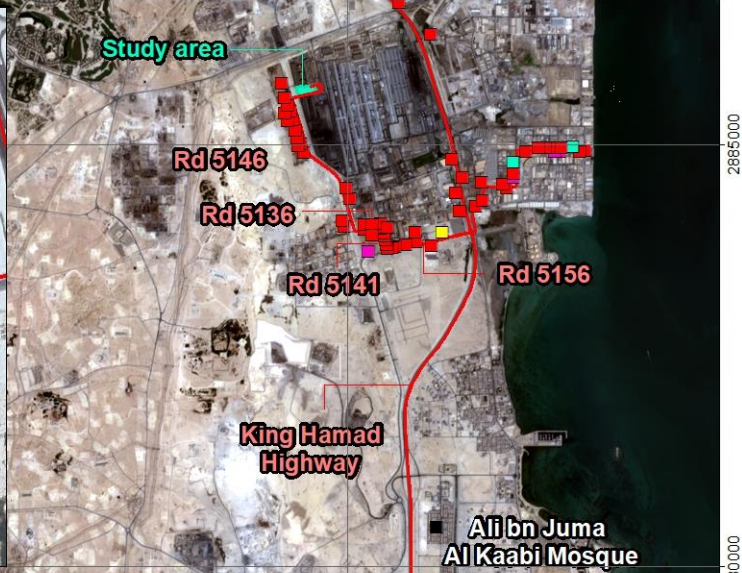
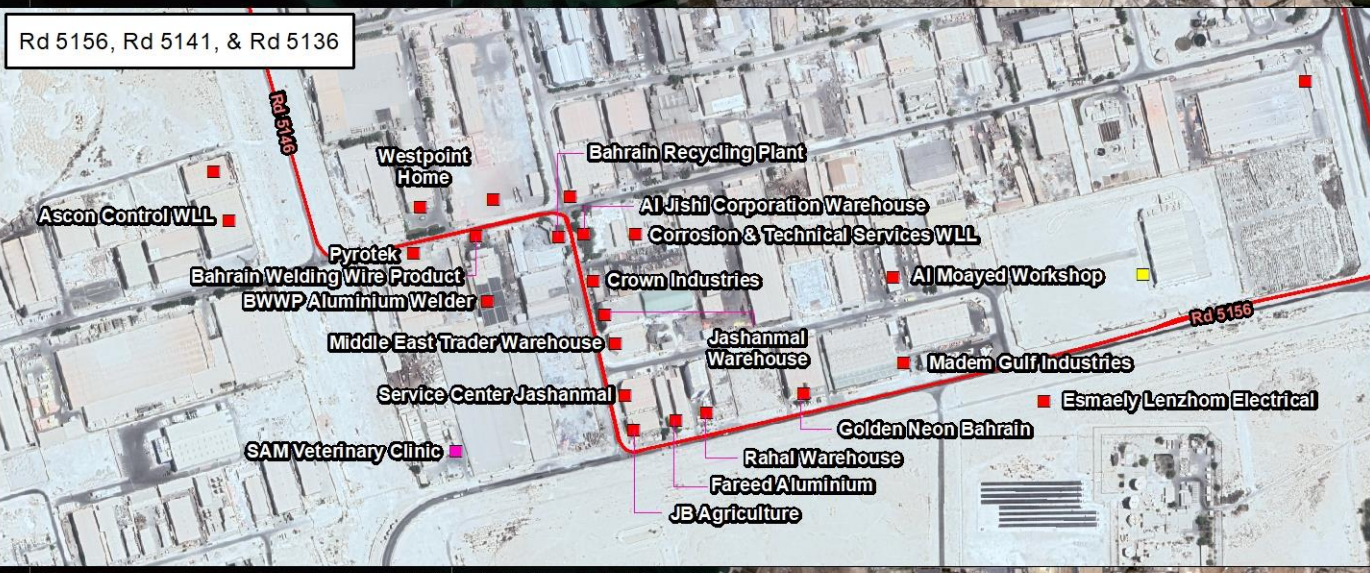
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CLIENT: **alba**  
Aluminium for the world

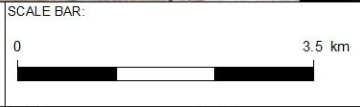
CONSULTANT: **Environment Arabia**

LEGEND:

<span style="color: magenta;">■</span> Commercial	<span style="color: red;">■</span> Industrial	<span style="color: cyan;">■</span> Residential
<span style="color: yellow;">■</span> Government	<span style="color: black;">■</span> Mosque	<span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Utilities

FIGURE TITLE: Landuse around project traffic routes  
(King Hamad Highway, Rd 5156, Rd 5141, Rd 5136, & Rd 5146)

PROJECT TITLE: ALBA Power Station (PS) 5 Block 4 Supplementary ESIA



DATE: February 2023

SCALE (A4): 1:89,745

DATUM: WGS 1984 UTM Zone 39N

PREPARED BY: MS

REFERENCE:

### 5.3.6 Prince Khalifa bin Salman Highway

The Prince Khalifa Bin Salman Causeway links the Hidd Industrial Area to the rest of the mainland from the north east side of Bahrain intersecting with Shaikh Jaber Al-Subah Highway at Um al Hassam. The highway will be used for transportation from KBSP to the construction site and the segment of the highway to be used (from the KBSP to the intersection with Shaikh Jaber Al-Subah Highway) is 17.22 km long.

Considering a 200 meter zone on either side of the highway, a mixture of residential, commercial and recreational receptors were identified.

North of the highway, the following key receptors have been identified:

1. Mott McDonalds Office;
2. Government Building (Electricity and Water Authority Office);
3. Government Office (NSCC);
4. Prime Hidd Market;
5. Apartment buildings:
  - Hidd Heights
  - Hidd Horizon
  - Hidd Avenues
  - Jana residents
  - Al Bayan;
  - Noah Tower;
  - Zeus Tower.
6. Prince Khalifa Mosque;
  - Recreational areas:
  - Prince Khalifa Park
  - Dino park
  - Hidd Pathway
7. Eateries:
  - Dominos Pizza
  - Dunkin Donuts
  - Starbucks
  - Al Qassar Restaurant
  - Sama Al Deera Restraunt
  - Yas Grill

South of the highway, land use is predominately commercial:

- Bahrain Customs
- B and B Logistics
- A fire station
- Shaheen Group
- Rumco Group
- Jotun Sales Office
- Pearl Ocean Shipping Centre
- Bahrain Foundation Construction Company
- Jassim Ahmed Al Zayani
- Al Jazira Warehouse

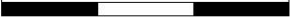
**Figure 5.9** illustrates the landuse around this segment of Prince Khalifa bn Salman Highway.




CLIENT:   
 Aluminium for the world

CONSULTANT:   
 Environment Arabia

LEGEND:			
<span style="color: magenta;">■</span> Commercial	<span style="color: yellow;">■</span> Government	<span style="color: blue;">■</span> Recreational	<span style="color: cyan;">■</span> Residential
<span style="color: green;">■</span> Education	<span style="color: red;">■</span> Industrial	<span style="color: black;">■</span> Mosque	<span style="border: 1px solid black;">□</span> Utilities
FIGURE TITLE: Landuse around project traffic routes (Prince Khalifa bin Salman Highway)			
PROJECT TITLE: ALBA Power Station (PS) 5 Block 4 Supplementary ESIA			

SCALE BAR:	
0 <span style="float: right;">1.5 km</span>	
	
DATE: February 2023	DATUM: WGS 1984 UTM Zone 39N
SCALE (A4): 1:39,499	PREPARED BY: MS

NORTH ARROW: 

REFERENCE: -

### 5.3.7 Shaikh Jaber Al-Subah Highway

Shipments arriving from the KBSP to be transported to the Project site once exiting Prince Khalifa bin Salman Highway, will travel along Shaikh Jaber Al-Subah Highway for approximately 11 km, receptors along this segment of the highway are detailed below.

West of the highway is a mix of:

Commercial Receptors:

- Sitra Mall
- Al Helli Supermarket
- Bahrain Islamic Bank
- Nasser pharmacy
- Multiple automobile showrooms and leasing stores
- Vehicle repair shops
- Furniture showrooms
- Sand Washing Plant
- Kanoo Commercial Centre
- Prime Market
- National Bank of Bahrain

Eateries:

- Mohammed Noor Al Bukhari
- Al Nojoom Café
- Wadi Al Safa

Education Institutes:

- Al Noor International School
- Alia School
- Applied Science University
- Sondus Rehabilitation Centre
- Madar Training Centre

Residential: Nasser Garden Compound

Recreational: Nuwaidrat Club

Other:

- Shaikh Khalid Mosque
- Fuel Stations

East of the highway:

- Sitra Walkway
- Sitra Park
- Derby Cafe
- Crepe and Waffle Stand
- Niduki Trading Co
- Arabian International Airport
- Automobile showrooms
- Moonlight Gallery Café

- UCO travel agency
- Rizana Supermarket
- AlNoor Market
- Fuel Station
- Kooheji Industries
- Al Ahli United Bank
- Golden Café
- Royal Art Centre
- Alhassan Marina Services
- Oriental Furniture
- Office building
- Al Rehab Kindergarten
- Furniture Showrooms

**Figure 5.10** illustrates the landuse around this segment of Shaikh Jaber Highway

**Figure 5.10 Landuse around Shaikh Jaber Highway**





## 6 IMPACT ASSESSMENT

The impact on road infrastructures and the impact of traffic during the operational phase of the Project were discussed in the ESIA undertaken for the Project by Envirotech and the addendum to the ESIA. These impacts are summarized in **Table 6.1**.

Construction traffic impacts on transportation route receptors is discussed in the subsections below.

**Table 6.1 Summary of Previous Traffic Impact Assessment**

Impact	Summary
<b>Impact of Construction Traffic</b>	
Impacts on Traffic Condition	Based on the traffic study conducted by EnviroTech on the it is anticipated that additional construction traffic generated will have a <b>minor adverse</b> impact on the traffic flow on Roads 5146, 5135, 5136, 5141, 5156 and King Hamad Highway.
Impacts during Transportation of Project Components	Imported Project related materials, equipment and components will arrive at Khalifa bin Salman Port. It is anticipated that the materials will be offloaded to a barge and then transport to a Jetty in Askar area. After customs clearance they will be transported to the site via King Hamad Highway, Roads 5156, 5141 and 5146. Considering the existing traffic flow on these roads and the number of trips required for the Project, the significance of impact due to the transport of plant components is consequently regarded as <b>minor adverse</b> .
Impact on Road Sections	Construction related traffic, in addition to the existing traffic volumes, would not exceed the vehicle carrying capacity of the road sections. Hence, the impacts are assessed to be <b>insignificant</b> .
Impact on Road Intersections	Apart from the road sections, the intersections usually act as bottlenecks in the network that can also experience capacity problems. Based on the traffic volumes, the most critical intersection will be the intersection of King Hamad Highway and Road 5156. The intersection is controlled using traffic signals. In addition, heavy vehicles carrying construction materials will also move through this intersection during the daytime and can also have an adverse impact. The significance of the impact is <b>minor adverse</b> .
Impact on Road Infrastructure	Since the construction phase is short compared to the lifetime of the road, the effect of construction traffic on the structural life of the road will be <b>insignificant</b> , provided that the roads are well maintained, and heavy vehicles are not overloaded.
<b>Impact During Operation</b>	
General	Access and vehicular traffic impacts are not anticipated to be significant during operation as the new block will be utilizing resources from the existing PS 5 facilities. Further, the existing staff will operate the new power station. Additional traffic flow is not expected. Hence, impacts to access and vehicular traffic during operation phase are not anticipated.

## 6.1 Community safety and disturbance

As discussed in **Section 5**, the majority of construction traffic routing will be along major highways. These busy highways are designed for heavy traffic with impacts to receptors already existing and no additional negative impacts on receptors is expected from the Project construction traffic. Therefore, no additional risk to community safety is expected from construction traffic use of these highways.

Once leaving the major highways, access to the construction site is via a series of internal dual lane roads (Road no. 5156, 5141, 5136 and 5146) through a predominantly industrial and commercial area (**Figure 5.8**). No sensitive receptors are located along these routes such as residences, settlements, labour accommodation, hospitals, schools or other public amenities.

Access to and exit from the Al Dur Labour Accommodation and Laydown area is via the King Hamad Highway where there are no sensitive receptors within a 1-kilometre radius of the entrance and exit points.

As there are no specific sensitive receptors present in close proximity to the construction traffic transportation routes, no additional impact on community safety or additional disturbance is expected from the Project construction related traffic.

## 6.2 Public Driver Delay

### 6.2.1 Buses and light to medium vehicles

King Hamad Highway is assigned a low sensitivity as it is characterised as free flowing and stable with no frequent points of congestion. Roads 5156, 5141, 5136 and 5146 leading to the Project site are considered key access and egress points to the businesses and enterprises in the area. As such they are assigned a medium sensitivity.

With reference to the Sepco III TMP, the following controls have been put in place for the transportation of personal and small deliveries to site during Project construction:

1. All vehicles conducting transportation operations either for personnel or goods for the PS5 B4 Project shall comply with the Bahrain Traffic Law. The Traffic Law shall be shared with Consortium teams as well as Subcontractors, vendors and suppliers in charge of those transportation operations.
2. The Consortium will encourage all companies in charge of the transportation of personnel and goods to plan their trips in order to avoid over speeding, traffic peak hours, unsafe roads/routes, regular road closure conducted by the Bahraini Government due to maintenance and/or other public requirements.
3. The maximum allowable weight and/or the maximum allowable seats that the vehicles can withstand shall always be respected.
4. All vehicles shall respect speed limits marked in the public roads.
5. All vehicles shall bear a valid insurance policy.
6. Drivers and operators shall obey all Traffic Lights encountered on the transportation routes.





7. Drivers and Operators shall respect all traffic signs on the public roads.
8. Drivers and operators shall obey the direction of roads and never use them in the opposite prohibited side
9. Drivers/Operators must give way to pedestrians and bicycle-riders waiting to cross and MUST give way to pedestrians on zebra crossings.
10. Drivers and Operators shall conduct reversing operations at the minimum.
11. Drivers and Operators shall park only in designated areas. Blocking highways, roads, streets is strictly prohibited. The use of parking areas for handicapped people is strictly prohibited.
12. Drivers and Operators shall be responsible for the pre-use inspection to the designated vehicle. When there is evidence of malfunction, drivers and operators must stop the vehicle and inform their supervisor and/or the company representatives in charge of the vehicle. Supervisor. Supervisors must put the equipment out of service in case the malfunction can lead into an unsafe operation of the equipment.
13. All companies in charge of the vehicles transporting goods for ALBA PS5B4 shall ensure to implement a Preventive Maintenance Plan and Schedule prepared as per manufacturers' recommendations, in order to keep the vehicles safe and in good operational condition for the purpose to transport goods.
14. All requirements for driving at night (e.g.; headlights, warning lights, etc.) shall be in good and operational condition.
15. Drivers and operators shall conduct refuelling operations only in refuelling stations and/or designated refuelling areas within the boundaries of their property (e.g.; laydowns). It is strictly prohibited to refuel in public roads.
16. All companies using public roads to transport goods related to ALBA PS5B4 Project shall stick to the designated routes identified in the Traffic Management Plan and in this section.
17. Drivers and Operators will be strictly prohibited from unloading goods and/or personnel in areas prohibited in the Traffic Management Plan and or outside in the immediate boundaries of PS5B4 Project Site.
18. Due to the traffic expected to increase on Road 5146, the Consortium shall communicate and requirement to all companies in charge of transportation to comply with a speed limit of 50 Km/hr. Speed Limit must be communicated to Vendors and Suppliers in contracts and/or Purchase Orders.
19. All companies using the Road heading to Project's Main Gate shall comply with the speed limit of 20 Km/hr. Speed limit shall be observed by drivers and operators no matter the company. The speed limit shall be communicated to Vendors and Suppliers in contracts and/or Purchase Orders.

The distance between the Al Dur accommodation and laydown area to the Project site is approximately 20 km (extent: regional). The movement of a peak number of 40 vehicles and 22 buses daily is a distinguishable change from the baseline conditions over what is



considered to be a permanent duration 29 months. With consideration to the controls in place in the TMP, a **small** impact magnitude is assigned. Reference to **Table 2.4**, a **Minor Adverse** impact significance on public drivers is expected along this route.

#### 6.2.2 Transport of heavy vehicles

Reference to ACOP-62, Alba has the following procedures in place in relation to movement of heavy vehicles:

1. Notify the Directorate of Traffic to avoid use of heavy vehicles from using the King Hamad Highway during peak hours throughout the construction and operational phases of the expansion project; and
2. temporary traffic lights or a traffic controller is to be placed at points where construction heavy vehicles access public roads to further regulate traffic.

The Contractor has also put mitigation measures in place in relation to regulating heavy vehicle movements, namely:

1. All loads transported in vehicles (pick-up, trucks, trailers or other cargo vehicles) shall be securely fastened, and the weight shall not exceed the manufacturer's specifications of the vehicle. Sufficient straps and chains should be applied to secure equipment to prevent movement. Appropriate lashing arrangements and headboards shall be used as well as respecting the safe stacking always thinking on the procedure that will be used to unload the goods.
2. The Consortium shall communicate the TMP to all companies working for the project in order for them to be aware about the roads and location of the Project Site and Al Dur Laydown in order to avoid vehicles to get lost on their way.
3. The Consortium shall conduct monthly surveys on the roads designated in the TMP in order to identify unpredicted unsafe conditions that may pose a risk during deliveries and/or transportation of personnel. The survey must identify what roads may be subject to maintenance by public authorities, works over roads, construction over roads, diversions imposed by authorities. The outcome of the survey shall be communicated to all companies using public roads to reach the Project site.
4. The Consortium shall install different traffic signs in the Road 5146 as well as in the road heading to the project main gate (e.g.; "caution heavy traffic", "caution continuous enter/exit of vehicles"). The Consortium shall seek for advice from ALBA B.S.C. in order to know the procedure to install additional traffic signs in public roads around the Project site.
5. The Consortium will request ALBA B.S.C./ESBI to conduct an awareness session to Stakeholders located in the west side of PS5B4 (business companies located in the opposite side of Road 5146) about the Traffic Operations in the project and the precautions to be observed by members of the public.
6. Ensure that Flagmen are appointed for each heavy equipment/vehicle entering PS5B4 Site.
7. Ensure that Subcontractor's drivers and heavy equipment operators have their corresponding Bahraini driving licenses up to date.



8. Ensure that Subcontractor's drivers and heavy equipment operators attend the Defensive Driving and TMP training sessions.
9. Coordinate with relevant authorities and neighbouring industries during delivery of heavy and abnormal material.
10. It is strictly prohibited to drive and/or operate vehicles and/or heavy equipment without the corresponding driving license and/or the corresponding 3<sup>rd</sup> party certification issued by a MOL-approved agency, when required.
11. Heavy equipment and vehicles must have rear vision aids and/or mirrors in perfect condition.
12. All vehicles (light/medium/heavy vehicles/equipment) shall require having an approved gate pass to enter the Project Site.
13. In order to reduce the corrective maintenance to vehicles/heavy equipment, all owners of vehicles/equipment used in the Project shall implement a Vehicle/Heavy Equipment Preventive Maintenance Plan and Schedule which will describe all the preventive maintenance routines to be conducted to the vehicles/heavy equipment through a schedule. The preventive routines shall meet the requirements specified in the Operation and Maintenance Manual of each vehicle / heavy equipment. All preventive maintenance to vehicles/heavy equipment shall be properly documented in the file of each equipment.

As discussed in **Section 5.2.3**, it is anticipated 37 heavy vehicles will be required during construction, some of which will be kept at the Project Site while others will be transported from the Laydown area to site as needed. Assuming a maximum number of 3 heavy vehicles at any given time, and the control measures listed in **Section 6.2.2**, a **negligible** impact is assigned to the temporary, non-distinguishable (2-3 heavy vehicles at a time) and regional (32 km) extent of the impact. Similarly, the significance of the impact is also **negligible** due to the low sensitivity of the transportation route.

### 6.2.3 Transportation of shipments

Movement of shipments from KBSP to the Project site may be expected to contribute to public driver delay, especially at the Dry Dock Junction where congestion is known to commonly occur. Similarly, the Shaikh Jaber Al Subah Highway is also known to have congestion during peak times at certain sections including the Sitra Bridge and Alba Junction. Therefore, a medium sensitivity is assigned to this route.

In relation to movement of shipping containers, ACOP 62 has the following additional procedural requirements:

1. Proper labelling of containers, including the identity and quantity of the contents, hazards, and shipper contact information.
2. Providing a shipping document (e.g. shipping manifest) that describes the contents of the load and its associated hazards in addition to the labelling of the containers.
3. Ensuring that the volume, nature, integrity and protection of packaging and containers used for transport are appropriate for the type and quantity of hazardous material and modes of transport involved.
4. Ensuring adequate transport vehicle specifications.
5. Training employees involved in the transportation of hazardous materials regarding proper shipping procedures and emergency procedures.

6. Using labelling and placarding (external signs on transport vehicles), as required.

Further control measures are listed in the Contractor's TMP in relation to transport of shipments from the KBSP to the Project site:

1. The Consortium Traffic Management Team (TMT) shall provide training and awareness sessions to the third party companies hired to conduct transportation operations from Khalifa Bin Salman Port to ALBA PS5B4 Project Site.
2. The TMT shall ensure that the third party transportation company comply with all the requirements of the TMP.
3. The TMP with the support of the Consortium Procurement Department and the 3rd party transportation company shall conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across all the companies working on the Project. Emergency Deliveries in different schedules shall be immediately communicated to the TMT.
4. Vehicles driven from Bahrain north locations shall use Roads 5136 to enter Industrial area to approach the Project site and are strictly prohibited to use Road 5156 (This is to avoid additional congestion of road 5156). This requirement shall be communicated in the TMP and Defensive Driving training sessions to all drivers. Also, the requirement shall be mentioned in all Purchase Orders and/or contracts with the 3<sup>rd</sup> party transportation company and the Consortium.
5. The Consortium Procurement Department shall review manufacturers' specifications of dimensions of all goods in order to be communicated to the 3rd party transportation company, so they make arrangements for their correct transportation. This will avoid that the 3rd party transportation company conduct the transportation of the goods as per the Bahraini government requirements. Failure to comply with this requirement, may provoke to let the 3rd party transportation company to transport abnormal loads without the corresponding permits, police escort and assessment of the clearance of route.

Throughout the course of works, a total number of 1417 shipments and 700 containers will be transported from the KBSP to the Project Site or Laydown area. The exact number of deliveries to each destination per month is not known at this stage. The TMP indicated that the peak number of total trips (HGs, medium vehicles, shipments and abnormal loads) will be on Month 19 and 20 of construction. This will be considered as the impact duration. Due to the temporary, distinguishable and regional nature of the impact and an overall small impact significance is assigned (Reference to **Table 2.4**) and over all **minor adverse** impact is assigned.

#### 6.2.4 Movement of abnormal loads

In relation to the movement of abnormal loads, the TMP has the following controls in place:

1. The TMT shall provide training awareness sessions required by the Traffic Management Plan to the 3rd party company hired to conduct the abnormal loads transportation from the Muharraq Engineering Jetty to the Project site.



2. The TMT shall ensure that the 3rd party transportation company complies with all the requirements of the TMP.
3. The TMT, with the support of the Consortium Procurement Department and the 3rd party transportation company shall conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across all companies working in Project Site. Any emergency deliveries not included in the schedules shall be immediately communicated to the TMT so proper arrangements are provided.
4. The Consortium Procurement Department shall review manufacturers' specifications of dimensions of all abnormal loads in order to be communicated to the 3rd party transportation company and enable them to make the necessary arrangements for their correct transportation.
5. The Consortium Procurement Department shall communicate to the 3rd party transportation company, the definition of abnormal loads as per the Ministry of Works Roads Projects and Maintenance Directorate (RPMD) requirements, so they are aware of the special permits required by the Directorate for abnormal loads to be transported.
6. The Consortium Procurement Department shall communicate the location of the Project Site to the 3<sup>rd</sup> party transportation company through the Purchase Orders and/or contracts.
7. The Consortium shall provide the abnormal loads drawings to the 3rd party transportation company in order to assess the route and ensure safe clearance for the loads to pass according to its height, length and width (crossing under bridges, underpasses, traffic poles, traffic signs, other public and/or private facilities). The TMT and the 3rd party transportation company shall also verify that the route has a safe clearance for the load to cross according to the weight of the transported load (e.g.; bridges, culverts, areas with transportation weight limitations, etc.).
8. All Accesses through ALBA B.S.C. Plant premises shall require coordination with ALBA Security. All accesses to ALBA B.S.C. Plant shall be communicated to ALBA B.S.C./ESBI representative in order to coordinate the access with ALBA Security.
9. The 3rd party transportation company is required to prepare a Method Statement and a Risk Assessment for the whole transportation of the abnormal load from the Muharraq Engineering Jetty to the Project Site, including calculations for the safe lifting of the load from the barge to the hydraulic module trailer and the lashing requirements of the abnormal load to secure it safely to the hydraulic module trailer. The MSRA shall include an Emergency Response Plan in order to identify the potential emergency scenarios and the corresponding provisions/controls to be available to respond to such emergencies.
10. The Consortium shall request the necessary permit for the transportation of abnormal loads from the Roads Projects and Maintenance Directorate (RPMD) and the General Directorate of Traffic.
11. The Consortium along with the 3<sup>rd</sup> party transportation company shall adhere to the conditions of the abnormal load transportation permits



12. As per regular abnormal load transportation permit requirements, all transportation shall be conducted after 12 AM (00:00 hrs.) and as per the schedule and date mentioned in the abnormal load transportation permit.
13. The 3<sup>rd</sup> party transportation company shall submit the records such as the last preventive maintenance given to the trailer as well as 3<sup>rd</sup> party certifications of the hydraulic module trailer, so the Consortium verifies that the trailer is in good and safe operational condition.
14. The Consortium shall request the transportation company to submit certifications of all staff in charge of the transportation in order to verify their competency.
15. The Consortium shall ensure provision of emergency response equipment before the start of transportation operations.
16. Coordination with Police shall be requested for the escort of the loads by patrols throughout the route.
17. The TMT shall conduct weekly surveys around the designated route in order to identify unexpected changes on the route that may compromise the safe transportation of the abnormal load (e.g.; unexpected restrictions on roads under maintenance, temporary closure, etc.).
18. The Consortium Procurement Department shall communicate to the 3<sup>rd</sup> party transportation company, the definition of abnormal loads as per the Ministry of Works Roads Projects and Maintenance Directorate (RPM) requirements, so they are aware what kind of medium size goods can be transported without the special permit required by the Directorate for abnormal loads.

As discussed in **Section 5.2.4**, a total number of 80 abnormal loads will be transported from the Muharraq Engineering Jetty to the Project site (total distance is approximately 19 km) using hydraulic trailers as per the schedule in **Table 5.2**. During the month of August 2023, a peak number of deliveries is expected (53) is anticipated. This could result in public driver delay on smaller roads leading to the Project site.

With consideration to the scale, extent and duration of abnormal load movement, a medium impact magnitude is assigned. Combined with the low-medium sensitivity of the route (King Hamad Highway and Roads 5136, 5146, 5136 and 5146) and with consideration to the control measures provided in the TMP, a **minor adverse** impact significance is assigned.

### 6.3 Accidents and Road Safety

During transport of material and workers, there is potential for vehicular accidents to occur which could cause irreversible injury or even loss of life. For purposes of this assessment, a high sensitivity is assigned to human life.

Increases in the volume of heavy goods vehicles (HGV)s could pose additional safety risks. These risks rise in proportion to the number of HGV trips. Heavy trucks are larger and more difficult to manoeuvre, and take longer to stop and higher speeds are typically correlated with higher transportation safety risks. On main roads, the risk of an accident will be lower as they are in reasonable condition, with good sight lines and clear of

vegetation. The risk is higher on the dual roads to site once exiting the highway (eg. 5156, 5141, 5136 and 5146).

With consideration to the limited number of heavy vehicles and shipment/containers transport vehicles required on a daily basis, and the control measures put in place by Alba and the Contractor for the management of this specific transport movement, fatal accidents are considered unlikely. However, in the event of an accident a **Medium** impact magnitude is assigned due to the local, evident and permanent nature of the impact. An overall **Moderate Adverse** impact significance is anticipated due to the high sensitivity of the receptor.

#### 6.4 Traffic noise

Traffic has the potential to create a noise nuisance to adjacent communities and sensitive receptors. As discussed in **Section 4**, major highway routes will be utilized for transportation of workers and equipment to the Project site from various points.

As part of the Construction Noise and Dust report prepared by EACS for the Alba Power Station 5 Block 4 Project (EACS, 2022), noise calculations along the construction traffic route were made to quantify the contribution of Project related traffic to the overall traffic noise. It was found that the construction traffic adds less than 0.1 dB to any receptor along the construction traffic route.

A change in noise level of 1 dB is considered to be negligible (based on the guidance in DMRB LA111 Noise & Vibration) and so the predicted noise change of less than 0.1 dB is **insignificant**.

These calculations were based on a number of assumptions:

- % HGVs for the existing road network are not known and so the calculations only consider the total number of vehicles and not the vehicle types;
- The construction traffic is based on the daily trips on the worst case month which provides a worst case assessment.

## 7 CONCLUSION AND RECOMMENDATION

The previous Section presented the potential impacts arising from the traffic related to the construction of the Alba Power Station 5 Block 4 Project. The majority of construction traffic to the Project site from various locations will be via major highways capable of absorbing the increase in traffic volumes. There is potential for temporary delays or vehicular incidents along the roads leading to the Project site once leaving the highway.

Analysis of all receptors in close proximity to the transportation routes that will be used for construction traffic found that once leaving the main highways, the routes are through industrial and commercial areas and no receptors that would be sensitive to traffic movements were present (residential areas, settlements, labour accommodation sites, hospitals, schools or other public amenities). As such, no increased risk to sensitive receptors or community safety is expected from the Project construction related traffic.

As part of the assessment, a review of Alba's Traffic Procedures as well as the Contractor's TMP which has been developed for the Project was undertaken. These plans have been found to be robust and comprehensive with sufficient details in relation to traffic routes, road conditions, anticipated volume of Project related construction traffic, a clear classification of vehicles, shipment types and required permits.

Furthermore, the TMP assigns responsibilities of all involved parties and identifies the necessary control measures to minimise the risk of third-party driver delays, accident or vehicle collision.



Effective monitoring and implementation of the measures and controls provide therein will ensure that no adverse impacts are experienced by road users throughout the life span of the project. No additional measures in relation to community road safety are required.



**Appendix 1A**  
ACOP no. 062 Traffic Management and Control Procedure

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## 1 PURPOSE

This procedure provides a guideline for the appropriate and safe management of traffic at Alba workplaces and construction sites to ensure that workers, contractors, visitors and other stakeholders are not exposed to the risks and hazards arising from road traffic at Alba and governing construction sites. The procedure sets out the requirements and procedures for protection of people and assets in areas where there are vehicles moving in and around workplaces roads/pathways and construction sites.

## 2 SCOPE


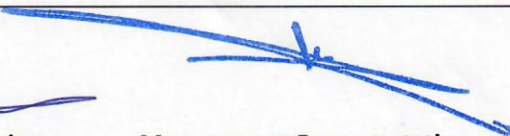
This procedure applies to all activities involving light vehicles, heavy vehicle or any mobile equipment movement that uses Alba roads and worksite including the Calciner and Marine plant and its truck hall road. This procedure is also applicable to construction worksites traffic management ensuring the provision of safe access and exit from traffic hazards to workers, surrounding community and other involved stakeholders.



## 3 COMPLIANCE OBLIGATION

1. Law (23) of 2014 with respect to Bahrain Road Traffic Law.
2. ISO 45001:2018 Occupational Health and Safety Management System.
3. International Finance Corporation (IFC) Environmental, Health, and Safety (EHS) Guidelines for Environmental, Traffic Safety, transport of Hazardous Materials.

## 4 DEFINITION

- **Barriers** – establish an exclusion zone which includes installing appropriate barricading.
- **Barricading** - warning tape, barrier mesh or temporary fencing
- **Increased Traffic Volume**- Any additional requirements for construction or operation contractors have the increase in traffic volume
- **Moving vehicles** – All vehicles including trucks, forklifts, operational vehicles and cars.
- **Pedestrians** – All workers including contractors and visitors who may be on site at any one time.
- **Workers** – employees, contractors, subcontractors, outworkers, apprentices and trainees, work experience students.

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## 5 RESPONSIBILITIES AND ACCOUNTABILITIES

### 5.1 MANAGEMENT REPRESENTATIVE

The Management Representative is responsible for approving and confirming this procedure and confirming that all legal requirements related to Alba traffic management are covered herein.

### 5.2 CXOs/DIRECTORS

CXOs/ Directors are responsible for ensuring that relevant departments comply with the requirements of this procedure and report progress on regular basis.

### 5.3 HEALTH AND SAFETY MANAGER

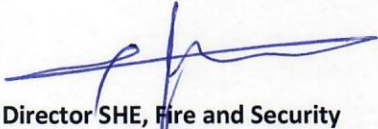
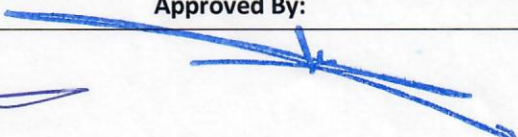
The Health and Safety manager is responsible to:



- Liaise with department managers and ensure that the requirements herein are met.
- Maintaining this procedure and ensure that it reflects the exact requirement for the fulfilment of the procedure purpose
- Suggest any improvement that could lead to elevating the traffic management at the workplaces
- Audit the system and comment on the practicality and effectiveness of these procedures.

### 5.4 FIRE AND SECURITY SUPERINTENDENT

The Fire and Security Superintendent is responsible to:

- Ensure compliance and implementation of this procedure in the respective departments and any other worksites covered by this procedure scope.
- Allocating adequate and available resources that ensure the effective implementation of this procedure
- Assist in the active management and resolution of identified traffic hazards and risks.
- Ensure traffic hazards and risks are managed in accordance with current legislation and as per this procedure.
- Ensure all Alba traffic / road signs are in compliance with Bahrain General Road Directorate of Traffic standards, as well as road demarcation and delineation.
- Ensure that at the temporary work or construction site are following the traffic management procedure and traffic barriers for separation are adequately fixed and enough space provided for the pedestrians and vehicles movements.

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## 5.5 DEPARTMENT MANAGERS

All department Managers are responsible to:

- Reviewing and managing risks associated with traffic management in their area
- Ensuring all employees are aware of this traffic management procedure.
- Ensure that transportation of hazardous materials are compliance with applicable local laws and international requirements.
- Provide appropriate resources to eliminate or reduce (to an acceptable level) the level of risk pertaining to traffic management.
- Arrange for the suitably qualified workers to follow up on the erection of signs and other traffic control devices.
- Provided training relevant to traffic management in the workplace to workers and visitors.

## 5.6 DEPARTMENT SUPERINTENDENTS AND SUPERVISORS


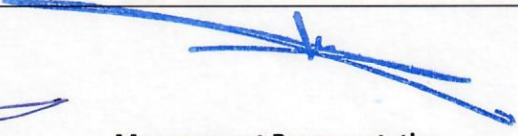
The department's Superintendents and Supervisors are responsible to:



- Ensuring that the induction provided entail a section about risks associated with traffic management in their workplaces
- Educating and informing workers on relevant aspects of this procedure.
- Inspecting worksites when temporary traffic controls are in place.
- Ensure the traffic sign boards and traffic road line are visible and clear in their respective areas.
- Ensure vehicles and other mobile equipment are maintained in a safe and roadworthy condition in accordance with legal and company requirements.
- Ensuring proper handling of materials while mobilizing while using handling vehicles and securing the materials while transporting to avoid from falling.

## 5.7 EMPLOYEES AND CONTRACTOR WORKERS

The employees and contractor workers are responsible to:

- Adhere to the traffic management requirements and any traffic risk assessments outcome so the correct controls are being utilised.
- Observe and comply with road signs, speed limits and other matters related to safety, at all times whilst driving vehicles on site.
- Ensure vehicles are maintained in a safe and roadworthy condition in accordance with legal and company requirements and report all onsite hazards or incidents promptly.

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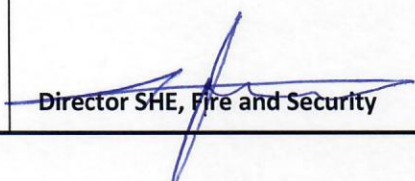
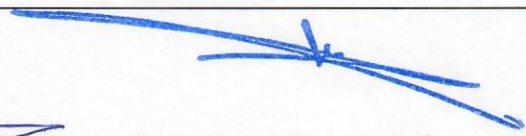
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## 6 PROCEDURES

### 6.1 GENERAL

1. Every person (employees, contractors and visitors), driving a vehicle of any type shall observe the traffic standards and speed limits imposed within Alba main site and Calcining & Marine. Alba Speed Limits:
  - a. 40 KM/Hour at main roads inside Alba
  - b. 20 KM/Hour at Operational areas
  - c. 20 KM/Hour at Construction areas
  - d. 50 KM/Hour road outside between South and North Gate.
2. Any driver involved in any accident that results in personal injury or damage to a vehicle or property shall report it as soon as possible to security main gate. This is govern by ACOP-026 (if no injury is involved) and ACOP-054 (if injury is involved).
3. A driver of a privately owned vehicle on Alba property shall hold a current Bahrain driving licence (or valid International licence) issued under the Road Traffic Law, appropriate to the class of vehicle being driven.
4. A driver of an Alba owned vehicle that is or may be used on public roads shall hold a current Bahrain driving licence (or valid International licence) issued under the Road Traffic Law, appropriate to the class of vehicle being driven.
5. A visitor or contractor driving a vehicle of any type on Alba property shall be authorised to do so by the relevant General Manager prior to entering the site and shall be in possession of a valid visitor/contractor pass and vehicle pass issued by She department.
6. Any person who contravenes the site traffic rules and regulations shall be liable to disciplinary action and visitors/contractors may have their pass withdrawn and be banned from entering ALBA property, either temporarily or permanently.
7. Disciplinary action shall be taken against any person who contravenes site rules and regulations.
8. Employees, contractors and visitors shall ensure that their vehicles have adequate insurance and registration coverage for vehicles over the prescribed age. Such certificates, driving licences etc. shall be produced to any member of SHE Department upon request.
9. All drivers of vehicles (including riders of bicycles) shall be responsible for ensuring that vehicles are maintained in a safe and roadworthy condition in accordance with legal and company requirements.
10. The riding of motorcycles shall not be permitted inside Alba sites at any time except those ridden by Public Security officers.
11. All employees, contractors and visitors are provided with SHE induction program, which includes Alba traffic standards and safe driving speed limits.

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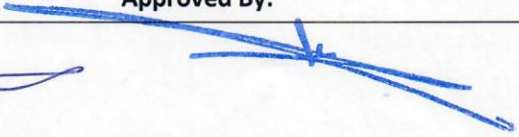
12. All employees, contractors and visitors are reminded of their obligation to insure their vehicles against Third Party risks and to have a current vehicle inspection certificate for all vehicles over the prescribed age. Insurance documentation, vehicle inspection certificates, driving licences or ALBA driving permits must be produced to any member of Alba staffs or Security upon request.
13. All construction contractors shall adopt a best transport safety practices across all aspects of construction project site, measures shall include:
  - a. Emphasizing safety aspects among drivers
  - b. Improving driving skills and requiring licensing of drivers
  - c. Adopting limits for trip duration and arranging driver rosters to avoid overtiredness
  - d. Avoiding dangerous routes and times of day to reduce the risk of accidents
  - e. Use of speed control devices (governors) on trucks, and remote monitoring of driver actions
14. Equipment and vehicles that may be in use only intermittently to be shut down during idling periods, or throttled down to a minimum.
15. Vehicle using truck haul road shall follow this procedure in order to reduce the risks of incidents.



## 6.2 ALBA ROAD TRAFFIC STANDARDS

In the interests of safety, all employees, contractors and visitors to ALBA are expected to exercise the same care and consideration as they would reasonably expect from other road users, to observe and comply with all road signs, road markings and speed limits as displayed, and to co-operate fully with Security Officers, who have responsibility for traffic regulation. The following traffic regulations apply to ALBA Main Site and Calcining & Marine sites.

## 6.3 APPLICATION OF BAHRAIN ROAD TRAFFIC LAW

1. Site policy requires that "every employee, whether walking, cycling or driving a mechanically propelled vehicle of any type, must observe the traffic regulations and speed limits imposed within the site". In this rule, the term 'traffic regulations' means the relevant parts of the Bahrain Road Traffic Law 1979
2. All references to traffic police in the Bahrain Road Traffic Law shall be read as including a Plant Protection Officer.
3. Any driver involved in any accident that results in personal injury or in damage to a vehicle or property must report it to Site Security.

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## 6.4 DRIVING LICENCES AND ALBA DRIVING PERMITS

1. Drivers of privately owned or hired mechanically propelled vehicles on ALBA property must hold a Bahrain driving licence (or a valid, endorsed International licence), issued under the Bahrain Road Traffic Law, appropriate to the class of vehicle being driven.
2. Drivers of ALBA owned or hired mechanically propelled vehicles that are or may be used on public roads must hold a current Bahrain driving licence (or valid and endorsed International licence), issued under Bahrain Road Traffic Law, appropriate to the class of vehicle being driven.
3. Every driver of an ALBA owned or hired mechanically propelled vehicle that is not for use on public roads must have authorisation to drive that particular vehicle and also have a current ALBA driving permit issued by the relevant Department, appropriate to the class of vehicle being driven.
4. It is strictly prohibited to operate any vehicle without possessing the appropriate licensing and authorization. Similarly it is prohibited to drive any vehicle that do not obtain appropriate certificates to operate. Violators will be subjected to Alba disciplinary code

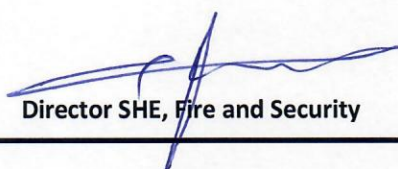

## 6.5 BREACH OF TRAFFIC REGULATIONS BY EMPLOYEES

1. In the case of an alleged breach of traffic regulations or speed limits by an employee, the Manager or Head of Department concerned shall arrange for an appropriate hearing of the case in the presence of the employee, including any statements by Site Security, and shall decide what disciplinary action, if any, is to be taken having regard to all the circumstances including the seriousness of the breach and the employees previous record.
2. The disciplinary action to be taken in cases of an established breach may consist of one of the following; Verbal warning, recorded warning, suspension from work, ban from cycling or driving on site for a period to be specified or ultimately dismissal.



## 6.6 VISITORS

The above section for employees also apply to all visitors to ALBA property

1. Visitors/contractors driving a mechanically propelled vehicle of any type on ALBA property must have authorisation to do so from a General Manager and be in possession of a current visitor pass and vehicle pass issued by the SHE department.
2. Visitors/contractors who contravene ALBA Traffic Regulations are liable to be banned from driving any vehicle on ALBA property, either temporarily or permanently.

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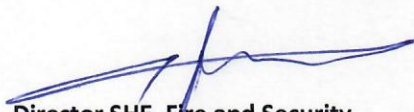
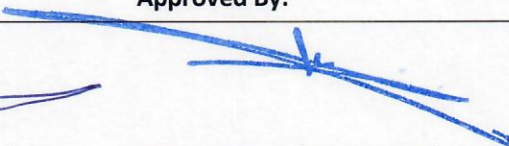
## 6.7 VEHICLE CONDITION



1. Drivers of all vehicles are responsible for ensuring that their vehicles are maintained (as per the manufacturer recommended engine maintenance programs) in a safe and roadworthy condition in accordance with legal requirements.
2. Security personnel have the power to prohibit movement and use of any vehicle that they consider does not meet the required safety standards and constitute a danger to the user or any other person. The prohibition shall apply until such a time as the vehicle's condition meets the recognised standards or is removed from site.
3. All vehicles operated under Alba and for Alba contracted vehicles (trucks and buses) shall consider an additional ways to reduce the potential impacts including:
  - a. Replacing older vehicles with newer, more fuel efficient alternatives
  - b. Converting high-use vehicles to cleaner fuels, where feasible
  - c. Installing and maintaining emissions control devices, such as catalytic converters
  - d. Implementing a regular vehicle maintenance and repair program

## 6.8 TRANSPORT OF HAZARDOUS MATERIALS

All hazardous material transportation (refer ACOP-070) shall be compliance to the following requirements:

1. Proper labelling of containers, including the identity and quantity of the contents, hazards, and shipper contact information.
2. Providing a shipping document (e.g. shipping manifest) that describes the contents of the load and its associated hazards in addition to the labelling of the containers.
3. Ensuring that the volume, nature, integrity and protection of packaging and containers used for transport are appropriate for the type and quantity of hazardous material and modes of transport involved
4. Ensuring adequate transport vehicle specifications
5. Training employees involved in the transportation of hazardous materials regarding proper shipping procedures and emergency procedures
6. Using labelling and placarding (external signs on transport vehicles), as required

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## 6.9 INDUSTRIAL VEHICLE DRIVING AND SITE TRAFFIC

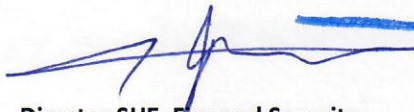

Industrial vehicle driving and site traffic safety practices include:



1. Training and licensing industrial vehicle operators in the safe operation of specialized vehicles such as forklifts, including safe loading/unloading, load limits.
2. Ensuring drivers undergo medical surveillance.
3. Ensuring moving equipment with restricted rear visibility is outfitted with audible back-up alarms
4. Establishing rights-of-way, site speed limits, vehicle inspection requirements, operating rules and procedures (e.g. prohibiting operation of forklifts with forks in down position), and control of traffic patterns or direction.
5. Restricting the circulation of delivery and private vehicles to defined routes and areas, giving preference to 'one-way' circulation, where appropriate.
6. Contractor vehicles wishing to enter Alba needs to obtain either a permanent or temporary approval/pass from the Fire & Security superintendent in coordination with concerned department manager or his/her representative.

## 6.10 INCREASED TRAFFIC VOLUME

To mitigate the impacts associated with the increased traffic volume and likely additional congestion, the following shall be implemented;

1. South-west gate to be constructed as part of the expansion project;
2. Investigate the options for the addition of parking spaces to accommodate the additional light vehicles for employees, contractors and visitors;
3. Notify the Directorate of Traffic to ensuring avoiding heavy vehicles from using the King Hamad Highway during peak hours throughout the construction and operational phases of the expansion project; and
4. Temporary traffic lights or a traffic controller is to be placed at points where construction heavy vehicles access public roads to further regulate the traffic.
5. To reduce the anticipated impacts of increased traffic levels to and from the site during construction shall follow these control measures:
  - a. Trucks shall be covered with tarpaulin while transporting materials outside the organisation.
  - b. Certified drivers shall be used for transportation of workers and materials.
  - c. Periodic maintenance of all the vehicles shall be conducted.
  - d. Carrying out the works with special attention, where restrictions are imposed by physical obstructions, i.e. Overhead power lines, slip roads, etc.
  - e. A safe zone has to be provided between live traffic lanes and the working area (this includes equipment, plant, tools, excavated materials, etc.).

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- f. Adequate barriers are provided to protect the workforce, portable vertical barriers shall be considered.
- g. Where half constructed or constructed but not opened to traffic shall be covered with Jersey barriers on both the ends of the road.
- h. Access / egress locations for site transport shall be kept to a minimum, preferably one at every work area.
- i. Adequate measures shall be implemented to prevent traffic coming into contact with temporary / permanent structures, i.e. by using temporary barriers.
- j. Adequate temporary lighting shall be provided wherever it is required.
- k. All access routes shall be clearly signed and maintained.
- l. Arrangements shall be made to reduce the need to reverse vehicles. Where this is not possible, a trained banksman must be provided.
- m. All appropriate personnel shall wear high visibility clothing.
- n. Precautions like goal post are to be in place for overhead cables.
- o. Underground cable and pipes shall be protected with adequate covering and markings.
- p. Working area shall be defined in the live road/footway using cautionary boards and flag men which includes the areas for storage of tools and equipment and space to move around the job.
- q. The equipment shall not be left on roadway overnight.
- r. Not close any lanes of road without approval from Client's representative, suitable signage and devices shall be erected in accordance with instructions from Client.
- s. A minimum of seven meter wide temporary roadway for traffic in two-way sections and 5 meter for one way work shall be provided.

## 6.11 ROAD TRAFFIC OFFENCES

1. Parking a vehicle in a designated 'No Parking' area.
2. Parking in a manner causing wilful obstruction to other road users or creates an unsafe condition.
3. Driving without due care and attention and dangerous driving i.e. speeding, overtaking, entering/leaving through 'No Entry' sign etc.
4. Failure to stop at a 'STOP' sign and non-compliance with other traffic signals, signs or directional arrows which have been provided.
5. Allowing passengers to ride on any vehicle not designed to take passengers.
6. Driving a vehicle at night without lights switched on/working.
7. Failure to use signal (indicator) lights correctly.
8. Using a hand held mobile phone while driving.

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9. Failure to wear a seat belt whilst driving on site.
10. Overtaking another slower moving vehicle, travelling in the same direction, on all Alba road.

## 7 SAFE USE OF CYCLES INSIDE ALBA PROPERTY

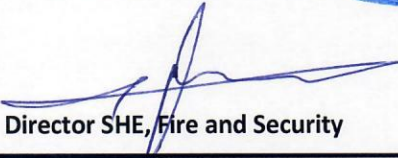
To mitigate the risk of the use of cycles inside Alba, the management opt to restrict the use of cycles and approve the use of tri-cycle only inside its worksite. This approval is subjected to the following mitigation procedure:



1. Area responsible person shall undertake a comprehensive risk assessment to evaluate the workplace and the mobile equipment intended to be used in the area. This is done to determine the hazards that Tricycle users are exposed to.
2. The hazard assessment should include:
  - o The task that Tricycle user do
  - o The hazards Tricycle users expose to
  - o How Tricycle users could be injured, accordingly evaluate the probability and severity of the risk
  - o The PPE necessary to protect Tricycle users.
3. Provide designated parking area for the tricycle that area safe to reach and exist from.
4. The parking area should be close to the buildings, located in well illuminated area and identified with sign.
5. Where possible, provide designated path for tricycle movement away from vehicle movement.
6. Tricycles should be maintained in safe working order by implementing preventative maintenance program.
7. Provide traffic management signs for Tricycle movement area
8. Appropriate head protection for cycling should be worn on every bike ride regardless of length of the ride
9. Provide Tricycle pre-use checklist and ensure employee adherence prior every use.

### 7.1 PRE-RIDE CHECKLIST

The users of the tricycle shall:

1. Avoid riding if you feel unwell.
2. If it is raining, very hot or windy. Consider alternative transport (e.g. bus)
3. Check your clothing and personal equipment:
  - o Tuck loose shoelaces into shoes
  - o Secure trouser legs (e.g. with reflective straps, folded up or tucked into socks)
  - o Ensure the availability of bright or easily visible clothes. Hi-vis vests are also available.

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- Ensure the availability of the appropriate head protection gear.
- 4. Always inspect tricycle prior to use:
  - The seat should be adjusted to the proper height and locked in place;
  - Make certain all parts are secure and working properly;
  - Check that the tires are inflated properly;
  - Make sure the bike is equipped with lights. Also, reflectors on the rear, front, pedals and spokes;
  - A horn or bell, a rear-view mirror and a bright headlight also are recommended; and
  - Push the bicycle and then apply the brakes individually to see that the front and rear brakes are both working.



## 7.2 GENERAL SAFETY CONDITIONS FOR TRICYCLE USERS:

1. Wear head protection at all time when you are on the bike.
2. Whenever possible, ride during the day. If you must ride at night, wear reflective clothing and use flashing lights.
3. Avoid distraction, don't listen to music or talk on phone while riding.
4. Ride defensively. Leave room between yourself, vehicle and pedestrian.
5. Do not ride the bike in the middle of the road or on vehicle congested areas.
6. The bike must have a brake.
7. Follow traffic rule in the area.
8. Assume the drivers don't see you and act accordingly
9. Maintain the bike in good condition.
10. Know your hand signal and use them to communicate with other road users.

**Note:** This procedure is maintain and implemented without prejudice to the Kingdom for Bahrain traffic roles for the use of equipment on public and private roads.

## 8 REVIEW

This procedure will be reviewed, when and as per required, by the inception of new or amended ongoing legislation, request by the external/internal auditors, as a result of the management review committee or when a significant change is required to be made on the current health and safety management system.

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**Appendix 1B**  
Sepco III Traffic Management Plan

Project	<b>ALBA POWER STATION 5 BLOCK 4</b>						
Owner	<b>ALUMINIUM BAHRAIN B.S.C</b>  Aluminium for the world						
Consultant	<b>ESB INTERNATIONAL</b> 						
Consortium	  	Issued to Owner					
Reference number							
Project - Area - Facility - Sub-Facility - Originator - Category -Type of Document - Sequential Number - Rev.							
82902-999-8822-HS-SPC-00030				Rev.	0		
Functional Location Code: 01-01-022							
Revision History							
Rev.	Revision Date	Created by	Checked by	Approved by	Brief Description		
A	2022/03/19	RZH	Madhu Mohan.K	WGG	First submission		
00	2022/05/13	KJP	Gerardo Alvarez	WGG	Add lay down area information		
0	2022/08/28	GYJ	Gerardo Alvarez	WGG	Revised as per ALBA comments		
Description current Revision							
Cross checked							
Department	Name	Date	Signature				
HSE	GYJ	2022/08/28					
Replaces		Derived From		Document Code			
00		SEPCOIII		82902-999-8822-HS-SPC-00030			
Responsible Department HSE		Created By GYJ	Checked By Gerardo Alvarez	Approved By WGG			
Title, Subtitle	<b>PS5 Block 4 Traffic Management Plan</b>						
Originator		Document Identification Number					
		PS5-B4-01-YDC-GGP-SEP-00034					
		Document Status					
			FR				
		Document Type	Rev.	Date	Lang	Format	Sheet
		SPC	0	28-08-2022	English	A4	1/134

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## 1. Purpose

The purpose of this Traffic Management Plan is to prevent vehicle-related incidents in all the operations conducted by the Consortium inside and outside ALBA PS5B4 Project.

The plan aims to provide guidance to ALBA PS5B4 management and supervisory staff to identify hazards and apply appropriate risk controls associated with transportation of project goods and/or personnel as well as the operation of heavy equipment dedicated to the construction activities at site. The plan aims to permanently have:

- A safe site;
- Safe pedestrians
- Safe drivers
- Safe vehicles;
- Safe routes

## 2. Scope

This plan is applicable to the vehicle operations inside PS5B4 and in the Bahraini public roads used by the Consortium, Subcontractors, Suppliers, Vendors and Visitors for project purposes.

## 3. References

- Law No. (23) of 2014 promulgating the Traffic Law.
- Minister of the Interior Decision No. (153) of 2015 regarding the introduction of a points system for traffic offenses.
- Minister of the Interior Decision No. (154) of 2015 implementing regulations for the Traffic Law promulgated by Law No. (23) of 2014
- Ministerial Order No. 8 of 2013 Regulating Occupational Safety and Health in Establishments.
- Ministerial Order No. 4 of 2014 on Determining and Regulating the Services and Precautions for Protecting the Workers from the Hazards of Construction, Building and Civil Engineering Works.
- Ministerial Order No. 5 of 2014 With Respect to Determining and Regulating the Services and Precautions for Protecting the Workers from the Dangers of Work on Lifting Equipment.
- Ministerial Order No. 38 of 2014 With Respect to Determine and Regulate Necessary Services and Precautions for the Protection of Workers from Mechanical Hazards in the Workplace
- Law No. 30 of 2005 with respect to amending certain provisions of the Law No. 23 of 1976 to promulgate the Labour Law for the private sector.
- Ministry of Works – Roads Projects and Maintenance Directorate (RPM) – Abnormal Load Rules, Regulations and Procedure
- World Bank – IFC Environmental, Health, and Safety (EHS) General Guidelines 2007
- ACOP-004 – Notices and Signs
- ALBA ACOP 025 – Contractors' Safety Health and Environment Management
- ALBA PS5.BL4/Alba.Docs /010/ SKG – Guidelines for implementation of Alba Safety, Health & Environmental guidelines for projects
- ALBA PS5B4 – Environmental and Social Impact Assessment Report (ESIA) ENV-RJC-20-00070-PS5-ESIA-01
- ALBA PS5B4 – Construction Environmental and Social Management Plan (CESMP) ENV-RJC-20-00070-PS5-CESMP-01
- ALBA Grievance Procedure
- ALBA PS5BL4 HSE Management Plan PS5-B4-01-YDC-GGP-SEP-00002

- ALBA PS5BL4 Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015
- PS5 Block 4 Emergency Preparedness and Response Procedure PS5-B4-01-YDC-GGP-SEP-00004
- PS5 Block 4 First Aid Unit Management Procedure PS5-B4-01-YDC-GGP-SEP-00057
- PS5 Block 4 Project Lifting Operations Procedure PS5-B4-01-YDC-GGP-SEP-00007
- PS5 Block 4 Excavation Procedure PS5-B4-01-YDC-GGP-SEP-00040
- PS5 Block 4 Mobile Elevated Working Platform PS5-B4-01-YDC-GGP-SEP-00045.
- PS5 Block 4 Project Incident Investigation and Reporting Procedure PS5-B4-01-YDC-GGP-SEP-00013
- PS5 Block 4 Project Construction Permit to Work Procedure PS5-B4-01-YDC-GGP-SEP-00003
- PS5 Block 4 Construction Safety, Health, Environment and Social Monitoring Procedure PS5-B4-01-YDC-GGP-SEP-00016
- PS5 Block 4 Refuelling Operations Procedure PS5-B4-01-YDC-GGP-SEP-00022
- PS5 Block 4 Spill Prevention Procedure PS5-B4-01-YDC-GGP-SEP-00021.
- PS5 Block 4 Hazard Analysis and Risk Assessment PS5-B4-01-YDC-GGP-SEP-00038
- PS5 Block 4 Work at Nights Procedure PS5-B4-01-YDC-GGP-SEP-00044
- PS5 Block 4 Project Hearing Conservation Procedure PS5-B4-01-YDC-GGP-SEP-00011
- PS5 Block 4 Fire Prevention and Protection Procedure PS5-B4-01-YDC-GGP-SEP-00056

#### 4. Definitions

**ALBA PS5B4 Project:** Alba Power Station 5 Block 4 Project

**Owner:** Aluminium Bahrain B.S.C. (ALBA).

**Owner's Engineer:** ESB International

**The Consortium (The EPC Contractors):**

The 3 companies that were awarded with the ALBA PS5B4 contract:

- SEPCOIII Bahrain Construction Company W.L.L.
- Tiejun International DMCC
- Mitsubishi Power, LTD

**TMP:** Traffic Management Plan

**TMT:** Traffic Management Team

**TERP:** Traffic Emergency Response Plan

**SHE/HSE:** Safety, Health and Environment

**MSRA:** Method Statement and Risk Assessment

**Road closure:** The closing of a road to restrict traffic / access while work is in progress on the road or in the area.

**North Areas of Bahrain:** For the purpose of this procedure North Areas of Bahrain are considered those areas from Manama locations up to ALBA B.S.C. main gate.

**South Areas of Bahrain:** For the purpose of this procedure, South Areas of Bahrain are considered those areas from ALBA B.S.C. main gate to all towns in south Bahrain.

**MEWP:** Mobile Elevated Working Platform

**HRSG:** Heat Recovery Steam Generator

**GT:** Gas Turbine

**ST:** Steam Turbine

**GSU:** Generator Step-up Transformer

**UAT:** Unit Auxiliary Transformer

**ESIA:** ALBA PS5B4 Environmental and Social Impact Assessment

**CESMP:** ALBA PS5B4 Construction Environmental and Social Management Plan

**MOL:** Ministry of Labour

**EWA:** Bahrain's Electricity and Water Authority

## **5. Responsibilities**

### **5.1 Project Director**

- Ensure that this procedure is always up to date.
- Ensure adequate resources are available to implement this procedure.
- Ensure controls identified in the TMP Risk Assessments are implemented.
- He is responsible to ensure that all PS5B4 vehicles incidents and near miss inside and outside project premises are being reported and investigated.

### **5.2 Vice Project Director**

- Ensure that this procedure is implemented;
- Ensure all traffic management controls are implemented in a timely manner.
- Hold managers and supervisors accountable for the implementation and application of this procedure.
- Ensure appropriately qualified and trained personnel are available to implement this procedure;
- Ensure reviews of implemented controls are conducted.
- Implement this procedure and assign duties to the person(s) responsible for Traffic Management onsite.

### **5.3 Consortium's Administration/Human Resources Manager**

- Ensure that Consortium vehicle's insurances are up to date at all times.
- Ensure that Consortium's drivers have their corresponding Bahraini driving licenses up to date.
- Ensure that Consortium's drivers attend the Defensive Driving and TMP training sessions.

### **5.4 Construction Manager**

- Ensures that personnel, facilities and other necessary resources are deployed at site to effectively carry out this procedure;

- Pre-approves Method Statements and Risk Assessments from 3<sup>rd</sup> party companies dedicated/hired for the transportation of abnormal goods, for further submission to ALBA/ESBI for final approval.
- Approves Road Closure Work Permits.

### **5.5 Construction Departments Managers (Civil, Electrical, Mechanical, Turbine, Boiler, etc.)**

- Ensure that workers have received training and instruction on Traffic Management Plan requirements;
- Participate in reviews of implemented Traffic Management controls.
- Ensure Method Statements and Risk Assessments are prepared for all construction activities.
- Verify that Subcontractors under their responsibility comply with the requirements of this Traffic Management Plan.

### **5.6 Site Engineers/Supervisors**

- Identify Traffic Management controls by conducting periodic hazard identification and risk assessment in their area of responsibility, as per PS5 Block 4 Hazard Analysis and Risk Assessment Procedure PS5-B4-01-YDC-GGP-SEP-00038.
- It is the responsibility of site engineers and supervisors to implement and maintain all the Traffic Management controls in their area of responsibility.
- Ensures that Heavy equipment and their operators comply with the requirements listed in the Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015, Lifting Operations Procedure PS5-B4-01-YDC-GGP-SEP-00007, Excavation Procedure PS5-B4-01-YDC-GGP-SEP-00040 and Mobile Elevated Working Platform PS5-B4-01-YDC-GGP-SEP-00045.
- Ensure that diesel refueling activities comply with the requirements listed in the PS5 Block 4 Refueling Operations Procedure (See doc. No. PS5-B4-01-YDC-GGP-SEP-00022) and in the Spill Prevention Procedure (See doc. No. PS5-B4-01-YDC-GGP-SEP-00021).
- Ensure that activities conducted in the hours of darkness comply with the Work at Nights Procedure requirements (See doc. No. PS5-B4-01-YDC-GGP-SEP-00044).
- Ensure that Flagmen are competent and receive periodic training.
- Ensure that Flagmen are appointed for each heavy equipment/vehicle entering PS5B4 Site.
- Comply with all the requirements listed in the Road Closure permit when they are issued.
- Lead Toolbox Talks where Traffic Management requirements can be commented and disseminated across the personnel.

### **5.7 Procurement Manager**

- Lead the implementation of the Traffic Management Plan in all procurement and logistic activities for delivery of ALBA PS5B4 Project Materials, Tools and Equipment:
  - From ports to AL-DUR SEPCOIII Laydown;
  - From Muharraq Engineering Jetty to ALBA PS5B4 Project Site
  - From AL-DUR SEPCOIII Laydown to ALBA PS5B4 Project Site;
  - From Local suppliers shops to ALBA PS5B4 Project Site;
  - From Subcontractors' Laydowns to ALBA PS5B4 Project Site.
- Ensure that this Traffic Management Plan is communicated across the Consortium, Subcontractors, Vendors and Suppliers, as well as 3<sup>rd</sup> party companies dedicated/hired specifically to transportation of goods.
- Coordinate the approval of Method Statements and Risk Assessments from 3<sup>rd</sup> party companies dedicated/hired for the transportation of abnormal goods.

### **5.8 HSE Manager**

- Keeps this procedure up to date.

- Ensure that this Traffic Management Plan is communicated across the Consortium, Subcontractors, Vendors, Suppliers and Visitors in ALBA PS5B4 Project.
- Provide Traffic Management Plan awareness training for all employees;
- Ensure that all the Training requirements mentioned in this plan are fully implemented and complied with.
- Provide TMP training sessions to those employees with responsibilities to fulfill as per this plan.
- Ensure Site Traffic Management plot plans are permanently updated and communicated across all companies and man power.
- Review HSE observations reports to identify trends on Traffic Management deviations in order to implement corrective plans.
- Pre-approves Method Statements and Risk Assessments from 3<sup>rd</sup> party companies dedicated/hired for the transportation of abnormal goods, for further submission to ALBA/ESBI for final approval.
- Approves Road Closure Work Permits.

### **5.9 Security Head**

- Ensures that the TMP requirements as well as those in the Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015) are thoroughly followed and implemented.
- Participate actively as member of the Traffic Management Team.
- Ensure that the Security Team is properly trained and all the material and equipment needed to fulfill their duties is available at all times.

### **5.10 Senior HSE Advisor**

- He is the overall responsible for the implementation of the Traffic Management Plan.
- The Consortium Security Head will be appointed to take the day-to-day responsibility for traffic management and head up a 'Traffic Management Team'.
- Provide information, training and instruction to workers with regard to Traffic Management Plan;
- Perform audits to verify compliance on this procedure.
- Update Site Traffic Management Plot Plan permanently and ensures that they are communicated across all companies and project personnel.
- Assess Road Closure Permits requests to verify viability.
- Verifies that all requirements listed in approved Road Closure Work Permits are implemented and maintained.
- Issues Road Closures notices across all companies, personnel as well as ALBA Emergency Services with 24 hours in advance.

### **5.11 Environmental and Social Advisor**

- Support the HSE Advisor during the audits to this procedure in order to verify environmental mitigation measures are implemented as part of the Traffic Management Plan.

### **5.12 Subcontractor Line Manager/Supervisor/Foreman**

- Ensure that Subcontractor's vehicle's insurances are up to date at all times.
- Ensure that Subcontractor's drivers and heavy equipment operators have their corresponding Bahraini driving licenses up to date.
- Ensure that Subcontractor's drivers and heavy equipment operators attend the Defensive Driving and TMP training sessions.

- Identify Traffic Management controls by conducting periodic hazard identification and risk assessment in their area of responsibility, as per PS5 Block 4 Hazard Analysis and Risk Assessment Procedure PS5-B4-01-YDC-GGP-SEP-00038.
- Implement and maintain all the Traffic Management controls in their area of responsibility.
- Ensures that Heavy equipment and their operators comply with the requirements listed in the Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015), Lifting Operations Procedure (PS5-B4-01-YDC-GGP-SEP-00007), Excavation Procedure (PS5-B4-01-YDC-GGP-SEP-00040) and Mobile Elevated Working Platform (PS5-B4-01-YDC-GGP-SEP-00045).
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- Ensure that activities conducted in the hours of darkness comply with the Work at Nights Procedure requirements (See doc. No. PS5-B4-01-YDC-GGP-SEP-00044).
- Ensure that Flagmen are competent and receive periodic training.
- Ensure that Flagmen are appointed for each heavy equipment/vehicle entering PS5B4 Site.
- Prepares and submits Road Closure Permits requests to the Consortium.
- Comply with all the requirements listed in the Road Closure permit when they are issued.
- Lead Toolbox Talks where Traffic Management requirements are commented and requested to the manpower to follow at all times.

### **5.13 Subcontractor HSE Manager/ Engineer/Supervisor**

- Provide information, training and instruction to workers with regard to Traffic Management Plan;
- Perform audits to verify compliance on this procedure.
- Pre-approves Road Closure Permits requests issued to the Consortium.
- Verifies that all requirements listed in approved Road Closure Work Permits are implemented and maintained.

### **5.14 Drivers and Operators**

- Comply with all the requirements listed in this plan.
- Attend all the Training Sessions mentioned in this plan.
- Drive/Operate safely their designated vehicle.

### **5.15 Flagman**

- Attend all the Flagmen and related training sessions required to perform his duties.
- Direct site traffic in the construction site.
- Use a clear agree system of signaling.
- Be visible to drivers at all times.
- Stand in safe position.
- Wear hi viz clothing.
- Ensure that signals are clearly seen.

### **5.16 Traffic Guards**

- Comply with all their duties mentioned in this plan.
- Attend all the training sessions required by this plan.

### 5.17 Traffic Management Team

- Comply with all their duties mentioned in this plan.
- Attend all the training sessions required in this plan.

### 5.18 General Workers

- Follow the Traffic Management requirements for pedestrians.
- Respect all the traffic signs at site.
- Onboard personnel buses in the designated areas.
- Never overload vehicles dedicated to personnel.
- Report any traffic deviation to his immediate supervisor and HSE Advisors.
- Attend the HSSE & SR Induction session.
- Attend Toolbox Talks on a daily basis.

### 5.19 Visitors

- Participate in the HSSE & SR Induction for visitors.
- Follow the Traffic Management requirements for pedestrians.

## 6. Procedure

### 6.1 General Requirements

#### 6.1.1 Overview

Every year in the construction industry, people are killed or injured as a result of being struck by vehicles and/or moving plant. Accidents occur throughout the construction process, from groundworks to finishing works. Managers, workers, site visitors and the public can all be at risk if construction vehicle traffic are not properly managed and controlled.

This plan gives practical guidance on how to prevent vehicle accidents in ALBA PS5B4 Project and its related vehicle operations outside the boundaries of the PS5B4 Project Site.

#### 6.1.2 Vehicle Operations in ALBA PS5B4 Project

The Consortium has forecast different vehicle operations to be conducted during the 29.5 month-duration of ALBA PS5B4 Project. The main vehicle operations identified are the following:

- Transportation of Personnel
- Heavy Equipment (Plant) operations within the PS5B4 Project site to conduct different construction activities such as:
  - Lifting Operations (including those related to material and equipment and personnel (MEWP)).
  - Earth Moving Operations
  - Concrete Pouring Operations
  - Water Spray/Pouring
- Transportation of Good, Materials and Equipment

With regard to transportation of personnel, the Consortium and its Subcontractors manpower has been forecast month by month as per the figure 1:

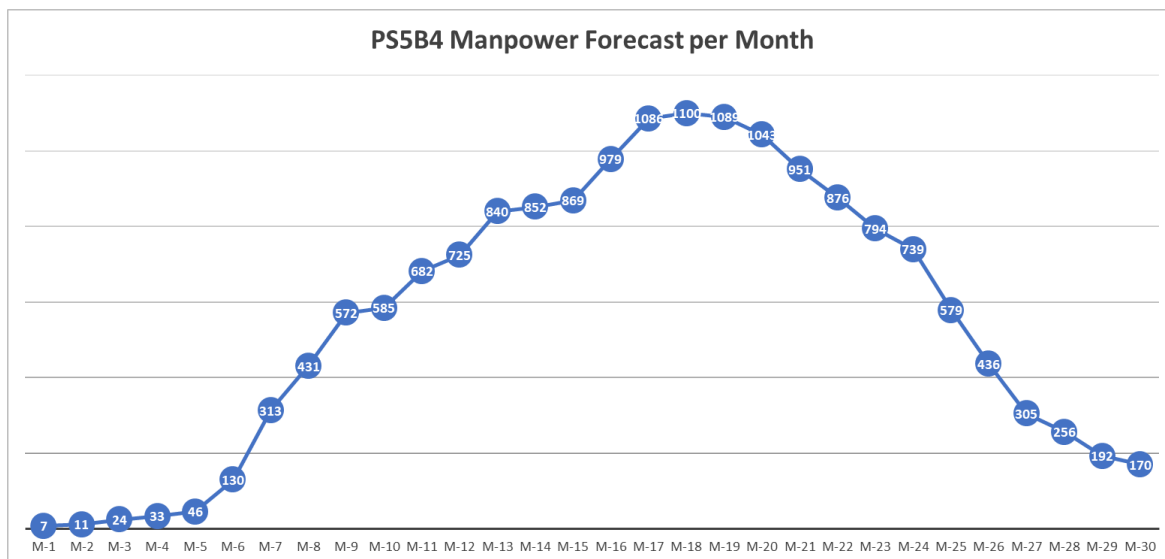


Fig. 1 – Forecast Manpower in PS5B4

Taking into account a 50-seat bus capacity, it is predicted that the number of buses at the peak time of PS5B4 Project is 22 buses. However, it is also predicted that manpower at the peak time will not be working altogether at the same time at the site, since work in shifts (3 shifts per day) has been planned. Having that into account, the expected number of personnel buses is predicted to be less than 22 units. Personnel buses will not enter the Construction site (see section 6.4).

With regard to company light/medium duty vehicles, it is forecast that the Consortium and its Subcontractors will have at a peak time, 20 vehicles. However it is also expected that some management and local staff use their own vehicles, condition which may consider having another 20 vehicles, which will totalize around 40 light/medium duty vehicles.

With regard to Heavy/Plant Equipment, table 1 shows a peak forecast of this type of vehicles. In total, it is expected to have around 37 heavy-duty vehicles, however it is not expected that such number of vehicles are present at site at the same time, since many of them will be mobilizing/demobilizing in different stages of the project (e.g.; excavators, other earth-moving equipment).

Table 1 also shows some equipment (tower cranes) that although it is fixed, it will impact the availability of space for traffic and roads at the site.

Type of Heavy/Plant Equipment	Peak No. in PS5B4
Excavator	6
Skid Loader	3
Backhoe Loader	2
Wheel Loader	1
Telehandler	2
Roller Compactor	1
Boom Truck	3
Mobile Crane 50T	1
Mobile Crane 75T	1
Concrete Pump	1
Mobile Crane 25T	1
Forklift	1



Type of Heavy/Plant Equipment	Peak No. in PS5B4
Crawler Crane 150T	1
Crawler Crane 260T	1
Mobile Crane 85T	1
MEWP	4
Mobile Crane 55T	2
Crawler Crane 600T	1
Tower Cranes	2
Mobile Crane 100T	1
Water Tanker	1
<b>Total:</b>	<b>37</b>

Table 1 – PS5B4 Heavy/Plant Equipment

With regard to Transportation of Good, Material and Equipment, the Consortium has identified that local vendors and suppliers will be delivering all kind of construction materials, spare parts, chemical substances, small size equipment that will be used during the construction and commissioning stage of ALBA PS5B4 Project. It is forecast that vendors and suppliers will be using light/medium-duty vehicles to make the deliveries. The 2 main points that vendors and suppliers will be delivering are:

- ALBA PS5B4 Project Site (20,000 m<sup>2</sup>)
- ALDUR Laydown (30,000 m<sup>2</sup>)

Suppliers and Vendors will be delivering goods in ALBA PS5B4 Project in the following way:

- At Main Gate where personnel will pick up the goods;
- In the laydown at west side of the site;
- Inside the site where the goods will be unloaded in storage locations.

Also, the main temporary storage area that the Consortium will use to store goods, materials and equipment will be the AL-DUR laydown. This laydown is located just beside SEPCOIII Bahrain offices in Al-Dur area. The laydown is the former storage location of AL-DUR II IWPP Project. Vendors and Suppliers will be unloading materials directly inside the laydown where the Procurement staff will be in charge of receiving such goods.

The Consortium didn't forecast the number of these vehicles as it is impractical to calculate such minor but multiple deliveries. However, the Consortium will implement controls in order to ensure that these deliveries are conducted efficiently so as to avoid unnecessary trips.

For medium, large and bulk goods, the Consortium will use regular trailers to transport them mainly from Khalifa Bin Salman Port to ALBA PS5B4 Project Site (for immediate installation in final location) and ALDUR Laydown where they will be transported to ALBA PS5B4 Project Site as per the planning of construction activities. Procurement Department has forecast that the number of trailers/trips that will be required during the life of the project are the ones shown in table 2:

Type of Shipment	Number of Trips/Trailers (total during the life of project)
Break Bulk Shipment	1,500
Container Shipment:	700

Table 2 – Number of shipment trips

With regard to abnormal loads, the Consortium will transport many equipment which requires a special type of transportation and permit to transit across Bahraini roads. As per the Bahrain's Roads Maintenance Section (RMS) of the Ministry of Works Roads Projects and Maintenance Directorate (RPM D), an abnormal load is considered that that exceeds the below criteria:

- Gross weight is 40 tons.

- Length is 18 meters.
- Height is 4 meters.
- Width is 2.5 meters.

The type of goods in ALBA PS5B4 Project which meets the above-mentioned criteria are the following:

- Large parts from the Air Cooled Condenser
- Transformers (GSU, UAT)
- By-pass and Main Stack Components
- Heat Recovery Steam Generator Components (including module harps and LP/IP/HP Drums)
- Gas Turbine (GT) and its components
- Steam Turbine (ST) and its components
- Generators

ALBA PS5B4 Project Abnormal Loads will be transported on ground from the Muharraq Engineering Jetty located in Sitra (East Bahrain) directly to ALBA PS5B4 Project site for immediate installation in their final location.

For these abnormal loads, the Consortium will subcontract a 3<sup>rd</sup> party transportation company specialized in this kind of transportation. The 3<sup>rd</sup> party transportation company will use a hydraulic module trailer which will be compatible with the dimensions and weight of the abnormal loads to be transported.

The Consortium has predicted that in case of contingencies where those abnormal loads cannot be installed in PS5B4 Project site immediately from the trailer to their final location, the abnormal loads will be transported to ALDUR Laydown where they will stay until clearance for reception in ALBA PS5B4 project site is given.

The Consortium has planned that total trips of abnormal loads are as per the figures in table 3.

Type of Equipment	Total Trips
Barge Loads	19
HRSB HARP	35
Others	26
<b>Total:</b>	<b>80</b>

Table 3 – Trips of abnormal loads

Having in consideration the above information, the Consortium has forecast the following number of trips at any given day during each of the project months (see fig. 2).

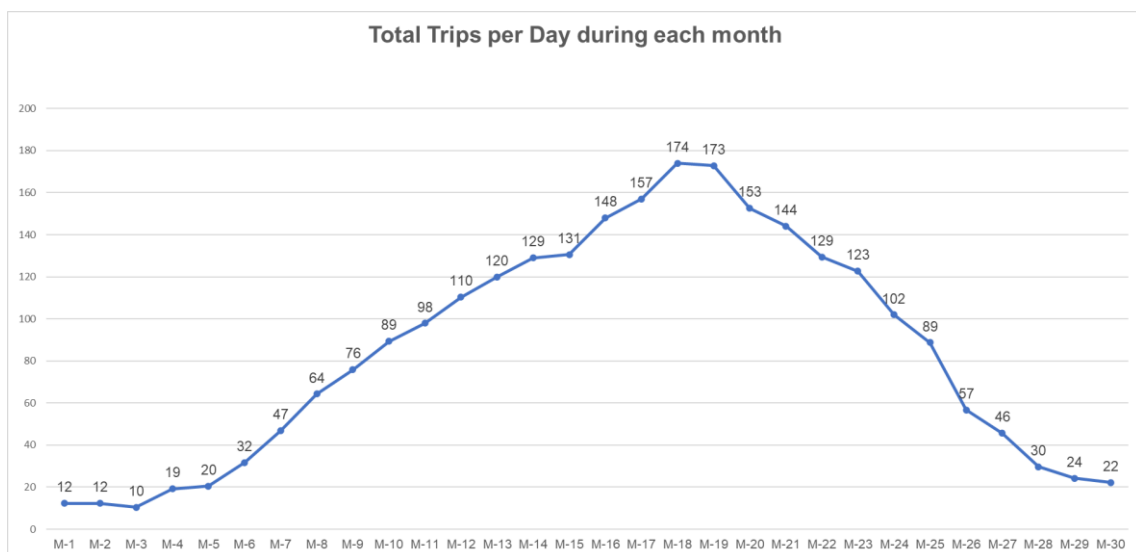


Fig. 2 – Trips per day during project months

Having in consideration the impact that the traffic will generate within and outside ALBA PS5B4 Project due to the transportation operations required by the project, the implementation of this Traffic Management Plan will be a top priority to the Consortium Management in order to avoid accidents involving vehicles, pedestrians, members of the public, pollution to the environment as well as private and public property damage.

### 6.1.3 Traffic Management Team

The Consortium shall designate a Senior Management Team among the Project Management Team, so the team can oversee the day to day responsibility for traffic management in ALBA PS5B4 Project Site and Laydown.

Staff members have been appointed to assist as part of the traffic management team and liaise with all other parties with regard to traffic management in all traffic operations related to ALBA PS5B4 Project. All appointments to the project traffic management team shall be in writing.

Name	Traffic management role
Senior HSE Advisor	Traffic Management Lead
Civil Manager	Traffic Coordinator
Procurement & Logistics Manager	Traffic Officer
HSE Manager	Traffic Officer
Construction Manager	Traffic Officer
Security Head	Traffic Officer
Environmental Advisor	Traffic Monitoring Officer

Table 4 – Traffic Management Team

All concerns or queries regarding traffic management should be addressed to those listed above.

The Traffic Management Team, in addition to their other responsibilities, shall be responsible for:

- Oversee the implementation of the traffic management plan;
- Deployment of Traffic Guards and common flagging signals;
- Deployment of traffic preventive control measures (Signage, speed limits, traffic lights, road condition, road management, speed humps, and general lighting);
- Parking and vehicle lay down areas;
- Segregation of vehicles and pedestrians;
- Vehicle maintenance areas & personnel.
- Approving, managing, developing, and communicating information regarding the TMP.
- Assisting workgroups in relation to the Traffic Management Plan.
- Ensure the Vehicle Gate Pass issuance process is conducted as per the Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015.
- Compliance of Training Requirements
- Review of Method Statements and Risk Assessments related to delivery of goods.
- Erection of temporary site roads;
- Road Closures and Traffic Diversions
- Routine vehicle / mobile plant checks & pre start inspections;

### 6.1.4 CESMP Traffic Controls Requirements

ALBA PS5B4 CESMP has identified the Access and Vehicular Traffic Mitigation Measures for the Construction Stage. Tables 5 to 10 list the Access and Vehicular Traffic Mitigation Measures to be implemented by the Consortium and its Subcontractors throughout the duration of the project.

The Consortium shall ensure to implement these mitigation measures and to monitor its compliance as per the section No. 6.1.16 of this plan.

Element	Management Plan
<b>Potential Impacts</b>	<ul style="list-style-type: none"> <li>• Impact on traffic conditions</li> <li>• Traffic impacts during transport of plant components</li> <li>• Impact on road sections</li> <li>• Impact on intersections</li> <li>• Impact on road infrastructure</li> <li>• Air Quality</li> <li>• Noise</li> </ul>
<b>Sources</b>	<ul style="list-style-type: none"> <li>• Construction traffic</li> </ul>
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Speed limits shall be set for on-site traffic.</li> <li>• Flagmen should be always present to signal moving machinery and equipment.</li> <li>• Signs that are reflective or adequately illuminated at night.</li> <li>• Warning signs on approach and departure from work site.</li> <li>• All other warning and regulatory sign</li> <li>• Where practical, deliveries should be undertaken outside peak periods in the morning and afternoon.</li> <li>• Construction material shall be delivered in bulk rather than in small quantities to reduce number of trips.</li> <li>• Coordinate with relevant authorities and neighbouring industries during delivery of heavy and abnormal material.</li> <li>• To mitigate traffic impacts associated with noise, dust and air emissions, air quality management measures and noise control measures shall be implemented.</li> <li>• A traffic management plan shall be developed by the Consortium.</li> <li>• Appoint a member of the Consortium's Project Team as Transport Coordinator.</li> </ul>
<b>General Monitoring</b>	<ul style="list-style-type: none"> <li>• Visual</li> <li>• Complaints should be investigated and, if appropriate, acted upon.</li> <li>• Environmental Advisor shall monitor the implementation of traffic management plan.</li> </ul>
<b>Responsible Persons</b>	<ul style="list-style-type: none"> <li>• Project Manager</li> <li>• Site Manager / Engineer</li> <li>• Environmental Advisor / Advisor</li> </ul>

Table No. 5 – CESMP's Access and Vehicular Traffic Mitigation Measures in Construction Stage

The CESMP has identified other potential impacts related to Access and Vehicular Traffic Operations in ALBA PS5B4 Project related to:

- Air Quality
- Noise and Vibration
- Health and Safety
- Socio-Economics
- Geology, Soils and Groundwater

In order to implement mitigation measures to control such impacts, the Consortium has prepared other procedures and plans to ensure systems are in place to manage such areas:

- PS5 Block 4 Health, Safety & Environmental Management Plan PS5-B4-01-YDC-GGP-SEP-00002
- PS5 Block 4 Emergency Preparedness and Response Procedure PS5-B4-01-YDC-GGP-SEP-00004
- PS5 Block 4 Project Lifting Operations Procedure PS5-B4-01-YDC-GGP-SEP-00007
- PS5 Block 4 Project Industrial Hygiene Procedure PS5-B4-01-YDC-GGP-SEP-00010
- PS5 Block 4 Project Hearing Conservation Procedure PS5-B4-01-YDC-GGP-SEP-00011

- PS5 Block 4 Construction Safety, Health, Environment and Social Monitoring Procedure PS5-B4-01-YDC-GGP-SEP-00016
- PS5 Block 4 Chemical Management and Hazard Communication Procedure PS5-B4-01-YDC-GGP-SEP-00020
- PS5 Block 4 Spill Prevention Procedure PS5-B4-01-YDC-GGP-SEP-00021
- PS5 Block 4 Refueling Operations Procedure PS5-B4-01-YDC-GGP-SEP-00022
- PS5 Block 4 Hazard Analysis and Risk Assessment PS5-B4-01-YDC-GGP-SEP-00038
- PS5 Block 4 Excavation Procedure PS5-B4-01-YDC-GGP-SEP-00040
- PS5 Block 4 Work at Nights Procedure PS5-B4-01-YDC-GGP-SEP-00044

### **6.1.5 General Traffic and Defensive Driving Rules**

The following rules shall be followed by all employees, drivers and operators in ALBA PS5B4:

Company Vehicles are to be used for PS5B4 Project specific business only. It is strictly prohibited to use vehicles without management authorization, no matter what company the vehicle belongs to.

A current, valid driver's license and/or other required 3<sup>rd</sup> party certification for the type and class of vehicle to be operated must be held by the individual prior to and during their operation of any vehicle.

It is strictly prohibited to drive and/or operate vehicles and/or heavy equipment without the corresponding driving license and/or the corresponding 3<sup>rd</sup> party certification issued by a MOL-approved agency, when required.

Allow only authorized passengers to ride in company vehicles.

Never overload vehicles beyond the capacity of seated persons of the vehicle.

Vehicles must be used for the purpose they have been assigned for. Never improvise the use of a vehicle for purposes different the manufacturer has designed it to.

Motorcycles shall not be used in ALBA PS5B4 Project premises.

Drivers/Operators that have been assigned a Company Vehicle shall assure that the vehicle is maintained in accordance with manufacturer's recommendations.

Under no circumstance should anyone operate a vehicle if they believe it is not in safe working condition.

The vehicle driver/operator shall ensure that the vehicle they are operating has the appropriate vehicle registration and insurance coverage in place prior to driving.

Personnel shall not operate a vehicle when they are in such a mentally or physically impaired condition that they are not able to properly operate the vehicle in a safe manner. This includes conditions such as operating a vehicle while under the influence of drugs, medicines, or alcohol, or when under conditions of extreme stress, fatigue, or any other physical or mental impairment that may hinder safe vehicle operation.

All vehicle shall be included under a formal preventative maintenance and inspection program, as per manufacturer's recommendations.

Prior to use of any vehicle, a pre-trip vehicle inspection must be conducted by the designated driver/operator. The driver/operator should walk around the vehicle's exterior and look for potential safety hazards such as cracked windshields, missing mirrors, defective tires, and other vehicle body damage or defects. Exterior and/or interior defects should be reported to the responsible Manager/Supervisor immediately.

Drivers/Operators should familiarize themselves with interior features and controls and make appropriate adjustments, e.g., seat, mirrors, necessary to assure safe operation.

Vehicle drivers/operators shall avoid any activity or distraction that may prevent safe motor vehicle operation, including the use of cellphones/two-way radios while driving, tuning the radio, documentation reading, eating, etc.

Drivers shall not be permitted to use company-owned and/or personal cell phones (or any other type of two-way communication device), whether for personal or company business purpose, while operating any vehicle. Drivers shall pull over, park the vehicle safely, and then use the device. Due to the potential for distraction, using the "hands-free" phone mode is not permitted while driving any vehicle. A "two-way communications device" shall include, but is not limited to:

- Mobile phones
- Two-way radios (including vehicle-installed, hand-held radios, and walkie-talkies)
- Pagers

The Speed Limit within the PS5B4 Project site is 10 km/hr. All drivers and operators shall respect the speed limit. Inappropriate driving will result in the vehicle being stopped from entering the Project and the removal of driver/operator from driving duties.

Overtaking is strictly prohibited in PS5B4 Project Site.

Seatbelts must be worn always by Drivers, Operators and Seat Passengers when the vehicle is in operation.

All vehicles entering the site (either light, medium or heavy duty) must be accompanied by a Flag Man.

All vehicles entering the site must be fitted with Orange Beacon (revolving light). Beacon Lights must be used at all times.

Indicators must be used when turning.

Give priority to personnel crossing roads and where there is no segregation between vehicle and pedestrian allow adequate space.

Vehicles' drivers/operators must follow the traffic system and obey signage.

Drivers and operators leaving vehicles, when being within the project site, must wear the PS5B4 Site mandatory PPE.

Vehicles are not to be left unattended with engines running.

All vehicles must have an approved Gate Pass and must have the Gate Pass on display.

Drivers and operators shall operate vehicles in accordance with applicable Bahraini laws and regulations.

Vehicles must be inspected prior to each shift by the designated driver/operator.

Drivers and operators are responsible to ensure that lights, signals, horn, and brakes are in proper working condition.

Drivers and operators must observe posted speed limits at all times while driving on or off the project.

Drivers and operators must maintain a safe distance between vehicles. A safe distance means having enough time and distance between vehicles to allow for emergency braking to avoid an accident.

Drivers and operators must obey traffic signs, signals, and other postings while operating vehicles.

Drivers and operators must operate vehicles with headlights and revolving light on at all times.

It is strictly prohibited for drivers and operators to leave vehicle running unattended. This policy will be strictly penalized.

Drivers and operators must shut off motor to refuel. NO SMOKING or operating mobile/cell phones while refueling.

Drivers and operators must yield to pedestrians at designated crossings and other areas indicated by signs.

Vehicles must come to a complete stop to load and unload passengers.

Drivers and operators must park only in designated areas.

Drivers and operators must not read maps or any other printed information while the vehicle is in motion.

All drivers and operators to switch off vehicles and heavy equipment when not in use.

Drivers not authorized to stay in vehicles.

Drivers, operators and pedestrians shall respect the position of all hard barricades at the project site. Any person found removing and/or altering hard barricades without management authorization will be penalized.

All operations with rotating heavy equipment (e.g.; excavators, cranes, MEWPs) shall be hard-barricaded according to the affected operational radius of the operation/equipment. When the hard barricades block roads, a Road Closure Work Permit shall be issued for that purpose and the PS5B4 Project Traffic Plot Plan shall be updated and communicated accordingly across ALBA / ESBI / Project Management / Subcontractors / Vendors / Suppliers.

Heavy equipment and Vehicles must have rear vision aids and/or mirrors in perfect condition.

Keep visual warning lights (reverse lights, revolving light) on at all times and use audible alarm warnings when reversing.

Employees shall use of pedestrian walkways at all times.

Employees shall ensure to watch all sides where vehicles may potentially approach when crossing intersection of roads and pedestrian walkways.

Employees shall respect vehicles when they are too close to attempt to cross a road.

#### **6.1.6 Drivers & Operators Authorization Requirements**

All Consortium, Subcontractors, Suppliers and Vendors drivers and operators, including those for light/medium/heavy vehicles/equipment shall require having an approved gate pass to drive and enter ALBA PS5B4 Project Site. All those drivers/operators shall comply with the PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015 in order to have a valid gate pass.

Visitors will not be allowed to drive within ALBA PS5B4 Project Site. When required, visitors shall be taken within ALBA PS5B4 Project Site roads with an approved Consortium management representative and a driver and vehicle with PS5B4 valid gate passes.

### 6.1.7 Vehicles & Equipment Authorization Requirements

All vehicles (light/medium/heavy vehicles/equipment) shall require having an approved gate pass to enter ALBA PS5B4 Project Site. The Consortium, Subcontractors, Suppliers, Vendors and Visitors shall comply with the PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015 in order to get a valid gate pass.

### 6.1.8 Security Requirements for Access and Egress from ALBA PS5B4

Access and egress of vehicles, heavy equipment and pedestrians shall comply with the provisions of the PS5B4 Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015.

### 6.1.9 Equipment Inspection and Maintenance Requirements

As part of the requirements to issue PS5B4 vehicle/equipment gate passes, the unit will undergo a thorough inspection by the Consortium in order to verify that it is in good condition to assure a safe use. The inspection will be conducted by a member of the Construction Mechanical Team and an HSE Advisor. Depending on the type of vehicle/equipment the inspection team will use a different checklists to conduct the inspection (See Attachment No. 4). The inspection record will be filled out and signed by the inspection team who will determine whether the unit is approved or rejected to be used for PS5B4 Project purposes. The inspection record will be added to the file of the equipment. If approved, the Security Team will issue the corresponding gate pass if the vehicle/equipment has all the requirements for that purpose (See Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015). The Vehicle/Equipment gate pass will be issued with an expiration date of 1 year after the Consortium inspection date or up to the expiration date of the driving license of the driver or the expiration date of the 3<sup>rd</sup> party certificate issued by a 3<sup>rd</sup> party agency approved by the Bahraini Ministry of Labour, whichever is earlier.

If rejected, the owner company of the vehicle shall then have to repair/remediate all the findings identified during the inspection and then to present the unit for Consortium re-inspection. The Consortium HSE Advisor/Mechanical Engineer shall verify that a new 3<sup>rd</sup> party certificate has been issued to verify that the equipment is inspected by a 3<sup>rd</sup> party agency approved by the Bahraini Ministry of Labour (see table No. 6 for the equipment that require 3<sup>rd</sup> party inspection certificates).

Equipment requiring 3 <sup>rd</sup> party inspection certificates by MOL approved agencies
Excavator
Skid Loader
Backhoe Loader
Wheel Loader
Telehandler
Roller Compactor
Boom Truck / Hiab
Grader
Mobile Crane (Any capacity)
Concrete Pump Trucks
Forklift
Crawler Crane (Any capacity)
All Mobile Elevated Working Platform types
Hydraulic Trailers designated for abnormal load transportation
Other equipment/vehicle may be required to comply with this provision as per the assessment of the Construction and HSE Managers.

Table 6 – Heavy Equipment that required 3<sup>rd</sup> party certification

Once the vehicle/equipment has its approved PS5B4 gate pass, the driver/operator in charge of the unit will require to conduct a daily inspection by using the corresponding checklist (See Attachment 4) and to keep it



in the unit, for inspection/audit purposes. In case of the driver/operator finds any condition in the unit that needs to be repaired and/or correct, the driver/operator shall put the unit out of operation and communicate it to his immediate supervisor to remediate the identified condition.

Repairs shall be conducted in a designated area prepared by the equipment's owner company in ALBA PS5B4 for that purpose. In the case the equipment's owner company does not have a designated repairing area, then the unit shall be removed from the site. Security Team shall ensure to take the gate pass when the unit leaves the site. When the unit is repaired, the Security Team will require the Consortium HSE Advisor/Mechanical Engineer to re-inspect the unit to verify conformance to hand over the gate pass to the unit operator again. For those heavy equipment listed in table No. 11, the Consortium HSE Advisor/Mechanical Engineer shall verify that a new 3<sup>rd</sup> party certificate has been issued to verify that the equipment is inspected by a 3<sup>rd</sup> party agency approved by the Bahraini Ministry of Labour.

Maintenance will be conducted at a minimum in ALBA PS5B4 site. All companies shall be required to conduct maintenance and repair outside ALBA PS5B4 Project site. However, in the event of vehicles/equipment unable to move, maintenance shall follow compliance of Work Permit Procedure (PS5-B4-01-YDC-GGP-SEP-00003) along with Method Statement and Risk Assessment. Records shall be kept on all maintenance activities and maintained for the duration of the vehicle's use on the project. Subcontractor has to submit the records whenever the Consortium requests.

In order to reduce the corrective maintenance to vehicles/heavy equipment, all companies owner of vehicles/equipment in ALBA PS5B4 shall ensure to implement a written Vehicle/Heavy Equipment Preventive Maintenance Plan and Schedule which will describe all the preventive maintenance routines to be conducted to the vehicles/heavy equipment through a schedule. The preventive routines shall meet the requirements specified in the Operation and Maintenance Manual of each vehicle / heavy equipment. All preventive maintenance to vehicles/heavy equipment shall be properly documented in the file of each equipment.

#### **6.1.10 Work at Night Requirements**

All Work at Night shall comply with the PS5B4 Work at Night Procedure (PS5-B4-01-YDC-GGP-SEP-00044), including the driving of vehicles and/or heavy equipment in the temporary roads within the PS5B4 project site.

All routes shall be properly illuminated, and blinking lights be provided along hard barricades delimiting excavations and/or other temporary/permanent facilities.

Drivers and heavy equipment operators shall keep the headlights on at all times as well as their revolving light.

Other provisions shall also be implemented such as but not limited to:

- Lighting towers for illumination of all roads
- Night light batons to flagmen (red/green)
- Flagmen with proper reflective strips on Hi-Viz vest.

#### **6.1.11 Noise Generation and Monitoring**

The traffic operations in PS5B4 Project is expected to generate noise. Excavators, cranes and other heavy equipment are expected to be the main noise generators.

The Consortium Environmental Advisor shall ensure to conduct Noise Monitoring as per the requirements of the PS5B4 CESMP (ENV-RJC-20-00070-PS5-CESMP-01).

The Consortium Environmental Advisor shall ensure to implement the PS5 Block 4 Project Hearing Conservation Procedure PS5-B4-01-YDC-GGP-SEP-00011 in order to ensure that personnel is protected accordingly from the noise hazard exposed when working close to noise sources.

### **6.1.12 Refueling Operations for Vehicles**

Vehicles and Heavy equipment refueling shall comply with the PS5 Block 4 Refueling Operations Procedure (PS5-B4-01-YDC-GGP-SEP-00022) and PS5 Block 4 Spill Prevention Procedure (PS5-B4-01-YDC-GGP-SEP-00021)

All refueling operations shall be conducted through the PTW System Procedure PS5-B4-01-YDC-GGP-SEP-00003

Method Statement and Risk Assessment must be part of the PTW Package for refueling operations.

An area for refueling operations shall be designated. The area shall be prepared in order to protect the ground from fuel dripping and/or large spillages. All vehicles shall ensure to refuel in such area. When justified reason to conduct refueling in the location where the vehicles are operating, the refueling operation will be allowed. However, all the provisions listed in both Refueling Operations and Spill Prevention Procedures shall be followed in such area.

Fire Warden shall be present during the refueling operation.

Fire Extinguishers and Spill Kits must be available during the refueling operations.

### **6.1.13 Traffic and Weather Conditions**

On a daily basis, the Consortium's Environmental Advisor will be sharing across all construction and management teams of all companies in ALBA PS5B4 Project, weather reports in order to identify control measures to be implemented when adverse conditions are forecast in Bahrain. The potential adverse weather conditions and its outcomes, in Bahrain are the following:

- Heavy Rain
- Floods
- Sand Storm
- Heavy Fog

Depending on the severity of the adverse weather condition, the Consortium Management will assess the implementation of the following control measures, among others:

- Temporarily stop the Construction Operations
- Assessment of the project site after being exposed to adverse weather conditions
- Minimize and/or stop deliveries of goods
- Verify integrity of the project site in order to identify requirements to repair roads, excavations, ramps, pedestrian walkways, etc.
- Repair of roads removing water puddles and mud and/or any other unsafe condition
- Re-inspection of vehicles after being exposed to sand storm, mud, heavy rain
- Repair, replace and/or re-installation of traffic site provisions damaged or missing.

All drivers and operators of vehicles shall be trained on Defensive Driving in order to identify the safest ways to operate/drive vehicles in adverse weather conditions.

### **6.1.14 Traffic Emergency Preparedness and Response**

All Traffic-related emergencies occurring within ALBA PS5B4 Project Site boundaries shall be managed as per the PS5 Block 4 Emergency Preparedness and Response Procedure PS5-B4-01-YDC-GGP-SEP-00004, the First Aid Unit Management Procedure. Also, the provisions listed in the PS5B4 Spill Prevention Procedure

(PS5-B4-01-YDC-GGP-SEP-00021) and the Fire Prevention and Protection Procedure PS5-B4-01-YDC-GGP-SEP-00056 shall be implemented throughout the Project site and laydowns.

All Traffic-related emergencies occurring outside ALBA PS5B4 Project Site due to the transportation operations related to the PS5B4 Project shall be managed as per the Traffic Emergency Preparedness and Response Guide included in the Attachment 6.

#### **6.1.15 Incident Reporting and Investigation**

All incidents and/or near misses where company vehicles are involved shall be immediately reported, no matter how minor the occurrence is, to the direct manager/supervisor of the driver/operator involved and/or the HSE Advisor of the company involved.

All Traffic-related incidents and near misses occurring, due to ALBA PS5B4 Traffic Operations, shall be reported and investigated as per the PS5 Block 4 Project Incident Investigation and Reporting Procedure PS5-B4-01-YDC-GGP-SEP-00013

#### **6.1.16 Traffic Management Performance Monitoring**

The Consortium will ensure that the compliance of the provisions stated in this plan are monitored. The Consortium will monitor the Traffic Management Plan implementation as per the PS5 Block 4 Construction Safety, Health, Environment and Social Monitoring Procedure PS5-B4-01-YDC-GGP-SEP-00016.

The consortium HSE Advisor shall ensure that the Vehicles, Drivers and Operators Register (see Attachment 3) is kept updated on a daily basis and communicated to ALBA and ESBI representatives, as well as the Consortium, Subcontractors, Suppliers and Vendors working onsite in PS5B4 project.

Vehicles, Drivers and Operators will be monitored in such way that in case any of the corresponding documentation is expired, the vehicle and/or the driver/operator is restricted from conducting operations.

#### **6.1.17 Training Requirements**

The Consortium shall ensure that awareness training sessions are conducted across all PS5B4 Project personnel from the Consortium, Subcontractors, Suppliers, Vendors, Visitors as well as the ALBA representatives, especially those from the ALBA Emergency Services. The aim of the TMP Training is to avoid:

- Congestions of roads due to unsafe use of roads along the way from the delivery departure to the ALBA PS5B4 site destination (i.e., parking in unauthorized areas, use of roads in the opposite direction of the authorized traffic flow).
- Accidents to 3<sup>rd</sup> party vehicles and to pedestrians and the general public.
- Traffic violations and fines from the authorities
- Delays in deliveries
- Unauthorized use of vehicles
- Unauthorized access to vehicles/drivers.
- Use of unsafe routes to make the deliveries to the ALBA PS5B4 site.
- Overspeed for "urgent" deliveries
- Damage of roads and/or any other public/private facility on the route from the delivery departure point to the ALBA PS5B4 project site.
- Pollution of the Environment
- Complaints from Stakeholders

The Consortium will ensure to communicate this Traffic Management Plan to all personnel in PS5B4 through

the HSSE & SR Induction process.

Toolbox Talks shall also be used by Site Supervisors to communicate Traffic Management requirements which must be part of the Risk Assessment for the ongoing construction activities.

Traffic Management Team members, HSE Advisors, Security Team members, Flagmen, Traffic Guards, Drivers and Heavy Equipment Operators shall have a specific TMP awareness session as well as a Defensive Driving session, as part of the HSE induction program. Drivers and Heavy Equipment Operators shall have a refresh awareness session every 6 months, when significant changes occur in the TMP, when traffic-related near misses' trends are high and/or when the occurrence of traffic accidents.

The Consortium and its Subcontractors will ensure to appoint Flagmen for all transportation activities within the PS5B4 Project site boundaries. Every company will identify the candidates to fulfill the Flagmen positions for their own transportation activities as well as traffic control for the project's roads. Once identified, the candidates will attend the following courses in addition to the HSE Induction session:

- Traffic Management Plan awareness training
- Defensive Driving awareness training
- Flagmen responsibilities training course which will include:
  - Classroom session
  - Practical session

Every candidate will be subjected to a controlled practical test in order to verify that the knowledge and his responsibilities have been understood accordingly. Once the candidate is approved, the candidate will be officially appointed in written by the Traffic Management Team Lead and HSE Manager, for his role to fulfill. The appointment letter will be archived in the HSE File for all the duration of the project.

In addition to the courses mentioned above, the Traffic Management Team members as well as Security Team shall attend the following awareness sessions:

- Traffic Management Plan
- Security Management Plan
- Defensive Driving
- Excavation Safety
- Lifting Operations
- PTW and Risk Assessment
- Incident Reporting and Investigation
- Emergency Response Plan
- Refuelling Operations

The Traffic Management Plan and Defensive Driving Sessions shall include but not limited to:

- General Traffic and Defensive Driving Guidelines
- Refueling Operations requirements
- Spill Prevention
- Fire Prevention and Protection
- Importance of hard barricades in the site
- Switched off of vehicles when not in operation
- Importance to respect pedestrians.
- Policy on prohibition to leave equipment unattended when in operation.
- Speed Limits
- Basics on Works and Driving Operations at Night
- Preventive Maintenance requirements for vehicles.
- Prohibition of use of mobile while driving
- Awareness session about Safe Use of Parking Area.
- Respect of designated routes, pedestrian walkways, pedestrians and public in general.
- Safe Personnel Bus Operations for getting off/getting on in the authorized bus stop.
- Basics on Bahrain's Traffic Law.

- Good's delivery timings at project site.
- Consequences to use unknown roads while doing deliveries and/or prohibited routes.
- Traffic Emergency Response Procedure.

Drivers, Operators and all employees involved in refueling operations shall attend the following training sessions:

- HSSE & SR Induction
- Refueling Operations
- PTW
- Hazard Identification and Risk Assessment.
- Spill Prevention
- Emergency Preparedness and Response Plan
- Fire Prevention and Protection

Drivers, operators and other employees involved in the process to delivery of goods (Procurement Department, Security Team), depending on the scope of the delivery, at project site and laydown shall be trained on the requirements of:

- Lifting Operations Procedure,
- Security Management Plan,
- PTW Procedure
- Chemical Management and Hazard Communication
- Spill Prevention
- Fire Protection and Prevention
- HSSE & SR Induction
- Hazard Identification and Risk Assessment
- Traffic Management Plan
- Emergency Preparedness and Response.
- Manual Handling

Traffic Guards shall be trained on the provisions for the safe use of the Parking Area and Bus Stop Requirements, which will include:

- Specific training to traffic officer(s) designated to control parking area.
- Housekeeping of parking areas.
- Access/Egress in Parking Area.
- Emergency Response Guide and Emergency Communication requirements.
- Conduct mock drills on the potential emergency scenarios in parking areas.
- Safe operations to get off/get on personnel buses during arrival and/or departures.

All staff involved in the transportation of abnormal loads (either from the Consortium or from the 3<sup>rd</sup> party transportation company) shall be briefed on the following before the operations starts:

- Approved Method Statement and Risk Assessment for the transportation.
- Requirements of the Abnormal Load Permit issued by the Ministry of Works Roads Projects and Maintenance Directorate
- Traffic Management Plan
- Emergency Response Plan prepared for the transportation of the abnormal load.

## **6.2 Traffic Management within PS5B4**

### **6.2.1 Risk Assessment**

ALBA B.S.C. conducted an Environmental and Social Impact Assessment (ESIA ENV-RJC-20-00070-PS5-ESIA-01) for the construction and operation of ALBA PS5B4 Project. Based on the PS5B4 ESIA report, the PS5B4 Project's Construction Environmental and Social Management Plan (See doc. No. ENV-RJC-20-

00070-PS5-CESMP-01) was prepared. The CESMP includes the mitigation measures to be implemented by the Consortium during the construction stage of the project with regard to Access and Vehicular Traffic (See section 6.1.4 – tables 5 to 10).

In addition to the ESIA assessment of the Access and Vehicular Traffic of PS5B4 Project, the Consortium conducted a Traffic Impact Risk Assessment for the expected traffic to occur within the PS5B4 boundaries (see Attachment No. 1.1) for ALBA PS5B4 Project construction operations. The Risk Assessment was prepared based on a forecast of Transportation of Goods and Personnel as well as the deployment of Heavy Equipment to conduct the construction activities in PS5B4 Project site (See section 6.1.2). The Risk Assessment includes requirements/controls for the following cases:

- Access/Egress of vehicles to/from the PS5B4 Project site
- Access and Operation of Heavy Equipment and Vehicles to ALBA PS5B4.
- Ongoing progress of Construction Activities over Temporary Roads inside PS5B4 Project Site
- Delivery of Goods at site

The Risk Assessment identifies controls that shall be complied with by the Consortium, the Subcontractors, Suppliers and Vendors as per their scope of works in ALBA PS5B4 Project. Those controls are described in sections 6.2.2 to 6.2.5

The Traffic Management Team will be in charge of the implementation, coordination and follow up of the Risk Assessment as well as its update when required.

The mitigation controls listed in this section shall be include in presentations specific for the induction into the Traffic Management Plan awareness.

## **6.2.2 Access/Egress of vehicles to/from the PS5B4 Project site**

All vehicles light/medium/heavy-duty shall follow the Security Management Plan (See doc. No. PS5-B4-01-YDC-GGP-SEP-00015) provisions to issue permanent/temporary vehicle gate passes, to receive deliveries, to remove material/equipment from the site.

On every access to the site, the Security team shall provide the basic safety guidelines to all drivers and operators (e.g. speed limit, respect of pedestrians, beacon light on, no overtaking, etc.).

On every access to the site, the Security Team shall conduct a visual inspection of the vehicles in order to identify their integrity. Vehicles with significant bumps, dents or other damages shall be prohibited from entering the site.

The Consortium HSE Department shall conduct Monthly Audits to the Security Team to verify compliance on the Security Management Plan implementation.

The Security team shall ensure that, when leaving the project premises, all vehicles shall be in safe, good and cleaning condition so as not to provoke any accident and/or pollution over the public roads. These includes but not limited to:

- Excavated material shall be properly covered and not exposed in dump trucks
- Tires must be cleaned and free from mud or excessive sand;
- No dripping/leaks/splashes of chemical substances when transported
- No dripping/leaks/splashes of diesel/oil/coolant from the engine of the vehicle
- Not excessive overloading of the capacity of the vehicle
- No transportation of goods overhanging out of the vehicle.

Traffic Management Team (TMT) shall develop a forecast of site vehicles and heavy equipment to be deployed on monthly basis throughout the project life. TMT shall determine the maximum allowable vehicles/heavy equipment onsite based on the availability of space at site. This measure shall be strictly followed in order to

avoid collisions, traffic jams, and/or high potential risk of pedestrian runover at site. The maximum allowable vehicles/heavy equipment to be deployed onsite shall be communicated to the Security Team so restrictions are implemented when construction teams may attempt to exceed such maximum allowable vehicles/heavy equipment onsite. Priorities shall be managed by the TMT and the Construction Teams impacted by such restrictions.

All vehicles accessing to PS5B4 Project site shall be escorted by a flagman (bearing a green/red flags, or green/red light batons during the hours of darkness).

Security Team shall be trained on their responsibilities listed in the Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015) and their responsibilities listed in this plan for the proper control of entry/exit of vehicles at site.

HSSE & SR Induction, Traffic Management Plan and Defensive Driving Awareness Sessions shall be given to all employees and especially to the TMT, drivers, operators, flagmen and the Security Team.

Safety signs such as "STOP" signs shall be provided at least 5 meters away from each side of the Main Gate of PS5B4. A white line shall be painted over the road in order for the driver/operator to identify the exact point to stop the vehicle to wait for inspection by Security Guards when entering/exiting to/from PS5B4 Project.

The Consortium shall install a Security System of CCTV in order to record relevant activity in the main gate.

### **6.2.3 Operation of Heavy Equipment and Vehicles in ALBA PS5B4.**

#### **6.2.3.1 Temporary Roads and Temporary/Permanent Facilities**

The PS5B4 Traffic Management Team shall designate temporary safe vehicle routes throughout the project. The Traffic Management Team shall ensure to identify the corresponding Consortium or Subcontractors Supervisors in charge of the work zones in the PS5B4 site and to advise the provisions to be made to provide the required temporary roads.

The PS5B4 TMT will develop the ALBA PS5B4 Project Site Traffic Management Plot Plan (See Attachment 2.1). The Plot Plan will show the ongoing construction zones and the temporary roads designated all over the project site to reach those zones by the construction vehicles, heavy equipment and the vehicles dedicated for emergency purposes (Consortium designated emergency vehicle, ALBA fire truck, ALBA Ambulance, etc.).

The Plot Plan will also identify the corresponding pedestrian walkways that the PS5B4 personnel shall utilize to access those zones. The Plot Plan will be utilized by the supervisors in charge of the work zones to prepare their own Fire Evacuation Plan and its drawing for the location of emergency equipment and emergency exits, etc., as per the PS5B4 Emergency Response Plan (See doc. No. PS5-B4-01-YDC-GGP-SEP-00004 section 6.2). In correspondence, those work zones supervisors in charge will communicate their plans to the Traffic Management Team in order to prepare a master Emergency Evacuation Plot Plan which will combine both, the emergency facilities in each work zone and the temporary roads with the pedestrian walkways. This Master Emergency Evacuation Plot Plan will be communicated by the Traffic Management Team head to ALBA Representatives, ALBA Emergency Services, ESBI, the Consortium and all Subcontractors, Suppliers and Vendors working in the project, through emails and through toolbox talks and specific awareness sessions to all the employees. Procurement Manager will ensure to communicate it as well in advance to all external suppliers that may be scheduling deliveries of goods at site.

Temporary roads shall be graded and compacted (avoid loose soil) prior to use. Road ground shall be prepared to be able to support the weight of heavy equipment and the expected traffic.

All unpaved roads must be water-sprayed on a daily basis in order to avoid dust in the environment. Environmental Advisor shall ensure that this requirement is fulfilled at all times.

PS5B4 Project site will have 3 ramps for access from the main gate road to the construction site. As the construction site will be very dynamic and changes will be required to be conducted as the construction activities progress, these ramps will be open and/or close for traffic. The TMT will ensure to take decisions on opening/closing the ramps as per the requirements for the construction team and the safe access of vehicles to the project site. TMT shall ensure that ramps are properly erected and maintained and that the required gradient is established for the safe access/egress of vehicles (e.g.; MEWPs, see PS5B4 Mobile Elevated Working Platform Procedure PS5-B4-01-YDC-GGP-SEP-00045). Road's gradient must be kept at a minimum and/or as per the requirements of the heavy equipment manufacturers. Ramps and all site edges shall be hard barricaded along such edge. Blinking lights shall be provided along the hard barricade in order to warn drivers and operators about the limits of the roads.

The safe vehicle route shall have traffic and speed limit signs posted along the route. The maximum speed limit in ALBA PS5B4 is 10 Km/hr. Signs shall be of sufficient size and, shall be elevated to such height that can be visible to drivers, operators and pedestrian. Appropriate warning signs, as per the examples shown below, shall be posted. Where possible, signage shall be in multiple languages.



Fig. 3 – Traffic Safety Signs

Excavations shall be protected with hard barricades when being adjacent to traffic routes/roads. Blinking warning lights shall be installed should no other means of illumination be provided. Roads shall be at least 1.5 meters away from the edge of any kind of excavations at site. The Traffic Management Team shall ensure that the PS5B4 Excavations Procedure (PS5-B4-01-YDC-GGP-SEP-00040) is thoroughly implemented throughout the project site.



Fig. 4 – Traffic Blinking Lights

For construction operations at night, the lighting provided to illuminate roads shall comply with the levels specified in the PS5B4 Work at Night Procedure (PS5-B4-01-YDC-GGP-SEP-00044).

TMT shall ensure that the site is established as reasonably as possible in a one way system in order to avoid reversing as much as possible.

Temporary Office Portacabins/Containers and welfare facilities shall be located as far as possible from temporary roads. When not feasible, temporary offices and welfare facilities shall be hard barricaded and properly signed so they can be easily adverted by drivers and operators.



ALBA PS5B4 Project site has several permanent facilities in operation (e.g.; fire water pipeline along the north road, electrical room in north side), related to ALBA Plant. The Consortium shall ensure to protect such permanent facilities with hard barricades and when starting work at nights, the hard barricade shall be provided with blinking lights along its length.

All roads within PS5B4 Project site have a speed limit of 10 Km/hr.

### 6.2.3.2 Pedestrian & Vehicle Traffic Interface Requirements

The project Traffic Management Team shall ensure that the Consortium and/or Subcontractors Work Zone Supervisors in Charge provide safe access/ egress to site temporary facilities and to the corresponding work zones.

Pedestrian routes should be clearly separated from vehicle routes by fencing and/or hard barricading; be wide enough to safely accommodate the number of people likely to use them at peak times; allow easy access to work areas; be kept free from obstructions and tripping hazards; have clear signs designating it as a pedestrian route and be illuminated for use in hours of darkness.

The project traffic management team shall ensure that pedestrian routes are at safe distance away from the edge of vehicle routes. Where vehicles are present for only short periods, and the work presents little risk to pedestrians, satisfactory segregation can be achieved using traffic cones and warning tape or similar means to identify the working area from which pedestrians are prohibited.

In some circumstances it may not be reasonably practicable to achieve physical segregation between pedestrians and vehicles, for example during infrequent, short-duration, low-risk unloading operations. In such cases, subcontractors and/or teams in charge shall provide Traffic Guards that will coordinate the pedestrian and vehicle traffic at all times.

Pedestrian access shall be routed via the defined access points to prevent unauthorized entry to the site.

Crossing points shall be established so drivers/operators extreme precautions while approaching of such crossing points. Signs will be provided where vehicle routes cross pedestrian walkways.

Clear signs and instructions to pedestrians, drivers and operators shall be displayed accordingly throughout pedestrian walkways and intersections.



Figure 5 – Traffic Signs

### 6.2.3.3 Traffic Guards & Flagmen

Traffic Guards shall be deployed onto the site to control traffic flow at busy junctions or public interfaces. Traffic Guards shall be suitably trained and competent to fulfill their duties (See section 6.17 of this procedure). Traffic Guards shall control traffic movement on all major site roads.

Also, Flagmen shall be deployed with individual or groups of vehicles / heavy equipment working in a specific location. Flagmen shall be suitably trained and competent to fulfill their duties.

Traffic Guards and Flagmen shall wear high visibility clothing at all times. If environmental conditions are poor and visibility extremely low (e.g., sandstorm or fog) then Traffic Guards and Flagmen shall be withdrawn, and vehicle movement suspended.

Traffic Guards and Flagmen shall maintain constant contact with vehicle traffic / heavy equipment. Signal flags (1 red and 1 green) and whistles shall be provided to Traffic Guards and Flagmen to ensure clear communication with drivers/operators.

Traffic Guards and Flagmen shall be trained on the proper use of the Red Flag (Stop vehicles from keep circulating) and the Green Flag (Allow vehicles to circulate).

Vehicle drivers / heavy equipment operators failing to comply with Traffic Guards/Flagmen signals shall be removed from the site.

Flagmen shall normally be provided with a whistle and shall use hand signals to control the specific vehicle/group of vehicles under their control. Vehicle drivers / heavy equipment operators shall comply with instructions from the Flagmen at all times.

Flagmen shall ensure that reversing vehicles are monitored at all times and pedestrian traffic diverted away from working vehicles/heavy equipment.

Flagmen will be provided and trained by each Subcontractor or company in charge of the vehicles and the safe traffic of those vehicles shall be the responsibility of the relevant Subcontractor or company in charge.

Traffic Guards shall watch over drivers/operators to monitor that they are respecting speed limits and traffic rules. Traffic Guards shall ensure to approach drivers/operators to make them aware of the violation. Traffic Guards shall provide information of drivers/operators overspeeding to the Traffic Management Team so corrective actions can be implemented in order to avoid recurrence.

#### **6.2.4 Ongoing progress of Construction Activities over Temporary Roads inside PS5B4 Project Site**

Throughout the duration of the project, the Consortium expects that from time to time, some of the temporary roads established in the project site, are closed due to the ongoing construction activities. The Consortium will ensure to communicate through the HSE Induction process to all companies and employees the prohibition to close roads for any reason whatsoever without Consortium management approval.

Those construction teams that require to close roads to progress on the construction activities, shall ensure to submit a Road Closure Permit request. The Road Closure Permit shall be issued as per the PS5B4 Permit to Work Procedure (See doc. No. PS5-B4-01-YDC-GGP-SEP-00003)

Road closure is not a hazardous activity, but permits are necessary because of the dangerous consequences of closing roads or passageways. Whenever a road requires to be closed, ALBA, ESBI, The Consortium and all Subcontractors (especially the most affected ones) must be aware of such closure because it may interfere in their normal working performance. The emergency response teams, as well as Client's and The Consortium's Management teams must be aware of all such closures so as to look for particular alternative routes in case evacuation is necessary or any other emergency takes place.

For that all Road Closure requests shall be submitted along with a Risk Assessment that will identify the alternative routes to be considered during the temporary closing of the road(s), for the use of vehicles to access construction zones, as well as the pedestrian walkways and other traffic management provisions to implement

for the safe evacuation of personnel and safe access of emergency response teams and their emergency vehicles.

All Road Closure Permits shall be approved by the Construction Manager, the HSE Manager and the Traffic Management Head.

The Road Closure notices will be communicated through an HSE Advisor member of the Traffic Management Team to all companies' management and supervision teams with 24 hours in advance. Road Closure Permit requests shall be communicated with 24 hours to the Consortium and ALBA Emergency Services, and all affected work teams.

Road closures and diversions shall be clearly identified with signage, as per the example below, traffic control measures and barriers required by road closure permit. Additional traffic control measures may include traffic lights, flagmen, manual stop / go systems, flags and / or flashing beacons.

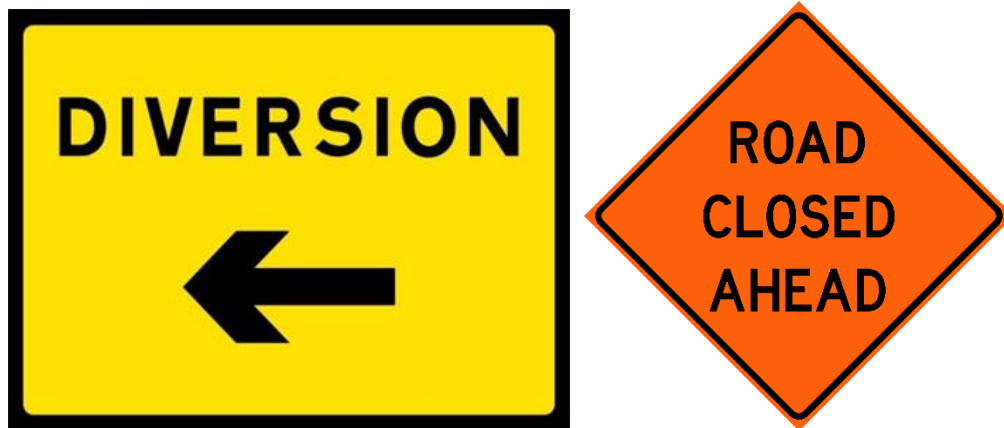


Fig. 6 – Diversion Sign

All Road Closure Permit requests shall include a plan with determined routes for Emergency Response vehicles to reach all working areas of the project.

Hard barricades must be provided to close roads.

#### **6.2.5 Delivery of Goods at site**

The following mitigation controls shall be implemented when delivering goods, materials and/or equipment at site.

Procurement and Construction Department shall plan together the delivery of regular-size loads and abnormal loads in order to assess the availability of space at site before the delivery occurs. The outcome of the plan shall be communicated to the PS5B4 Traffic Management Team.

Procurement and Construction Department shall request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips.

The Consortium shall require to Consortium teams, Subcontractors, Vendors and Suppliers to conduct safe loading of vehicles. The Consortium shall ensure to share the Attachment 5 – Safe Transportation of Loads (UK Code of Practice – Safet of Loads on Vehicles) as a reference to conduct safe loading of vehicles in order to assure that load is properly transported and secured to the vehicle in order to protect the load as well as employees, members of the public, private and public property.

Procurement and Construction Department shall conduct weekly planning of vehicle trips and deliveries in order to avoid overuse of vehicles.

Procurement and Construction Department shall develop a Good's Procurement Schedule to avoid overcrowding of public roads.

Procurement and Construction Department shall communicate the guidelines regarding the roads and location of ALBA PS5B4 Project Main Gate in order to avoid vehicles to get lost on their way. The Traffic Management Plan shall be communicated in all Purchase Orders.

Delivery of goods in PS5B4 Project Site shall avoid the timings of arrival and departure of employees to/from the project site.

Delivery of goods in PS5B4 Project Site shall avoid the following timings which are consider the peak times in the Kingdom of Bahrain, as per the Ministry of Municipalities & Agriculture Urban Planning Affairs:

- AM Peak (07:00 to 08:00)
- PM Peak (13:00 to 14:00)
- Evening Peak (16:00 to 19:00)

Timings of delivery of goods shall be communicated to all Consortium Teams as well as Subcontractors, Vendors and Suppliers.

The Procurement Department shall develop the guidelines for the reception of emergency/unexpected deliveries (holidays, Fridays, night) in ALBA PS5B4 Project Site. This shall be communicated to all teams involved in this type of deliveries (Procurement, Construction, HSE, Security).

Access of goods to the site shall comply the requirements listed in the PS5 Block 4 Project Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015). PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015 must be communicated to all Vendors and Suppliers, as well as to all Consortium and Subcontractors' companies management teams.

All deliveries must be conducted through the ALBA PS5B4 Main Gate.

The Consortium expects that all abnormal loads deliveries will be conducted through the ALBA PS5B4 South Gate (Emergency Gate). This is due to the abnormal loads are expected to enter through the southwest gate of ALBA Plant located in Road 5146 (former Bechtel Gate) (See section 6.5.8, 6.5.9 and 6.5.10)

All delivery and unloading of goods must be conducted through the issuance of a Work Permit as per the P5B4 PTW System Procedure (PS5-B4-01-YDC-GGP-SEP-00003) in order to conduct the operation safely.

A specific method statement and risk assessment must be developed for the unloading of all goods at site. Risk Assessment shall be prepared as per the PS5 Block 4 Hazard Analysis and Risk Assessment Procedure (PS5-B4-01-YDC-GGP-SEP-00038). The Risk Assessment shall identify all the provisions and controls to comply with for the safe delivery of goods.

When the risk assessment identifies the use of a lifting equipment (e.g.; crane, forklift), the delivery of the goods shall comply with the provisions of the PS5B4 Lifting Operations Procedure (PS5-B4-01-YDC-GGP-SEP-00007), including the requirement of a Critical Lifting Plan, especially when unloading abnormal loads.

When the goods to be unloaded are hazardous chemicals, the delivery shall comply with the PS5 Block 4 Chemical Management and Hazard Communication Procedure (PS5-B4-01-YDC-GGP-SEP-00020), PS5 Block 4 Spill Prevention Procedure (PS5-B4-01-YDC-GGP-SEP-00021) and Fire Prevention and Protection Procedure (PS5-B4-01-YDC-GGP-SEP-00056).

All abnormal loads deliveries must be communicated to ALBA PS5B4 Representatives and ALBA Security Department with 1 week in advance so as to process the corresponding gate pass and preparation of internal roads.

All abnormal loads deliveries will be conducted after 00:00 hrs.

Manual handling requirements must be implemented when the unloading is conducted by hand. Manual handling requirements must be listed in the corresponding Risk Assessment.

The emergency preparedness provisions listed in the PS5 Block 4 Emergency Preparedness and Response Procedure (PS5-B4-01-YDC-GGP-SEP-00004) must always be available and ready to use.

The Consortium shall ensure to communicate to Consortium Teams, Subcontractors, Vendors and Suppliers that it is strictly prohibited to unload goods outside of the boundaries of PS5B4 Project Site (except for the approved laydowns).

Ensure that PS5B4 is properly segregated and designation of reception of deliveries is identified, in order to avoid vehicles on stand-by due to the lack of space in the site.

Storage areas shall be located away from areas of frequent pedestrian activity but in areas with easy vehicle access in order not to compromise the delivery in unsafe conditions.

The loading and unloading of goods onsite is a high-risk activity. To minimize the risk of an accident or injury the following should be put in place and to be mentioned, when applicable, within the corresponding Method Statement and Risk Assessment for the delivery activity. Before loading the vehicle, consideration should be given as to how the vehicle will be unloaded later, the positioning of the materials, plant or equipment etc. The following are some of the key items needed to be considered for any loading / unloading process:

- Deliveries will be timed to avoid the busiest rush hour periods whenever practicable.
- Consortium's Traffic Management Team, delivery driver and subcontractor responsible to coordinate the delivery shall ensure to verify loading and unloading activities are done according to the plan.
- Proof of training of operatives and delivery drivers is required to demonstrate competence in the operation of a particular piece of plant, or to provide evidence of training for the loading / unloading of the particular plant, machinery or equipment.
- Safe access onto the vehicle body or onto the load to unload the lorry.
- The load needs to be stacked / loaded in a manner that will allow a safe means of unloading i.e.; on pallets for a forklift, skids for a crane etc. The receiver of the delivery needs to be aware of the resources to be in place to unload the vehicle.
- All drivers when collecting and after loading the particular good, piece of plant or any other type of load need to ensure the load is secured and any restraints required are in place even where the vehicle is moving a short distance.
- When an enclosed delivery vehicle arrives at the site the personnel must exercise due caution and care when opening the vehicle's curtains/doors etc., as parts of the load may have moved or been dislodged during transport.
- When arriving on the site all deliveries shall comply with the protocol mentioned in the PS5B4 Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015).
- The Risk Assessment shall mention all the provisions to be in case of emergencies occur. The Risk Assessment must identify all the potential emergency scenarios and the required provisions to handle such emergencies. All the team involved in the delivery shall be trained on the PS5B4 Emergency Response Plan (PS5-B4-01-YDC-GGP-SEP-00004).

### **6.3 Traffic Management in Parking Area**

#### **6.3.1 Risk Assessment**

Due to the restrictions of space in ALBA PS5B4 Project, parking areas will not be able to be set up within the project site. For that, the Consortium has obtained a permit from EWA to use a land in the west side of PS5B4 Project site (see Attachment 2.2). The PS5B4 parking area consists of a land of 150 meters long by 15 meters width along the Road 5146.

The initial calculation delivers an estimation of 120 lightweight vehicles that will be able to fit in the parking area land in an arrangement of 2 rows for vehicle parking and 1 row of space for the maneuvering for entry/exit of the parking area. However, during the physical assessment of the land, it has been noticed that there are certain facilities that will impede the proper use of some areas for parking purposes (e.g.; the markings for underground facilities and some manholes leading to concrete pits). For that it is estimated that the space may be available for around 100 lightweight vehicles.

Having in mind the forecast of lightweight vehicles from the Consortium and Subcontractors companies of 40 units, and considering 10 spaces for visitors and/or sporadic visits of vendors/suppliers, the remaining space in the parking area may be of 50 spaces available. This space will be used by the Consortium for the fleet of buses that will be used for SEPCOIII Staff as well as the Chinese Civil Team. The remaining space will be shared with the Subcontractors to park their personnel buses as well. For all those personnel buses that are not able to fit in the parking area, they will require to return to their laydowns and/or companies' parking areas in different points in Bahrain, after they have dropped their personnel in ALBA PS5B4 Project Site.

The Consortium has conducted a Risk Assessment for the operations in the parking area. Section 6.3.2 lists all the mitigation controls that the Consortium and its Subcontractors shall implement in order to conduct safe operations in the parking area of PS5B4 Project.

#### **6.3.2 Traffic Management Controls for Parking Area**

At the development of this plan, EWA hadn't issued the corresponding permit for the occupancy of the parking area. However, the following mitigation controls are the basic requirements needed to operate the parking area safely. Once the EWA permit is issued and received, the Consortium shall ensure to follow and implement all the conditions of the permit and this plan will be revised accordingly.

The Consortium shall ensure to delimit the parking area with hard barricades in order to avoid drivers to park in non-authorized areas (spaces between concrete jerseys or the type of hard barricade to be installed, so drivers can have free access out of the parking area without the need to be exposed to vehicles arriving/leaving the parking area). This will be confirmed as a requirements as per the issuance of the EWA permit.

The Consortium shall barricade all the existing facilities which are within the parking area. These facilities are several markings for underground facilities which are installed on the ground and some manholes leading to concrete pits. The hard barricades will prevent drivers to invade those areas and to damage them.

The Parking area shall have its entrance from the south side and the exit from the north side (See Attachment 2.2). The entrance and exit will be equipped with a bar that will be operated manually in order to grant access or allow exit from the parking area.

Once EWA has issued the permit to use the land for parking purposes, the Consortium shall ensure to prepare the final drawing with all the provisions to be installed including hard barricades and traffic signs (e.g.; "PS5B4 Parking Area Entry", "Precaution: Continuous Exit of Vehicles"). The Consortium shall request advice to ALBA B.S.C./ESBI in order to verify if special permits are required to erect traffic signs in Road 5146.

The Consortium shall also implement the applicable provisions listed in the PS5B4 Work at Night Procedure (PS5-B4-01-YDC-GGP-SEP-00044) for the Parking Area such as lighting, blinking lights around the perimeter, when the parking area is operating during the hours of darkness.

The parking area will be interconnected through a pedestrian walkway to the Consortium Site Offices Area. This will ensure the safety of the personnel arriving from the parking area without the interaction with other private vehicles that may attempt to drive over the land beside the parking area. The Consortium shall ensure to install lighting along the pedestrian walkway for its use during the hours of darkness. "Pedestrian Walkway" sign shall be installed along the pedestrian walkway.

Include in the Parking Area use guidelines, the correct way to use the pedestrian walkway and the hazards to walk out of it

The Parking area will be managed through Traffic Guards. Traffic Guards will be properly trained on their duties and on the provision of the Traffic Management Plan. Traffic Guards shall have full PPE despite being outside of the boundaries of PS5B4 Project site. Hi-Viz Vest shall be worn by Traffic Guards. As the occupancy of the parking area increases, the Consortium shall assess the need to keep Traffic Guards permanently controlling the parking area the 24 hours of the day and every day.

Traffic Guards will use red/green flags to control the parking area during the day and red/green light batons for all operations during the hours of darkness.

The Consortium shall issue gate passes for those vehicles allowed to enter the parking area. In such way, the Traffic Guards will be able to grant access only to authorized vehicles. The approved vehicles to enter the parking area will be listed in a log that will be updated as needed basis. The log will be shared with the Traffic Guards so they can also identify the approved vehicles by the plate number.

The parking area will be marked/divided in spaces large enough for the forecast lightweight vehicles. The remaining area will also be marked for those buses that have the approved gate pass to enter to the parking area.

The Consortium will encourage all companies to share vehicles as reasonably as possible in order to reduce the units required to use the parking area.

All those Personnel Buses that are not able to be parked in the designated parking area shall return to their laydowns or head offices to park, after dropping the personnel onsite.

When vehicles are to enter the parking area, they shall use hazard warning lights before exiting Road 5146. This will ensure that 3<sup>rd</sup> party vehicles are aware of the attempt of the driver to exit the road to lead to the entrance of the parking area.

Traffic Officer shall support the driver(s) when leaving the parking area so as to avoid collisions with incoming vehicles from both sides from Road 5146 and/or vehicles leaving PS5B4 Project Site on the road of the main gate.

All drivers shall switch off vehicles and heavy equipment when not in use. It will be strictly prohibited for drivers to stay in the vehicle when parked.

Provisions for Emergencies Preparedness and Response in the Parking Area shall be included in the Traffic Emergency Preparedness and Response Guide. Traffic Guards shall be trained on the implementation of the guide.

Traffic Officers will be equipped with mobile phone for immediate communication with the Security Head for advice when needed.

Drivers will be encouraged to keep the parking area tidy and cleaned. The Consortium will install trash bins in multiple places in the parking area in order to dispose of trash accordingly. On daily basis housekeeping will be conducted by the Consortium.

The Consortium shall ensure to communicate to the users of the Parking Area that it is strictly prohibited to be roaming around the public areas around the parking area and/or the vicinity of PS5B4 Project site. This will avoid nuisance to stakeholders around PS5B4 and/or accidents to the drivers/personnel arriving/leaving the parking area.

All drivers will be encouraged to conduct Pre-use daily inspection to vehicles in order to identify minor problems in the units that may create in the long term faults in the vehicle and in consequence disturbances in the parking area and/or in Road 5146.

The Consortium shall ensure to implement and communicate to all companies the policy to strictly prohibit the refueling operations in the PS5B4 Parking areas and in the vicinity of PS5B4 Main Gate. All refueling operations shall be in petrol stations dedicated for that purpose. Drivers provoking disturbance in the parking area and/or Road 5146 due to empty petrol tank in their vehicles will be penalized internally. All drivers are responsible to keep vehicles in good and operational conditions.

Security Team shall conduct periodic inspections around the parking area and in the pedestrian walkway in order to verify that the facility is kept in good condition. Security Team shall verify with the Traffic Guards that all kind of theft shall be reported immediately.

Speed limit in the parking area will be 10 km/hr. Traffic Guards shall communicate the requirement to drivers upon arrival to the parking area.

“No Parking: Entry/Exit of Vehicles” sign shall be posted close to the entry/exit of the parking area in order to avoid private vehicles to block the PS5B4 parking area.

Although the exit of vehicles from the parking area will be coordinated by the Traffic Guard, the Consortium shall ensure to install a “STOP” sign so drivers can make full stop before leaving the parking area. This will help drivers to see in both sides of Road 5146 to spot any incoming vehicle.

The Consortium shall provide Fire extinguishers in the parking area in order to put out any potential fire in vehicles parked.

## **6.4 Traffic Management of Transportation of Personnel in Buses**

### **6.4.1 Risk Assessment**

The Consortium has forecast that around 22 buses will be used at the peak time to transport the predicted planned manpower to work in ALBA PS5B4 Project Site. As mentioned in section 6.1.2, since the forecast manpower at the peak time is not expected to work altogether at the same time (due to work in shifts) it is predicted that the project will require less than 22 buses. Either way, the Consortium doesn't expect that 22 buses can fit in the parking area of the project. Due to that, the buses shall return to the parking areas and/or laydowns designated by the future subcontractors.

The Consortium plans that if not all the buses required to transport its own manpower may be parked in the project parking area, the remaining buses not able to fit they will have to return to ALDUR Laydown.

Due to the restrictions of space in ALBA PS5B4 Project, there will be difficulties to designate areas to install portacabins dedicated to mess halls. However, the Consortium will make the effort to save some space for those facilities. In the event that some construction/management groups are not able to fit in the mess halls, the companies will have to transport their employees to their corresponding accommodation camps and/or any other facility they have designated to provide meals to their employees. In such way, the number of trips



expected to be conducted by a bus for a specific construction group on a daily basis are the following (these are only approximate timings):

- 06:00 hrs.: Trip from Accommodation to ALBA PS5B4 Project Site
- 11:30 hrs.: Trip from ALBA PS5B4 Project Site to Accommodation
- 13:00 hrs.: Trip from Accommodation to ALBA PS5B4 Project Site
- 17:00 hrs.: Trip from ALBA PS5B4 Project Site to Accommodation

Due to the number of trips and buses to be required to mobilize on a daily basis all the manpower dedicated to the construction of ALBA PS5B4 Project, the Consortium shall implement the traffic management controls identified in the Risk Assessment conducted for the Operations of Personnel Buses (See Attachment 1.3).

#### **6.4.2 Traffic Management Controls for Personnel Buses**

The Consortium shall establish a single point dedicated for buses to allow personnel to get off (at arrival) and get on (on departure) in ALBA PS5B4 Project. It will be strictly prohibited to allow personnel to get off in other places around ALBA PS5B4 Project main gate. The Consortium will designate a Bus Stop on the road heading to the project's main gate.

It is expected that all the personnel buses arrive from the Road 5146 and then to turn right to the road heading to PS5B4 project main gate.

The Bus Stop will be located as far from the main gate as needed so the bus can make a U-turn in the land opposite to the bus stop (See attachment 2.3). In such way, the bus driver will be able to make the U-turn maneuver freely. The bus driver will take back the road heading to the main gate but in the opposite direction so as to reach Road 5146 and turn left to leave the PS5B4 Project area.

All bus traffic required for the arrival and departures of personnel to/from PS5B4 Project Site shall be controlled by Traffic Guards and the Security Team. Traffic Guards and Security Team shall be responsible to verify that all the controls listed in this section are implemented and complied with by both the bus drivers and the personnel.

It is forecast that the length of the road heading to ALBA PS5B4 Project main gate will not be enough to allow all the buses to park to wait for personnel to get off/get on. It is expected that the line of buses may reach the intersection between the road heading to main gate and Road 5146. This might bring nuisance to other private drivers using Road 5146 and in consequence to receive complaints from stakeholders. In order to avoid such scenario, traffic guards shall ensure to allow only as many buses as the length of the road to main gate allow them to fit in. Upon arrival, those buses not able to fit in the road to main gate, will be diverted to the old road of PS5 Project (north road parallel to the PS5B4 Project main gate road) and they will park in that area until they receive their confirmation of availability of space in the road heading to main gate to drop off personnel in the authorized bus stop. Traffic Guards will be dedicated to this area in order to control the parking of those buses. Traffic Guards will be equipped with whistles and mobile phones in order to coordinate the remaining buses to approach to PS5B4 main gate road as long as it has free space to receive them.

The Consortium will ensure to communicate to all bus drivers that it is strictly prohibited to park at any point over Road 5146 for any reason whatsoever.

Upon arrival to the bus stop, the bus driver will be authorized to open the bus door to let employees to get off. Traffic Guards shall coordinate the employees to immediately enter the project site through the turnstiles in order to avoid unnecessary crowding at the main gate. In order to avoid employees to roam around main gate, the Consortium will install hard barricades in such way that employees cannot invade the road heading to main gate and/or any other area in the open land in front of PS5B4 Project Site (See Attachment 2.3).

With regard to the coordination of buses to pick up employees at the time to leave the project site, the Traffic Management Team shall ensure to have a schedule of buses in order to designate them a consecutive number

in order to approach the bus stop in a strict order. These coordination of buses will be communicated to bus drivers and Traffic Guards in order to be respected at all times. From the side of employees, the Security Team shall coordinate the leave of those employees whose bus is parked in the bus stop and ready to be onboarded. No other employee from other company will be allowed to cross the turnstiles unless his/her bus is already parked and ready to be onboarded.

The Consortium shall ensure that all buses are inspected daily by the designated driver in order to identify corrective maintenance requirements to be conducted immediately to keep the bus safe for use.

The Consortium will communicate to all companies and bus drivers that it is strictly prohibited to overcrowd buses and let employees to ride it standing. Only employees seated must be allowed.

The Consortium shall ensure to request all companies to maximize the use of buses so as not to use buses unnecessarily.

The Consortium shall ensure to communicate to all companies and management/construction groups that the reception of deliveries and/or the access of vehicles or heavy equipment during the timings of arrival and/or departure of employees to/from the site is strictly prohibited.

The Consortium shall ensure to prepare a final plot plan with all the provisions listed in this section as well as the required traffic signs to be installed in the public areas. The plot plan shall be communicated to ALBA B.S.C./ESBI in order to seek for advice to approach the governorate authorities to get permission to install the required traffic signs.

## 6.5 Traffic Management for Transportation of Goods in Public Roads

### 6.5.1 Risk Assessment

One of the heavy traffic operations related to ALBA PS5B4 Project will occur outside the boundaries of the project site. The Consortium has identified the following traffic scenarios that will occur in the public roads in the Kingdom of Bahrain:

Table 7 – Type of Traffic in Public Roads

Type of Traffic	Purpose
Traffic from North Areas of Bahrain to ALBA PS5B4:	This type of traffic will entail mainly the transportation of personnel (buses) as well as transportation of regular loads/goods from local suppliers.
Traffic from North Areas of Bahrain to ALDUR Laydown	This type of traffic will entail mainly the transportation of regular loads from local Suppliers.
Traffic from ALDUR Laydown and South Areas of Bahrain to ALBA PS5B4	This type of traffic will entail mainly the transportation of personnel (buses) as well as the transportation of regular and medium size loads/goods
Traffic from Khalifa Bin Salman Port to ALBA PS5B4	This type of traffic will entail mainly the transportation of medium-size loads for immediate installation at site (e.g.; compressor skids, pumps skids, etc.)
Traffic from Khalifa Bin Salman Port to ALDUR Laydown	This type of traffic will entail mainly the transportation of medium-size loads to be stored in ALDUR Laydown (e.g.; compressor skids, pumps skids, etc.)
Traffic from Muharraq Engineering Jetty to ALBA PS5B4	This type of traffic will entail mainly the transportation of abnormal loads for immediate installation at site (e.g.; gas turbine, steam turbine components, HRSG components, etc.)
Traffic from Muharraq Engineering Jetty to ALDUR LAYDOWN	This type of traffic will entail mainly the transportation of abnormal loads to be stored in ALDUR Laydown (e.g.; gas turbine, steam turbine components, HRSG components, etc.)

	<p>It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PS5B4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage until PS5B4 conditions allow the reception of the abnormal load for immediate installation.</p>
<p>Traffic from ALDUR Laydown to ALBA PS5B4</p>	<p>This type of traffic will entail mainly the transportation of abnormal loads from ALDUR Laydown to ALBA PS5B4 Project Site for immediate installation (e.g.; gas turbine, steam turbine components, HRSG components, etc.)</p> <p>It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PS5B4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage.</p> <p>Once the PS5B4 conditions allow the reception of the abnormal load for immediate installation, the abnormal load will be transported from ALDUR Laydown to ALBA PS5B4 Project Site.</p>

Note 1: North areas of Bahrain are considered those areas from Manama locations up to ALBA B.S.C. main gate

Note 2: South areas of Bahrain are considered those areas from ALBA B.S.C. main gate to all towns in south Bahrain

Note 3: Regular and medium size loads are loads which don't require any special permit to be transported (Non-abnormal loads)

Note 4: Abnormal loads are loads that required a special permit from the government (see section 6.5.8)

In order to assess those routes, the Consortium has taken into account the review and incorporation of the requirements of the ALBA PS5B4 Environmental and Social Impact Assessment (See doc. No. ENV-RJC-20-00070-PS5-ESIA-01) and the ALBA PS5B4 CESMP (See doc. No. ENV-RJC-20-00070-PS5-CESMP-01) with regard to the impact of the Access and Vehicular Traffic due to the project operations.

Based on the traffic study conducted on the adjacent roads to reach ALBA PS5B4 Project site, it is anticipated that the additional traffic generated from ALBA PS5B4 Project operations will have a minor adverse impact on the traffic flow on Roads 5146, 5135, 5136, 5141, 5156 and King Hamad Highway (See Fig. 7).

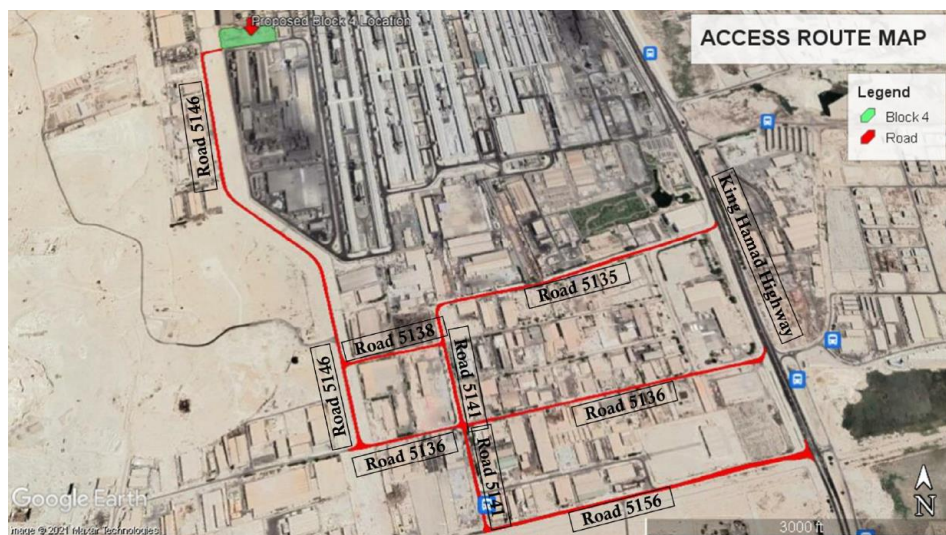


Figure 7 – Roads to get access to ALBA PS5B4 Project Site

With the support of this information as well as the information shared by the Consortium Procurement and Logistics Department, the Consortium conducted a risk assessment for all the scenarios mentioned above (See Attachment 1.4). The following sections described the management controls that the Consortium identified in the mentioned risk assessment (See Attachment 1.4) and that shall be implemented to ensure safe traffic management operations in public roads in the Kingdom of Bahrain.

## 6.5.2 General Traffic Management Controls for Transportation of Goods in Public Roads

All vehicles conducting transportation operations either for personnel or goods for the PS5B4 Project shall comply with the Bahrain Traffic Law. The Traffic Law shall be shared with Consortium teams as well as Subcontractors, vendors and suppliers in charge of those transportation operations. Drivers and operators shall be aware that they are representing the company which is providing a transportation service to the Consortium and to the ALBA B.S.C as the owner of the PS5B4 Project. Drivers and Operators shall be aware that failure to follow the Traffic Law may be prosecuted by the Bahraini Government. Drivers and Operators shall be informed about the requirements of this section as well as the whole Traffic Management Plan.

The Consortium will encourage all companies in charge of the transportation of personnel and goods to plan their trips in order to avoid overspeeding, traffic peak hours, unsafe roads/routes, regular road closure conducted by the Bahraini Government due to maintenance and/or other public requirements.

Although the Consortium will request subcontractors, vendors and suppliers to maximize the use of vehicles for deliveries/transportation of goods as well as personnel, the maximum allowable weight and/or the maximum allowable seats that the vehicles can withstand shall be always respected.

All vehicles shall respect speed limits marked in the public roads.

All vehicles shall bear a valid insurance policy.

Drivers and operators shall obey all Traffic Lights encountered on the transportation routes.

Drivers and Operators shall respect all traffic signs on the public roads.

Drivers and operators shall obey the direction of roads and never use them in the opposite prohibited side.

Drivers/Operators must give way to pedestrians and bicycle-riders waiting to cross and MUST give way to pedestrians on zebra crossings.

Drivers and Operators shall conduct reversing operations at the minimum.

Drivers and Operators shall park only in designated areas. Blocking highways, roads, streets is strictly prohibited. The use of parking areas for handicapped people is strictly prohibited.

Drivers and Operators shall be responsible for the pre-use inspection to the designated vehicle. When there is evidence of malfunction, drivers and operators must stop the vehicle and inform their supervisor and/or the company representatives in charge of the vehicle. Supervisors must put the equipment out of service in case the malfunction can lead into an unsafe operation of the equipment.

All companies in charge of the vehicles transporting goods for ALBA PS5B4 shall ensure to implement a Preventive Maintenance Plan and Schedule prepared as per manufacturers' recommendations, in order to keep the vehicles safe and in good operational condition for the purpose to transport goods.

All requirements for driving at night (e.g.; headlights, warning lights, etc.) shall be in good and operational condition.

Drivers and operators shall conduct refueling operations only in refueling stations and/or designated refueling areas within the boundaries of their property (e.g.; laydowns). It is strictly prohibited to refuel in public roads.

All companies using public roads to transport goods related to ALBA PS5B4 Project shall stick to the designated routes identified in the Traffic Management Plan and in this section.

Drivers and Operators will be strictly prohibited from unloading goods and/or personnel in areas prohibited in the Traffic Management Plan and or outside in the immediate boundaries of PS5B4 Project Site.

Due to the traffic expected to increase on Road 5146, the Consortium shall communicate and required to all companies in charge of transportation to comply with a speed limit of 50 Km/hr. Speed Limit must be communicated to Vendors and Suppliers in contracts and/or Purchase Orders.

All companies using the Road heading to PS5B4 Main Gate shall comply with the speed limit of 20 Km/hr. Speed limit shall be observed by drivers and operators no matter the company. The speed limit shall be communicated to Vendors and Suppliers in contracts and/or Purchase Orders.

All loads transported in vehicles (pick-up, trucks, trailers or other cargo vehicles) shall be securely fastened, and the weight shall not exceed the manufacturer's specifications of the vehicle. Sufficient straps and chains should be applied to secure equipment to prevent movement. Appropriate lashing arrangements and headboards shall be used as well as respecting the safe stacking always thinking on the procedure that will be used to unload the goods safely (See Attachment 5 – Safe Transportation of Loads for reference).

The Consortium shall communicate this Traffic Management Plan to all companies working for the project in order for them to be aware about the roads and location of ALBA PS5B4 Project Site and ALDUR Laydown in order to avoid vehicles to get lost on their way.

The Consortium shall conduct monthly surveys on the roads designated in the TMP in order to identify unpredicted unsafe conditions that may pose a risk during deliveries and/or transportation of personnel. The survey must identify what roads may be subject to maintenance by public authorities, works over roads, construction over roads, diversions imposed by authorities. The outcome of the survey shall be communicated to all companies using public roads to reach ALBA PS5B4 Project site.

The Consortium shall install different traffic signs in the Road 5146 as well as in the road heading to the project main gate (e.g.; "caution heavy traffic", "caution continuous enter/exit of vehicles"). The Consortium shall seek for advice from ALBA B.S.C. in order to know the procedure to install additional traffic signs in public roads around the ALBA PS5B4 Project site.

The Consortium will request ALBA B.S.C./ESBI to conduct an awareness session to Stakeholders located in the west side of PS5B4 (business companies located in the opposite side of Road 5146) about the Traffic Operations in the project and the precautions to be observed by members of the public.

### **6.5.3 Traffic Management Controls for operations from North Areas of Bahrain to ALBA PS5B4 (Transportation of Personnel and/or Regular Loads from Local Suppliers)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium Traffic Management Team, with the support of Subcontractors, Vendors and Suppliers shall ensure to conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across all the companies working in ALBA PS5B4, Security Team, including ALBA B.S.C and ESBI. All companies shall complied with the plan accordingly. Emergency Deliveries and/or transportation of personnel in different schedules shall be immediately communicated to the TMT.

All companies shall assess the possibility to provide mess halls onsite in order to avoid personnel transportation at lunch time.

Vehicles driven from Bahrain north locations shall use Roads 5135 or 5136 to enter Industrial area to approach PS5B4 (See Attachment 2.4). Vehicles driven from Bahrain north locations are strictly prohibited to use Road 5156 to enter industrial area to approach PS5B4 (This is to avoid additional congestion of road 5156). This requirement shall be communicated in TMP and Defensive Driving training sessions to all drivers. Also, the

requirement shall be mentioned in all Purchase Orders and/or contracts with Subcontractors, Vendors and/or suppliers.

#### **6.5.4 Traffic Management Controls for operations from North Areas of Bahrain to ALDUR Laydown (Transportation Regular Loads from Local Suppliers)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium Traffic Management Team, with the support of Subcontractors, Vendors and Suppliers shall ensure to conduct weekly planning/schedule vehicle trips heading to ALDUR Laydown. The master weekly trip plan shall be communicated across the Procurement Department team in ALDUR Laydown, including ALBA B.S.C and ESBI. All companies shall comply with the plan accordingly. Emergency Deliveries in different schedules shall be immediately communicated to the TMT.

The Consortium Procurement Department shall communicate the guidelines to reach ALDUR Laydown to all Subcontractors, Vendors and Suppliers in Purchase Orders and/or contracts.

The Consortium Procurement Department shall develop and communicate the guidelines for the reception of goods in ALDUR Laydown to all Subcontractors, Vendors and Suppliers in Purchase Orders and/or contracts.

#### **6.5.5 Traffic Management Controls for operations from ALDUR Laydown and South Areas of Bahrain to ALBA PS5B4 (Transportation of Personnel, Regular & Medium Size Loads from Laydown)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium Traffic Management Team, with the support of Procurement Department team designated in ALDUR Laydown shall ensure to conduct weekly planning/schedule vehicle trips heading from ALDUR Laydown to ALBA PS5B4 Project site. The master weekly trip plan shall be communicated across the Procurement Department team in ALDUR Laydown, all companies in ALBA PS5B4 as well as Security Management team including ALBA B.S.C and ESBI. Procurement Department shall comply with the plan accordingly. Emergency Deliveries and/or transportation of personnel in different schedules shall be immediately communicated to the TMT.

The Consortium Procurement Department shall communicate the guidelines to reach from ALDUR Laydown to ALBA PS5B4 to the Consortium teams in charge of transportation and/or 3<sup>rd</sup> party companies hired for transportation purposes.

The Consortium shall ensure to make the planning and schedule of Personnel Buses in order to be communicated to Security Team and the Traffic Guards assigned for the operation of the arrival of personnel buses in ALBA PS5B4 Project.

All vehicles driven from Bahrain south locations are to use Road 5156 to enter Industrial area to approach PS5B4.

The Consortium shall ensure to conduct surveys on traffic in order to identify the need to use the alternative road to reach ALBA PS5B4 Project Site (See Attachment 2.4). The alternative route is through the use of Askar Bridge to enter Road 5156 south end. This alternative road may alleviate crowding in the intersection between King Hamad Highway and Road 5156 (north end). This alternative road shall be communicated to all companies and/or groups doing transportation operations from ALDUR Laydown to ALBA PS5B4 Project.

### **6.5.6 Traffic Management Controls for operations from Khalifa Bin Salman Port to ALBA PS5B4 (Medium-Size Loads for immediate installation at site)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium TMT shall ensure to conduct all the training awareness sessions required by the Traffic Management Plan to the 3<sup>rd</sup> party company(ies) hired by the Consortium to conduct transportation operations from Khalifa Bin Salman Port to ALBA PS5B4 Project Site.

The Consortium TMT shall ensure that the 3<sup>rd</sup> party transportation company complies with all the requirements of this TMP.

The Consortium Traffic Management Team, with the support of the Consortium Procurement Department and the 3<sup>rd</sup> party transportation company shall ensure to conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across all the companies working in ALBA PS5B4, Security Team, including ALBA B.S.C and ESBI. All companies shall comply with the plan accordingly. Emergency Deliveries in different schedules shall be immediately communicated to the TMT.

Vehicles driven from Bahrain north locations shall use Roads 5135 or 5136 to enter Industrial area to approach PS5B4 (See Attachment 2.4). Vehicles driven from Bahrain north locations are strictly prohibited to use Road 5156 to enter industrial area to approach PS5B4 (This is to avoid additional congestion of road 5156). This requirement shall be communicated in TMP and Defensive Driving training sessions to all drivers. Also, the requirement shall be mentioned in all Purchase Orders and/or contracts with the 3<sup>rd</sup> party transportation company and the Consortium.

The Consortium Procurement Department shall review manufacturers' specifications of dimensions of all goods in order to be communicated to the 3<sup>rd</sup> party transportation company, so they make arrangements for their correct transportation. This will avoid that the 3<sup>rd</sup> party transportation company conduct the transportation of the goods as per the Bahraini government requirements. Failure to comply with this requirement, may provoke to let the 3<sup>rd</sup> party transportation company to transport abnormal loads without the corresponding permits, police escort and assessment of the clearance of route.

The Consortium Procurement Department shall communicate to the 3<sup>rd</sup> party transportation company, the definition of abnormal loads as per the Ministry of Works Roads Projects and Maintenance Directorate (RPM) requirements, so they are aware what kind of medium size goods can be transported without the special permit required by the Directorate for abnormal loads.

### **6.5.7 Traffic Management Controls for operations from Khalifa Bin Salman Port to ALDUR Laydown (Medium-Size Loads)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium TMT shall ensure to conduct all the training awareness sessions required by the Traffic Management Plan to the 3<sup>rd</sup> party company(ies) hired by the Consortium to conduct transportation operations from Khalifa Bin Salman Port to ALDUR Laydown.

The Consortium TMT shall ensure that the 3<sup>rd</sup> party transportation company complies with all the requirements of this TMP.

The Consortium Traffic Management Team, with the support of the Consortium Procurement Department and the 3<sup>rd</sup> party transportation company shall ensure to conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across the Procurement Team in charge of the ALDUR

Laydown, including ALBA B.S.C and ESBI. All companies shall comply with the plan accordingly. Emergency Deliveries in different schedules shall be immediately communicated to the TMT.

The Consortium Procurement Department shall review manufacturers' specifications of dimensions of all goods in order to be communicated to the 3rd party transportation company, so they make arrangements for their correct transportation. This will avoid that the 3rd party transportation company conduct the transportation of the goods as per the Bahraini government requirements. Failure to comply with this requirement, may provoke to let the 3rd party transportation company to transport abnormal loads without the corresponding permits, police escort and assessment of the clearance of route.

The Consortium Procurement Department shall communicate to the 3rd party transportation company, the definition of abnormal loads as per the Ministry of Works Roads Projects and Maintenance Directorate (RPM) requirements, so they are aware what kind of medium size goods can be transported without the special permit required by the Directorate for abnormal loads.

The Consortium Procurement Department shall communicate the guidelines to reach ALDUR Laydown to the 3<sup>rd</sup> party transportation company in Purchase Orders and/or contracts.

The Consortium Procurement Department shall develop and communicate the guidelines for the reception of goods in ALDUR Laydown to the 3<sup>rd</sup> party transportation company in Purchase Orders and/or contracts.

#### **6.5.8 Traffic Management Controls for operations from Muharraq Engineering Jetty to ALBA PS5B4 (All Abnormal Loads for immediate installation)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The Consortium shall ensure to hire the services of a 3<sup>rd</sup> party transportation company for all the abnormal loads transportation required in ALBA PS5B4 Project. The only point where the abnormal loads will be received is the Muharraq Engineering Jetty located in Sitra (East Bahrain). The 3rd party transportation company will use a hydraulic module trailer which will be compatible with the dimensions and weight of the abnormal loads to be transported.

The Consortium TMT shall ensure to conduct all the training awareness sessions required by the Traffic Management Plan to the 3rd party company hired by the Consortium to conduct the abnormal loads transportation operations from the Muharraq Engineering Jetty to ALBA PS5B4 Project site.

The Consortium TMT shall ensure that the 3rd party transportation company complies with all the requirements of this TMP.

The Consortium Traffic Management Team, with the support of the Consortium Procurement Department and the 3rd party transportation company shall ensure to conduct weekly planning/schedule vehicle trips. The master weekly trip plan shall be communicated across all companies working in ALBA PS5B4 Project Site, the Security Team, and ALBA B.S.C and ESBI representatives. All companies shall comply with the plan accordingly. Emergency Deliveries in different schedules shall be immediately communicated to the TMT so proper arrangements are provided.

The Consortium Procurement Department shall review manufacturers' specifications of dimensions of all abnormal loads in order to be communicated to the 3rd party transportation company, so they can make arrangements for their correct transportation.

Regardless the experience of the 3<sup>rd</sup> party transportation company, the Consortium Procurement Department shall communicate to the 3rd party transportation company, the definition of abnormal loads as per the Ministry of Works Roads Projects and Maintenance Directorate (RPM) requirements, so they are aware of the special permits required by the Directorate for abnormal loads to be transported.



The Consortium Procurement Department shall communicate the location of ALBA PS5B4 Project Site to the 3<sup>rd</sup> party transportation company in Purchase Orders and/or contracts.

The Consortium shall provide the abnormal loads drawings to the 3<sup>rd</sup> party transportation company in order to assess the route so as to ensure safe clearance for the loads to pass according to its height, length and width (crossing under bridges, underpasses, traffic poles, traffic signs, other public and/or private facilities). The Consortium TMT and the 3<sup>rd</sup> party transportation company shall also verify that the route has a safe clearance for the load to cross according to the weight of the transported load (e.g.; bridges, culverts, areas with transportation weight limitations, etc.).

The Consortium conducted a survey to preliminary identify the safest route to transport the abnormal loads from the Muharraq Engineering Jetty to the ALBA PS5B4 Project Site (See Attachment 2.4). This preliminary route requires to remove a line of 14 concrete jerseys in the middle of the King Hamad Highway just in front of the South Gate of ALBA B.S.C. The preliminary route indicates that Roads 5135 and 5156 shall be avoided to enter Industrial area to approach PS5B4 final destination. Instead, the only route to enter the industrial area is through the Road 5136 and then to take Road 5146. Once over Road 5146, the route shall follow north up to ALBA B.S.C. southwest gate where the abnormal load will require to enter ALBA B.S.C premises. After accessing through the southwest gate, the route shall follow the immediate internal road by turning left. The route will continue straight on the ALBA internal road up to the ALBA PS5B4 Project south gate (PS5B4 Emergency Gate). Once accessing, the route will continue internally within ALBA PS5B4 Project site up to the final location of the abnormal load.

All Accesses through ALBA B.S.C. Plant premises shall require coordination with ALBA Security. All accesses to ALBA B.S.C. Plant shall be communicated to ALBA B.S.C./ESBI representative in order to coordinate the access with ALBA Security.

Having all the corresponding information for the safe transportation of the load, the 3<sup>rd</sup> party transportation company shall prepare a Method Statement and a Risk Assessment for the whole transportation of the abnormal load from the Muharraq Engineering Jetty to ALBA PS5B4 Project Site, including calculations for the safe lifting of the load from the barge to the hydraulic module trailer and the lashing requirements of the abnormal load to secure it safely to the hydraulic module trailer. The MSRA shall include an Emergency Response Plan in order to identify the potential emergency scenarios and the corresponding provisions/controls to be available to respond to such emergencies. The 3<sup>rd</sup> party transportation company shall use both this Traffic Management Plan along with the Risk Assessment prepared for the abnormal load transportation purpose (See Attachment 1.4) as a baseline to develop the specific MSRA.

The 3<sup>rd</sup> party transportation company shall submit the MSRA to the Consortium (See Attachment 7 where a sample is included). The Consortium along with the ALBA B.S.C./ESBI team representatives will revise the MSRA and make comments until all the team involved is satisfied with the documents.

Once the MSRA approved and the potential date to transport the abnormal load is defined, the Consortium shall request the corresponding permit for the transportation of abnormal loads before the Ministry of Works through the Roads Projects and Maintenance Directorate (RPMD). The Consortium shall follow the procedure established by the Directorate and to comply with all the submittal of required documents.

Once approval obtained from the RPMD, the Consortium shall request the permit to the General Directorate of Traffic in order to get the authorization to have the Police escort during the transportation of the abnormal load.

The Consortium along with the 3<sup>rd</sup> party transportation company shall review the corresponding permits in order to verify the requirements listed on it (timings, speed limits, etc.). In case the approved MSRA is not compatible with the permit requirements, the 3<sup>rd</sup> party company shall ensure to revise the MSRA and to resubmit to the Consortium for the Consortium/ALBA/ESBI final approval.

As per regular abnormal load transportation permit requirements, all transportation shall be conducted after 12 AM (00:00 hrs.) and as per the schedule and date mentioned in the abnormal load transportation permit.

The Consortium shall ensure to request ALBA/ESBI to contact Stakeholders having business located on Road 5136 to ensure road clearance during the scheduled night to transport the loads.

The 3<sup>rd</sup> party transportation company shall submit the records such as the last preventive maintenance given to the trailer as well as 3<sup>rd</sup> party certifications of the hydraulic module trailer, so the Consortium verifies that the trailer is in good and safe operational condition.

The Consortium shall request to the 3<sup>rd</sup> party transportation company the 3<sup>rd</sup> party certifications of the staff in key positions in charge of the transportation in order to verify competency of the employees involved.

The Consortium shall ensure that equipment provisions to respond to emergencies shall be available before the transportation starts.

The 3<sup>rd</sup> party transportation company shall ensure to follow and implement the MSRA and the Permits. Coordination with Police shall be requested for the escort of the loads by patrols throughout the route.

The Consortium TMT shall conduct weekly surveys around the designated route in order to identify unexpected changes on the route that may compromise the safe transportation of the abnormal load (e.g.; unexpected restrictions on roads under maintenance, temporary closure, etc.).

#### **6.5.9 Traffic Management Controls for operations from Muharraq Engineering Jetty to ALDUR LAYDOWN (All Abnormal Loads for immediate installation)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The management controls in section 6.5.8 are also applicable to this type of traffic, however its only difference is the type of route that the abnormal load will follow. In this specific case, the route will go down King Hamad Highway up to Bridge No. 3 where the route shall take U-Turn over King Hamad Highway and then to leave on the immediate exit to take the roads leading to ALDUR Laydown. This route was the one used during the transportation of abnormal loads from the Muharraq Engineering Jetty to ALDUR II IWPP Project in the previous project from SEPCOIII in Bahrain.

It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PS5B4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage until PS5B4 conditions allow the reception of the abnormal load for immediate installation.

#### **6.5.10 Traffic Management Controls for operations from ALDUR Laydown to ALBA PS5B4 (abnormal Loads)**

The following shall be implemented for these specific routes as well as the management controls listed in section 6.5.2

The management controls in section 6.5.8 are also applicable to this type of traffic, however its only difference is the type of route that the abnormal load will follow. In this specific case, the route will leave from ALDUR Laydown heading towards King Hamad Highway where the route will head north to Manama. The route shall exit on the bridge No. 1 (Askar Exit), the route will cross over the bridge then heading to the immediate roundabout and exiting on road 5156. This route will avoid the intersection between King Hamad Highway and Road 5156 (east end) since this road in this specific part is extremely narrow for the abnormal loads. Following Road 5156 (west end) the route will continue up to the intersection with Road 5141 where the route will turn

left. Immediately after, the route will turn left in the intersection with Road 5136 and then turn right in Road 5146. Once over Road 5146, the route shall follow north up to ALBA B.S.C. southwest gate where the abnormal load will require to enter ALBA B.S.C premises. After accessing through the southwest gate, the route shall follow the immediate internal road by turning left. The route will continue straight on the ALBA internal road up to the ALBA PS5B4 Project south gate (PS5B4 Emergency Gate). Once accessing, the route will continue internally within ALBA PS5B4 Project site up to the final location of the abnormal load.

All Accesses through ALBA B.S.C. Plant premises shall require coordination with ALBA Security. All accesses to ALBA B.S.C. Plant shall be communicated to ALBA B.S.C./ESBI representative in order to coordinate the access with ALBA Security.

It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PS5B4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage. Once the PS5B4 conditions allow the reception of the abnormal load for immediate installation, the abnormal load will be transported from ALDUR Laydown to ALBA PS5B4 Project Site as mentioned above.

The Consortium shall request ALBA B.S.C./ESBI to contact the Stakeholders having business located on Roads 5141 and 5136 to ensure road clearance during the scheduled night to transport the abnormal loads.

#### **6.5.11 External Stakeholders Grievances**

The Consortium shall ensure to work in a proactive way to avoid disturbances either within the project premises or in the public areas where goods and personnel transportation operations will occur as part of the PS5B4 Project construction activities. During the project life it is expected that the interaction with Stakeholders will be required. That will be the case of the transportation of abnormal loads from the different locations where such goods will arrive in Bahrain to the ALBA PS5B4 Project site. It is expected that the Consortium will require to inform the companies who have business located in the Industrial area south of PS5B4 site, especially those located on the road 5136 and 5141 about the schedules of transportation of the abnormal loads. As the Consortium and/or its Subcontractors are prohibited to directly contact Stakeholders, the Consortium will ensure to request ALBA/ESBI representatives to inform the Stakeholders about such transportation operations and the request of their support to ensure having road clearance during such times.

Also, the Consortium shall ensure to follow ALBA Grievance Procedure for those cases of complaints received from Stakeholders due to any potential disturbances on traffic on the public roads where the project's transportation operations occur. The Consortium shall ensure to have open communication channels to receive complaints and to handle them according to ALBA Grievance Procedures.

#### **6.5.12 Interaction with Bahraini Authorities**

The Consortium will ensure to work in a proactive way to avoid disturbances in public roads due to the impact of the goods and personnel transportation operations. Such disturbances may include the congestion of traffic, blockage of roads, public and private property damage as well as collisions with other vehicles. In the event that such cases occur, Bahraini Authorities (e.g., Police) are expected to be involved. The Consortium will ensure that its Public Relations Officer(s) support the teams involved in such circumstances so as to act as per the requirements of the Authorities. The Consortium shall ensure to immediately inform ALBA/ESBI representatives of any PS5B4 project-related event in public roads where Bahraini Authorities are involved.

Another case where Bahraini Authorities will be involved is during the transportation of abnormal loads from the different locations where such goods will arrive in Bahrain to the ALBA PS5B4 Project site. In such cases, the Consortium will appoint a 3<sup>rd</sup> party transportation company to transport such loads. The 3<sup>rd</sup> party transportation company hydraulic module trailer will be escorted by a Bahrain's Police patrol throughout the route. The Consortium shall ensure to required to the 3<sup>rd</sup> party transportation company to cooperate with the Police and to always follow their instruction whilst being escorted.

### 7. Attachments

#### Attachment 1.1 – PS5B4 Traffic Impact RA (PS5B4 Parking Area)



**ALBA POWER STATION 5, BLOCK 4 PROJECT**

**PS5B4 Traffic Impact Risk Assessment - ROADS WITHIN PS5B4 SITE**

Stage	Aspect and Impact		Risk Rating			Controls				Residual Risk Rating		
	Issue	Impact	Severity	Likelihood	Risk	Admin.	Training	Equipment	Other	Severity	Likelihood	Risk
Access/Egress of vehicles to/from the PS5B4 Project site	-Unauthorized entry/exit of vehicles	-Theft -Property damage -Ransom	MODERATE	MODERATE	HIGH	-Implement Security Management Plan provisions to issue permanent/temporary vehicle gate passes, to receive deliveries, to remove material/equipment from the site.  -Security team to provide safety guidelines to all drivers when entering the site.  -Conduct Monthly Audits to the Security Team to verify compliance on SMP.	-Train the Security Team on their responsibilities listed in the Security Management Plan for the proper control of entry/exit of vehicles at site.	-Activate the Security System of CCTV in order to record relevant activity in the main gate.	-----	MINOR	UNLIKELY	LOW
	Vehicles leaving with environmental requirements not inspected.	-Pollution of public roads	MODERATE	MODERATE	HIGH	-Include in the HSSE & SR Induction the requirements for control of vehicles when leaving the project site (cover excavated material on dump trucks, tires clean, no dripping of chemical substances).	-HSSE & SR Induction to be given to drivers and security team.	-----	-----	MINOR	UNLIKELY	LOW
	-Overcrowding of PS5B4 site roads	-Traffic Jam -Collisions -Interruption of construction activities -Obstructions to Emergency Vehicles	MODERATE	MODERATE	HIGH	-Traffic Management Team (TMT) to develop a forecast of site vehicles and heavy equipment to be deployed on monthly basis throughout the project life. TMT to determine the maximum allowable vehicles/heavy equipment onsite, this must be communicated to Security Team permanently.  -Security Team to allow the entry of vehicles as per the maximum allowable vehicles/heavy equipment onsite.  -Prioritize access of vehicles/heavy equipment  -Deploy Traffic Officers at site to control traffic on the roads.	-Provide awareness on Defensive Driving to all Drivers and Heavy Equipment Operators.  -Provide awareness on Traffic Management Plan to all employees and vehicle/heavy equipment operators.  -Train Security Team on their responsibilities to grant access to vehicles/heavy equipment.	-----	-----	MINOR	UNLIKELY	LOW

Operation of Heavy Equipment and Vehicles in ALBA P55B4.													
Unprotected facilities from vehicle traffic	Collision with temporary/permanent facilities.	MAJOR	LIKELY	EXTREME		Warn drivers/operators on the requirements to respect hard barricades. Warn all employees, drivers, operators that it is strictly prohibited to remove hard barricades without authorization.	Temporary and permanent facilities to be hard-barricaded for their protection from vehicle traffic. There are ALBA facilities in operation within P55B4 (i.e. water lines). These facilities must be prioritized and be protected at all times.						
Excavations, ramps, site edges unprotected	Vehicles/Heavy Equipment going into excavations. Overturn of vehicles/heavy equipment in ramps, site edges.	MAJOR	MODERATE	EXTREME		Train all employees on the importance of hard barricades in the site.	Hard barricades to be installed around excavations. They must be at least 1 meter away from their edge. Install hard barricades along the edge of ramps or other site edges.						
Vehicles/Heavy Equipment in operation unnecessarily	Pollution to environment. Generation of greenhouse gases.	MINOR	MODERATE	MODERATE		Train employees that vehicles/heavy equipment must be switched off when not in operation.							
Interaction of vehicles/heavy equipment with pedestrians	Employees runover	MAJOR	MODERATE	EXTREME		Signage of vehicles and pedestrians must be implemented throughout the site. Train employees on the use of pedestrian walkways as well as the respect of vehicles when they are close to stop.	Provide pedestrian walkways for employees to walk freely. Install Traffic signs to provide information (pedestrian crossing) to drivers about specific requirements to follow on the site roads.						
Vehicles/Heavy Equipment left unattended	Unexpected move of equipment without driver/operator Unsafe use of vehicle/equipment by non-authorized personnel.	MAJOR	MODERATE	EXTREME		Implement policy that it is strictly prohibited to leave vehicles/heavy equipment unattended when in operation.	Train all drivers/operators about the policy or prohibition to leave equipment unattended when in operation.						
Vehicles/Heavy Equipment overspeeding	Collision, Property Damage, Pedestrian runover	MAJOR	MODERATE	EXTREME		Develop guidelines for the safe driving within P55B4 Project Roads. Implement 10 Km/hr speed limit in all internal roads in P55B4. Provide traffic officers to watch over drivers/operators respecting the speed limit. Provide penalties to drivers/operators when overspeeding.	Speed limit to be communicated by Security Team when granting access to vehicles/heavy equipment. Speed limit to be communicated through the HSE & SR induction process to all employees, drivers and operators. Provide guidelines for the safe driving within P55B4 Project Roads to all drivers, operators from consortium, subcontractors, suppliers and vendors.						
Traffic movement on P55B4 Roads during the night	Collision, pedestrian runover, property damage.	MAJOR	MODERATE	EXTREME		Implement Work at Night Procedure P55-B4-01-YDC-GGP-SEP-00044	Work at Night awareness session to be provided to employees. Work at Night Provisions must include: -Lighting (low-intensity lighting at roads) -Provide night barriers to flagmen (red/green) -Blinking lights in all the perimeter of excavations and hard barricades. -Familiar with proper reflective strips on hi-viz vest.						
Unexpected failure of vehicles and equipment	Traffic Jam, Property Damage, Pollution		MODERATE	MODERATE	HIGH	Pre-use daily inspection checklist to be implemented by all drivers and heavy equipment operators. When there is evidence of malfunction, operators must stop the equipment and inform Supervisor. Supervisors must put the equipment out of service in case the malfunction can lead into an unsafe operation of the equipment. Implement the Spill Prevention Procedure (P55-B4-01-YDC-GGP-SEP-00021)	Provide awareness training to Drivers and Refueling staff on the requirements of Refueling Operations Procedure and Spill Prevention Procedure. Preventive Maintenance requirements must be addressed during the HSE & SR induction.						
Access of heavy equipment without 3rd party inspection	Collisions, employees injuries, fall of roads, operation of equipment compromising safety of Project Site.	MAJOR	LIKELY	EXTREME		All heavy equipment must bear a valid 3rd party inspection certificate issued by an approved agency.							
Operation of rotating Heavy Equipment at site	Collisions among vehicles, heavy equipment. Accidents with pedestrians	MAJOR	LIKELY	EXTREME		Implement: -Lifting Operations Procedure P55-B4-01-YDC-GGP-SEP-00007 -Excavations Procedure P55-B4-01-YDC-GGP-SEP-00040 -MEWP Procedure P55-B4-01-YDC-GGP-SEP-00045 Implement Permit to Work Procedure (P55-B4-01-YDC-GGP-SEP-00003) for all activities involving heavy equipment operation.	Provide awareness to all personnel involved in heavy equipment operation, on Lifting Operations Procedure, Excavations Procedure, MEWP Procedure, PTFW Procedure. Implement Permit to Work Procedure (P55-B4-01-YDC-GGP-SEP-00003) for all activities involving heavy equipment operation.	Implement the provision to hard-barricade heavy equipment according to the affected operational radius.					
Access of heavy equipment without certified operator	Collisions, employees injuries, fall of roads, operation of equipment compromising safety of Project Site.	MAJOR	LIKELY	EXTREME		All heavy equipment operators must have a valid 3rd party certification issued by an approved agency. All heavy equipment operators must have valid bahraini license according to the equipment they are operating. Comply with Security Management Plan to Issue Gate Passes to Heavy Equipment.							
Road condition on roads	Collisions, pedestrian accidents, property damage, pollution (dust emission) Overturn of equipment.		MODERATE	MODERATE	HIGH	All roads must be maintained properly to be used by vehicles and heavy equipment. All unpaved roads must be water sprayed on a daily basis in order to avoid dust in the environment.	All roads must be maintained with the proper width so that the widest heavy equipment vehicle in the site. Roads gradient must be kept at a minimum and/or as per the requirements of the heavy equipment manufacturers. Ensure the road ground is prepared to be able to support the weight of heavy equipment. Ensure that the ground is compacted and no loose material present.						
Drivers/Operators using mobile while driving	Collisions, pedestrian accidents, property damage		MODERATE	MODERATE	HIGH	Implement policy of no use of mobiles while driving.	The use of mobile while driving prohibition must be communicated to all drivers/operators at the main gate by Security Team. The use of mobile while driving prohibition must be part of the HSE & SR induction so it is communicated to all employees.	Install safety signs with the prohibition of using mobile phones while driving.					
Vehicle reversing	Collisions, pedestrian accidents, property damage		MODERATE	MODERATE	HIGH	All heavy equipment and vehicles at site must be led by a FLAG MAN at all times.		Provide as much as possible, one-way routes through the site and/or turning circles to eliminate reversing. Heavy equipment and Vehicles must have rear vision aids and/or mirrors in perfect condition. Keep visual warning lights (reverse lights, parking light) on at all times and use audible alarm warnings when reversing.					
Drivers/Operators in traditional dress without PPE	Injuries		MODERATE	MODERATE	HIGH	Ensure that all drivers and heavy equipment operators have their PPE in the cabin. Implement the policy that it is strictly prohibited to wear traditional clothes at site.	All drivers/operators shall attend HSE & SR induction in order to be briefed about the requirement.						
Noise generated from vehicles and equipment	Occupational illness for noise impacts of employees. Ambient Noise at boundaries out of Bahrain limits.		MODERATE	MINOR	MODERATE	All drivers and operators to switch off vehicles and heavy equipment when not in use. Drivers not authorized to stay in vehicles. Compliance of Preventive Maintenance of vehicles and Heavy Equipment to be followed. Noise monitoring to be conducted on daily basis.							
Refuel of vehicles and heavy equipment	Pollution Environmental Incidents. Fire		MODERATE	MODERATE	HIGH	All light and medium vehicles shall be refuel outside of P55B4 Project Site. Heavy equipment refueling shall comply with the P55 Block 4 Refueling Operations Procedure (P55-B4-01-YDC-GGP-SEP-00022) and P55 Block 4 Spill Prevention Procedure (P55-B4-01-YDC-GGP-SEP-00021) All refueling operations shall be conducted through the PTFW System Procedure P55-B4-01-YDC-GGP-SEP-00003 Method Statement and Risk Assessment must be part of the PTFW Package for refueling operations. Fire Warden shall be present during the refueling operation.	Drivers, Operators and All Employees involved in refueling operations shall attend the following training sessions: HSE & SR Induction Refueling Operations PTFW Hazard Identification and Risk Assessment. Spill Prevention Emergency Preparedness and Response Plan	Fire Extinguishers and Spill Kits must be available during the refueling operations.					

<p><b>Ongoing progress of Construction Activities over Temporary Roads inside PS5B4 Project Site</b></p>	<p>Requirement to close temporary internal roads to conduct specific construction activities.</p>	<p>Traffic Jam Unavailability of access to Emergency Response Vehicles</p>	<p>MAJOR</p>	<p>UNLIKELY</p>	<p>EXTREME</p>	<p>All Temporary Road Closures shall be managed through the Work Permit Procedure (PS5-B4-01-YDC-GGP-SEP-00003). Road closure permits shall be approved by Construction Manager and HSE Manager. All Road Closure Permit requests shall include a plan with determined routes for Emergency Response vehicles to reach all working areas of the project. Road Closure Permit requests shall be communicated with 24 hours in advance across all PS5B4 Project companies as well as ALBA Emergency Services, and all affected work teams. Prepare a Plot Plan to identify clear roads for access to emergency vehicles, closed roads, all free roads open for circulation. Plot Plan must be communicated on daily basis to all companies and all management teams. Plot Plan must be communicated to ALBA/ESB so Emergency Response Teams can have clear reference on the available roads.</p>	<p>Road Closure requirements shall be part of the HSE Induction process in order to be communicated to all PS5B4 Employees. Hard barricades must be provided to close roads. Blinking lights must be placed all over the hard barricades. Safety signs of "Road Close Ahead" must be installed.</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p><b>Delivery of Goods at site</b></p>	<p>Access of transportation for regular goods delivery.</p>	<p>Unauthorized delivery of Goods -Security Breach -Security Threat</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>All deliveries must follow the PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015 All deliveries must be conducted through the ALBA PS5B4 Main Gate.</p>	<p>PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015 must be communicated to all Vendors and Suppliers, as well as to all Consortium and Subcontractors' companies management teams. Security Team to be trained on their responsibilities listed in the PS5 Block 4 Project Security Management Plan PS5-B4-01-YDC-GGP-SEP-00015</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Access of transportation for oversized goods delivery</p>	<p>Unauthorized delivery of Goods -Block of public roads due to delays on getting ALBA Permits from Security.</p>	<p>Unauthorized delivery of Goods -Block of public roads due to delays on getting ALBA Permits from Security.</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>All access of oversized goods to ALBA PS5B4 will be conducted through ALBA Plot southwest gate (BOCHTEL GATE) All oversized good deliveries must be communicated to ALBA PS5B4 and Security Department with 1 week in advance so as to process the corresponding gate pass and preparation of internal roads. All oversized goods deliveries will enter PS5B4 Project site through the Emergency South Gate of the project (12 meter width) All oversized goods deliveries will be conducted during the night.</p>	<p>Security team must be trained on their responsibilities to grant access to the type of deliveries.</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Unloading of goods at site (regular and/or oversized)</p>	<p>Fill of materials while unloading Traffic Jam Blockage of Roads due to: -Lack of space for unloading -Unload goods in unauthorized locations. Major injuries. Property damage Pollution</p>	<p>Fill of materials while unloading Traffic Jam Blockage of Roads due to: -Lack of space for unloading -Unload goods in unauthorized locations. Major injuries. Property damage Pollution</p>	<p>MAJOR</p>	<p>MODERATE</p>	<p>EXTREME</p>	<p>All unloading of goods must be conducted through PTW System Procedure (PS5-B4-01-YDC-GGP-SEP-00003). A specific method statement and risk assessment must be developed for the unloading of all goods at site. Deliveries must comply with the requirements listed in the PS5 Block 4 Project Security Management Plan (PS5-B4-01-YDC-GGP-SEP-00015) Procurement and Construction Department shall plan together the delivery of regular and oversized goods in order to assess the availability of space at site before the delivery occurs. Manual handling requirements must be implemented when the unloading is conducted by hand. Unloading of goods with the use of lifting equipment (Cranes, Forklift, etc.) must be conducted as per the PS5 Block 4 Project Lifting Operations Procedure (PS5-B4-01-YDC-GGP-SEP-00007), including the requirement of a Critical Lifting Plan, especially when unloading oversized goods. Unloading of hazardous chemicals must comply with the PS5 Block 4 Chemical Management and Hazard Communication Procedure (PS5-B4-01-YDC-GGP-SEP-00020) and PS5 Block 4 Spill Prevention Procedure (PS5-B4-01-YDC-GGP-SEP-00021) The emergency preparedness provisions listed in the PS5 Block 4 Emergency Preparedness and Response Procedure (PS5-B4-01-YDC-GGP-SEP-00004) must always be available and ready to use.</p>	<p>Employees conducting the goods unloading must be trained on PTW and the Method Statement and Risk Assessment of the unloading activity. All teams involved in the unloading of goods must be trained on: HSE Induction Hazard Identification and Risk Assessment PTW Emergency Preparedness and Response Manual Handling When applicable, the following training must be required as well: Lifting Operations Chemical Management and Hazard Communication Spill Prevention</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Unauthorized unloading of goods in public area</p>	<p>Unauthorized unloading of goods in public area</p>	<p>Unauthorized unloading of goods in public area</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>Implement the policy of strict prohibition to unload goods outside of the boundaries of PS5B4 Project Site.</p>	<p>Communicate the policy to management and supervision teams (Consortium and Subcontractors) about the restrictions to unload goods outside PS5B4 Site. Communicate the policy to all vendors and suppliers</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Unexpected/Emergency Delivery of Goods out of normal working hours.</p>	<p>Traffic Jam Collisions due to overcrowded roads Oversize of vehicles leading to environment pollution Contingencies due to unpreparedness to receive deliveries out of normal working hours. Vehicles/Equipment delays due to lack of information of the exact location of ALBA/PS5B4 Project Main Gate.</p>	<p>Traffic Jam Collisions due to overcrowded roads Oversize of vehicles leading to environment pollution Contingencies due to unpreparedness to receive deliveries out of normal working hours. Vehicles/Equipment delays due to lack of information of the exact location of ALBA/PS5B4 Project Main Gate.</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Goods' Procurement Schedule to avoid overcrowding of public roads. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips. Ensure that PS5B4 is properly segregated and demarcation of reception of deliveries is identified, in order to avoid vehicles on stand-by due to the lack of space in the site. Prepare the guidelines regarding the roads and location of ALBA PS5B4 Project Main Gate in order to avoid vehicles to get lost on their way. Develop the guidelines (including timings) to vendors and suppliers with regard to the reception of goods in the ALBA PS5B4 Project Site. Develop the guidelines for the reception of emergency/unexpected deliveries (holidays, Fridays, nights) in ALBA PS5B4 Project Site.</p>	<p>Procurement Dept to communicate the guidelines to reach ALBA/PS5B4 Project Site to all Vendors and Suppliers. Procurement Dept to communicate the guidelines of reception of goods in the ALBA/PS5B4 Project Site, to all subcontractors, vendors and suppliers. Procurement Dept to train all the specific staff in ALBA/PS5B4 involved (including Security Team) in the reception of goods. Procurement Dept to train all the ALBA/PS5B4 staff involved in the reception of goods (including Security Team) with regard to the procedures/guidelines to receive emergency/unexpected deliveries in the laydown.</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>

Attachment 1.2 – PS5B4 Traffic Impact RA (Roads within PS5B4)



ALBA POWER STATION 5, BLOCK 4 PROJECT

PS5B4 Traffic Impact Risk Assessment - PARKING AREAS

Stage	Aspect and Impact		Risk Rating			Controls				Residual Risk Rating		
	Issue	Impact	Severity	Likelihood	Risk	Admin.	Training	Equipment	Other	Severity	Likelihood	Risk
Construction and Commissioning Stages	Parking vehicles outside the boundaries of ALBA PS5B4.	-Parking in unauthorized areas. -Stakeholders' complaints -Fines from Police -Legal Action from EWA and potential interruption of project operations. -Injuries to members of the Public, Employees. -Traffic jam in public roads.	CATASTROPHIC	ALMOST CERTAIN	EXTREME	-Develop a proposal to submit to EWA for approval of public areas in the vicinity of PS5B4 to be used as parking areas.	-----	-----	-----	MINOR	UNLIKELY	LOW
	Overcrowding of parking area	-Parking in unauthorized areas. -Stakeholders' complaints -Fines from Police -Legal Action from EWA and potential interruption of project operations. -Injuries to members of the Public, Employees.	MAJOR	LIKELY	EXTREME	-Parking area requested to EWA is for around 120 vehicles (lightweight). -Gate passes to be given to vehicles authorized to use the parking area. -Space reserved for visitors and suppliers shall be provided. -SEPCOIII and Subcontractors will require to share vehicles as reasonably as possible in order to reduce the vehicles required to park in the parking area. -Traffic Officer to be deployed to control access/egress -Personnel Buses must return to their laydowns or head offices to park.	-----	-----	-Delimit the parking area with proper barriers. -Demarcate the individual spaces to use the area efficiently.	MINOR	UNLIKELY	LOW
	Arrival and access of vehicles to parking area	-Unsafe use. -Collision. -Pedestrians run over. -Unauthorized attempt to access -Obstruction to parking area	MAJOR	LIKELY	EXTREME	-Develop guidelines for use of parking area. -Drivers to use hazard warning lights before exiting Road 5146 to enter parking area. -Designate specific places to vehicles and keep a control log. -Designate a traffic officer to control access/egress -Request permit to Governorate to place Traffic Signs on Road 5146.	-All drivers to undergo HSE Induction. -Awareness session about Safe Use of Parking Area. -Defensive Driving Course to Drivers. -Specific training to traffic officer(s) designated to control parking area. -Managers to share parking rules to suppliers or visitors in advance of their arrival to site.	-Barricading around Parking Area to have gaps to let drivers leave the area safely. -Place Parking Area sign for entrance -Place 10km/hr speed limit sign -Place signs on entry and exit of Parking area with regard to 'NO PARKING, ENTRY/EXIT OF VEHICLES'	-----	MINOR	UNLIKELY	LOW
	Noise generated from vehicles		MODERATE	MINOR	MODERATE	-All drivers and operators to switch off vehicles and heavy equipment when not in use. -Drivers not authorized to stay in vehicles.	-----	-----	-----	INSIGNIFICANT	RARE	LOW
	-Intentional/unintentional damage of vehicles -Theft		MNOR	MODERATE	MODERATE	Traffic Officer permanently -Train employee on ERP -Provide Traffic Officer mobile phone for immediate communication.	-----	-----	-----	INSIGNIFICANT	UNLIKELY	LOW
	Pollution in public area		MNOR	MODERATE	MODERATE	-Conduct housekeeping. -Request drivers and users not to throw garbage on ground. -Provide Trash bins	-Environmental aspects to be discussed with drivers during Parking Area Awareness Session.	-----	-----	INSIGNIFICANT	UNLIKELY	LOW

Parking vehicles outside the boundaries of ALBA PS5B4.	Egress of vehicles from Parking Area.	Collision on road 5146	MAJOR	LIKELY	EXTREME	-Traffic Officer to support the driver when leaving the parking area.	-Include egress procedure in Parking Area use awareness session.	-Use of Flag System by traffic officer -Install STOP sign in the intersection of Road 5146 and the road to PS5B4.	-----	INSIGNIFICANT	UNLIKELY	LOW
	Use of Parking Area during hours of darkness	-Pedestrian runover, collision	MAJOR	LIKELY	EXTREME	-Implement Work at Night Procedure applicable requirements in the Parking Area (as part of the Guidelines to be developed).	-Drivers to be warned about requirements of Defensive Driving during the hours of darkness (use of headlights, hazard warning lights while being within parking area, speed limit)	-Provide Lighting for as long as vehicles are parked in the area. -Provide lighting batons to Traffic Officer. -Verify effective reflective stripes on Hi-VIZ vest of Traffic Officer	-----	MINOR	UNLIKELY	LOW
	Regular operation of Parking Area located in front of Kingdom Oil Co.	-Emergencies in Kingdom Oil Co. or West Point	MAJOR	MODERATE	EXTREME	-Develop an Emergency Response Plan to evacuate vehicles from Parking Area.	-Emergency Response Plan to be part of the Parking Area Awareness Session or drivers  -Train Traffic Officer on ERP for Parking Area for the immediate communication of abnormal situations that may affect the Parking Area.  Train personnel on Emergency Response Plan and conduct mock drills on the potential emergency scenarios in parking areas.	-----	-----	MINOR	UNLIKELY	LOW
	Personnel walking from parking area to S3 Offices / PS5B4 Construction Site	-Pedestrian runover	MAJOR	LIKELY	EXTREME	-Include in the Parking Area use guidelines, the correct way to use the pedestrian walkway and the hazards to walk out of it  -Implement a policy to restrict personnel to roam in the public areas in the vicinity of PS5B4 main gate.	-Provide awareness session to drivers with regard to respect of designated routes, pedestrian walkways, pedestrians, public in general.	-Place a barricaded pedestrian walkway from the Parking Area to the Main Gate/Entrance to SEPCOIII Offices  -Provide proper lighting all along the pedestrian walkway  -Install Pedestrian Walkway signs.	-----	MINOR	UNLIKELY	LOW
	Unexpected failure of vehicles and equipment	-Traffic Jam -Collisions -Property Damage	MODERATE	MODERATE	HIGH	-Pre-use daily inspection checklist to be implemented by all drivers and heavy equipment operators  Implementation of a Vehicles and Equipment Preventive Maintenance Schedule	-----	-----	-----	MINOR	UNLIKELY	LOW
	Potential requirement to refuel vehicles.	Pollution Environmental Incidents Fire	MAJOR	MODERATE	EXTREME	Implement the policy to strictly prohibit the refueling operations in the PS5B4 Parking areas and roads in 500 meters from PS5B4 Main Gate.  -Security Team to conduct random inspection to avoid theft.	Communicate policy during the HSE Induction process and in the Defensive Driving and Traffic Management Plan awareness sessions.	-Provide Fire extinguishers every 15 meters along the parking area	-----	MINOR	UNLIKELY	LOW



Attachment 1.3 – PS5B4 Traffic Impact RA (PS5B4 Bus Stop)



ALBA POWER STATION 5, BLOCK 4 PROJECT

PS5B4 Traffic Impact Risk Assessment - BUS STOP

Stage	Aspect and Impact		Risk Rating			Controls				Residual Risk Rating		
	Issue	Impact	Severity	Likelihood	Risk	Admin.	Training	Equipment	Other	Severity	Likelihood	Risk
Construction and Commissioning Stages	Occupancy of the bus	-Accidents on the road due to overloading of employees on the bus.	MODERATE	LIKELY	HIGH	-Communicate to all companies that is strictly prohibited to ride employees standing. Only employees seated must be allowed.  -Monitoring to be conducted by Security Team and Traffic Officers. Overloaded buses shall not be allowed to leave PS5B4 Main Gate	-Communicate the requirement to employees and bus drivers during HSE Induction process.	----	-----	MINOR	UNLIKELY	LOW
		Use of buses with empty seats	MINOR	MODERATE	MODERATE	-Request to all companies to maximize the use of buses so as not to use buses unnecessarily.	-----	----	-----	MINOR	UNLIKELY	LOW
	Employees getting off/on the Bus	-Unsafe Overcrowding of public places -Pedestrians run over -Collision. -Complaints from stakeholders -Blockage of road 5146 -Fines from Police -Legal Action from EWA and potential interruption of project operations. -Injuries to members of the Public, Empporarily.	MODERATE	LIKELY	HIGH	-Implement policy to prohibit buses to form a queue over road 5146.  -Buses will only be allowed to form a queue over PS5B4 Main Gate road.  -When the bus queue over PS5B4 main gate road reaches road 5146, the buses shall be diverted to the north PS5B4 road (or to the end of road 5146) and to wait until Traffic Officer gives signal to allow the next bus on the queue to approach the main gate road when space is available.  -Traffic officers must be deployed in the areas where buses are parking temporarily.  -Buses shall park in the designated area for getting on/off employees.  -Develop the quick guideline for buses to depart after the employees are dropped off. -Restrict the entry of vehicles, heavy equipment, trailers, procurement deliveries during the peak hour in which employees will arrive/depart to/from ALBA PS5B4 Project Site	-Communicate the requirements to be followed during getting on/off buses to employees and bus drivers during HSE induction process.  -Train Traffic Officers and Bus drivers on the specific steps to entry and exit the PS5B4 main gate road.  -Train employees on the guidelines to go from the bus stop to the turnstiles and the prohibition to roam around designated places for pedestrians.	-Request Authorities permission to install traffic signs for "continual entrance/exit of vehicles" from PS5B4 south gate road.  -Traffic Officers must be equipped with whistles and radios/mobile phone to coordinate the buses.  -Properly barricade the areas where employees can safely walk, out of PS5B4 Project Site.  -Bus stop shall be installed and positioned as far from the main gate as needed so the bus can make a safe maneuver to return to Road 5146 to take the employees back to their Accommodation.	-----	MINOR	UNLIKELY	LOW
	Unsafe queuing of employees when departing from the ALBA PS5B4 Project.	MODERATE	MODERATE	HIGH	-Prepare a list of the buses of all the companies and designate the order in which they will be allowed to approach to the Bus stop to be boarded by employees.  -Traffic Officers to be deployed at the moment of arrival/departure of employees to/from ALBA PS5B4	-----	-Determine a required area, according to the number of employees at site, to be barricaded so employees can queue safely to wait for their bus.  -Install safety signs to lead employees accordingly to onboard the corresponding buses.	-----	MINOR	UNLIKELY	LOW	

Attachment 1.4 – PS5B4 Traffic Impact RA (Roads outside PS5B4)



ALBA POWER STATION 5, BLOCK 4 PROJECT

PS5B4 Traffic Impact Risk Assessment - ROADS OUTSIDE PS5B4 SITE

Stage	Aspect and Impact		Risk Rating			Controls				Residual Risk Rating		
	Issue	Impact	Severity	Likelihood	Risk	Admin.	Training	Equipment	Other	Severity	Likelihood	Risk
Construction and Commissioning Stages	Overspeeding	-Police Fines, Police arrest and subsequent delay on deliveries or construction personnel arrival to site. -Crashes/property damage -Members of the public runover	MODERATE	MODERATE	HIGH	-Develop guidelines for the safe driving based on the Traffic Law of Bahrain. Provide the guidelines in suppliers Purchase Orders. -All vehicles to respect speed limits in public roads	-Train designated drivers of the project on Defensive Driving. -Provide Safe Driving Guidelines to all designated drivers at site.	-----	-----	MINOR	UNLIKELY	LOW
	Interaction of Vehicles/Equipment with Members of the Public.	-Members of the public runover, injuries,	MODERATE	MODERATE	HIGH	-Procurement Department shall include -All vehicles/equipment shall bear a valid insurance policy. -Develop a Traffic Emergency Response Procedure -Road 5146 speed limit of 50 Km/Hr must be observed by all Project Vehicles and Heavy Equipment. Speed Limit must be communicated to Vendors and Suppliers in contracts and/or Purchase Orders. -Speed limit of Road heading to PSSB4 Main Gate is 20 Km/hr. Speed limit to be observed by drivers/operators of Project Vehicles/Equipment. Speed limit to be communicated to Vendors and Suppliers in contracts and/or Purchase Orders. -Drivers/Operators must give way to pedestrians waiting to cross and MUST give way to pedestrians on a zebra crossing. -Traffic Lights must be obey by all Drivers/Operators.  -Direction of roads must be obey and never use it in opposite prohibited side. -Speed limits on all public roads must be obey. -All traffic signs must be obey. -Reverse operations must be conducted to its minimum. -Respect of bicycle riders shall be observed. -Parking in prohibited areas must be always avoided.	-Defensive Driving training shall be provided to all project drivers and operators. -Traffic Law Awareness Session to be given to Drivers and equipment operators. -Driving Rules to be communicated to Project drivers and operators. Traffic rules shall be included in contracts, agreements and/or Purchase Orders for all Vendors and Suppliers.  -Safety Signs 20KM/HR , must be placed on the road heading to the Main Gate. -No mobile phones sign to be posted in the road heading to the main gate. -Preventive signs of "precaution heavy traffic", "continuous enter/exit of vehicles" must be placed in the intersection between Road 5146 and the road heading to the PS5B4 Main Gate. -Request ALBA/ESBI to conduct an awareness session to Stakeholders located in the west side of PS5B4 about the Traffic Operations in the project and the precautions to be observed by members of the public.	-----	MINOR	UNLIKELY	LOW	
	Overcrowding of roads around ALBA Plant Area.	-Traffic jam -Blockage of public roads -Complaints from stakeholders	MODERATE	MODERATE	HIGH	-Assess the best timings to make deliveries to the Project. Avoid peak traffic times on the roads around ALBA Plant.	-Include delivery timings in the HSSE & SR Induction to drivers and companies. -Communicate officially the delivery timings in Purchase Orders for vendors and suppliers. -Communicate the delivery timings to Consortium and Subcontractors.	-----	-----	MINOR	UNLIKELY	LOW
	Driving without driving license	-Police Fines, Police arrest and subsequent delay on deliveries or construction personnel arrival to site. -Invalidation of insurance in case of traffic accidents.	MODERATE	MODERATE	HIGH	-Verify that all designated drivers in the project have valid license for the vehicle/equipment they are driving/operating.	-Include the requirement in the HSSE & SR Induction for Drivers.	-----	-----	MINOR	UNLIKELY	LOW
	Use of vehicles during the night in public roads	-Vehicle/Equipment accidents due to poor visibility	MODERATE	MODERATE	HIGH	-Monthly vehicle inspection to verify that all lighting system of the vehicles/equipment is working properly.	-Provide Defensive Driving Course to designated drivers and include the risks to drive during the hours of darkness.	---	---	MINOR	UNLIKELY	LOW

Traffic of vehicles in Public Roads	Unexpected failure of vehicles and equipment in public roads	Traffic Jam, Property Damage, Pollution	MODERATE	MODERATE	HIGH	<p>-Pre-use daily inspection checklist to be implemented by all drivers and heavy equipment operators</p> <p>-When there is evidence of malfunction, operators must stop the equipment and inform Supervisor. Supervisors must put the equipment out of service in case the malfunction can lead into an unsafe operation of the equipment.</p> <p>-Implementation of a Vehicles and Equipment Preventive Maintenance Schedule</p>	<p>-Preventive Maintenance requirements must be addressed during the HSSE &amp; SR Induction.</p>	-----	-----	MINOR	UNLIKELY	LOW	
	Poor condition on public roads	<p>-Collisions, pedestrian accidents, property damage, pollution</p> <p>-Overtum of equipment.</p>	MODERATE	MODERATE	HIGH	<p>-All companies shall stick to the designated routes identified in the Traffic Management Plan</p> <p>-Conduct monthly surveys on the roads designated in the TMP in order to identify unpredicted unsafe conditions that may pose a risk during deliveries and/or transportation of personnel. The survey must identify what roads may be subject to maintenance by public authorities, works over roads, construction over roads, diversions imposed by authorities.</p>	<p>-Warn drivers on the consequences to use unknown roads while doing deliveries</p> <p>-Provide Defensive Driving Course to all drivers.</p> <p>-Warn Project Drivers/Operators, Vendors and Suppliers of the outcome of the surveys so as to take precautions during deliveries and/or transportation of personnel.</p>	-----	----	MINOR	UNLIKELY	LOW	
	Drivers/Operators using mobile while driving	-Collisions, pedestrian accidents, property damage	MODERATE	MODERATE	HIGH	-Include in the Defensive Driving Guidelines, the risks due to the use of mobiles while driving.	-Include in the Defensive Driving course the prohibition to use mobiles while driving over public roads	-----	----	MINOR	UNLIKELY	LOW	
	Refuel of vehicles and heavy equipment in public places	<p>Pollution</p> <p>Environmental Incidents</p> <p>Fire</p>	MODERATE	MODERATE	HIGH	-Defensive Driving rules shall include the policy of not refueling vehicles/heavy equipment on public roads. Refueling can occur only in Project Site, Companies' Laydowns and/or Designated Petrol Stations in Bahrain.	-Communicate the Defensive Driving Guidelines to all employees, drivers, operators, vendors and suppliers.	-----	-----	MINOR	UNLIKELY	LOW	
	Unauthorized unloading of goods in public area	<p>-Police fines, arrest.</p> <p>-Complaints of stakeholders and/or members of the public</p> <p>-Blocage of public areas, public roads, traffic jam.</p>	MODERATE	MODERATE	HIGH	-Implement the policy of strict prohibition to unload goods outside of the boundaries of PSSB4 Project Site.	<p>-Communicate the policy to management and supervision teams (Consortium and Subcontractors) about the restrictions to unload goods outside PSSB4 Site.</p> <p>-Communicate the policy to all vendors and suppliers</p>	-----	-----	MINOR	UNLIKELY	LOW	
	Overload of Vehicles	Accidents, property loss, injuries to personnel / members of the public	MODERATE	MODERATE	HIGH	-Although the Consortium will request subcontractors, vendors and suppliers to maximize the use of vehicles for deliveries/transportation of goods, the maximum allowable weight that the vehicles can withstand shall be respected, as well.	Provide awareness to drivers of consequences to overload and/or overcrowd vehicles	-----	-----	MINOR	UNLIKELY	LOW	
	Misinterpretation of ALBA PSSB4 Project Site and/or ALDUR Laydown actual locations.	Vehicles/Equipment of Suppliers and Vendors getting lost.	MODERATE	MODERATE	HIGH	<p>-Prepare the guidelines regarding the roads and location of ALBA PSSB4 Project Site and ALDUR Laydown in order to avoid vehicles to get lost on their way.</p> <p>-Procurement shall communicate properly the location where The Consortium requires to receive the deliveries (either PSSB4 Project Site or ALDUR Laydown) in order to avoid confusion</p>	Procurement Department to communicate the guidelines to reach ALBA PSSB4 Project Site and/or ALDUR Laydown to all subcontractors, vendors and suppliers in every Purchase Order.	----	-----	MINOR	UNLIKELY	LOW	
	Accidents in Public Roads	-Poor handling of Emergency situations.	MODERATE	MODERATE	HIGH	-Develop a Traffic Emergency Response Procedure	-Train all employees and drivers on the Traffic Emergency Response Procedure.	Traffic Emergency Response Procedure needs to list all the equipment and other provisions needed to assist vehicles/heavy equipment involved in emergencies in public roads.	-----	-----	MINOR	UNLIKELY	LOW

<p><b>Traffic from North Areas of Bahrain to ALBA PSSB4 (Transportation of Personnel and/or Regular Loads from Local Suppliers)</b></p>	<p>Traffic movement on public roads</p>	<p>Traffic Jam Collisions due to overcrowded roads Overuse of vehicles leading to environment pollution Injuries to members of the public, Public Property Damage</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Good's Procurement Schedule to avoid overcrowding of public roads. Assess the possibility to provide mess halls onsite to avoid personnel transportation at lunch time. Vehicles driving from Bahrain north locations shall use Roads 5135 or 5136 to enter Industrial area to approach PSSB4. Vehicles driving from Bahrain north locations are strictly prohibited to use Road 5156 to enter industrial area to approach PSSB4 (This is to avoid congestion of road 5156). Request all companies to maximize the use of vehicles and personnel buses in order to reduce unnecessary trips. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips.</p>	<p>Provide awareness on Defensive Driving to all Drivers and Heavy Equipment Operators. Provide awareness on 5156 Road circulation prohibition through HSE Induction and Defensive Driving Awareness to all drivers. Procurement Dept to communicate allowed routes to all Vendors and Suppliers, to reach PSSB4.</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p><b>Traffic from North Areas of Bahrain to ALDUR Laydown (Transportation Regular Loads from Local Suppliers)</b></p>	<p>Traffic movement on public roads</p>	<p>Traffic Jam Collisions due to overcrowded roads Overuse of vehicles leading to environment pollution</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Good's Procurement Schedule to avoid overcrowding of public roads. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the</p>	<p>Procurement Dept to communicate the guidelines to reach ALDUR Laydown to all Vendors and Suppliers. Procurement Dept to communicate the guidelines of reception of goods in the ALDUR Laydown, to all subcontractors, vendors and suppliers.</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p><b>Traffic from ALDUR Laydown and South Areas of Bahrain to ALBA PSSB4 (Transportation of Personnel, Regular &amp; Medium Size Loads from Laydown)</b></p>	<p>Traffic movement on public roads</p>	<p>Traffic Jam Collisions due to overcrowded roads Overuse of vehicles leading to environment pollution</p>	<p>MODERATE</p>	<p>MODERATE</p>	<p>HIGH</p>	<p>Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Good's Procurement Schedule to avoid overcrowding of public roads. Assess the possibility to provide mess halls onsite to avoid personnel transportation at lunch time. Ensure all drivers have valid Bahraini Driving License as per the designated vehicle. Vehicles driving from Bahrain south locations are to use Road 5156 to enter Industrial area to approach PSSB4. Vehicles driving from Bahrain south locations may use Askar Bridge to enter Road 5156 south end, as an alternative to reduce congestion in Road 5156 north end.</p>	<p>Provide awareness on Defensive Driving to all Drivers and Heavy Equipment Operators. Provide awareness on Roads circulation prohibition through HSE Induction and Defensive Driving Awareness to all drivers. Procurement Dept to communicate allowed routes to all Consortium, Subcontractors, Vendors and Suppliers, to reach PSSB4.</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>

Traffic from Khalifa Bin Salman Port to ALBA PSSB4 (Medium-Size Loads for immediate installation at site)	Traffic movement on public roads	Traffic Jam Property damage, injuries to members of the public Collisions due to overcrowded roads Overuse of vehicles leading to environment pollution	MODERATE	MODERATE	HIGH	Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Good's Procurement Schedule to avoid overcrowding of public roads. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips. Vehicles driving from Khalifa Bin Salman Port shall use Roads 5135 or 5136 to enter Industrial area to approach PSSB4. Vehicles driving from Khalifa Bin Salman Port are strictly prohibited to use Road 5156 to enter industrial area to approach PSSB4. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips.	Procurement Dept to communicate the guidelines of reception of goods in the ALBA PSSB4 Project Site, to all subcontractors, vendors and suppliers. Provide awareness on Defensive Driving to all Drivers and Heavy Equipment Operators. Provide awareness on 5156 Road circulation prohibition through HSE Induction and Defensive Driving Awareness to all drivers. Procurement Dept to communicate allowed routes to all Vendors and Suppliers, to reach PSSB4.	----	-----	MINOR	UNLIKELY	LOW
	Wrong assessment of dimensions of goods.	Lack of permit for abnormal loads transportation due to misinterpretation or poor specifications of the dimensions of the goods during the procurement process. Violation of Bahrain rules. Property damage, injuries to members of the public	MAJOR	MODERATE	EXTREME	Procurement shall review manufacturers' specifications of dimensions of all goods in order to make arrangements for their correct transportation. This will ensure that upon arrival, abnormal goods are received in the port and to be transported throughout Bahrain roads without the corresponding permits and the clearance of roads.	Procurement Department shall communicate to all Subcontractors, Vendors and Suppliers the limit dimensions of goods that can be transported in Bahraini roads without the need of permit, as per the Ministry of Works Roads Projects and Maintenance Directorate (RPMD) requirements.	----	-----	MINOR	UNLIKELY	LOW
Traffic from Khalifa Bin Salman Port to ALDUR Laydown (Medium-Size Loads)	Traffic movement on public roads	Traffic Jam Property damage, injuries to members of the public Collisions due to overcrowded roads Overuse of vehicles leading to environment pollution	MODERATE	MODERATE	HIGH	Conduct weekly planning of vehicle trips to avoid overuse of vehicles. Develop a Good's Procurement Schedule to avoid overcrowding of public roads. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips. Request all subcontractors, vendors and suppliers to plan accordingly the supplies/transportation of materials/goods in order to maximize the deliveries and to reduce unnecessary trips.	Procurement Dept to communicate the guidelines of reception of goods in the ALDUR Laydown, to all subcontractors, vendors and suppliers. Provide awareness on Defensive Driving to all Drivers and Heavy Equipment Operators. Procurement Dept to communicate allowed routes to all Vendors and Suppliers, to reach ALDUR Laydown.	----	-----	MINOR	UNLIKELY	LOW
	Wrong assessment of dimensions of goods.	Lack of permit for abnormal loads transportation due to misinterpretation or poor specifications of the dimensions of the goods during the procurement process. Violation of Bahrain rules. Property damage, injuries to members of the public	MAJOR	MODERATE	EXTREME	Procurement shall review manufacturers' specifications of dimensions of all goods in order to make arrangements for their correct transportation. This will ensure that upon arrival, abnormal goods are received in the port and to be transported throughout Bahrain roads without the corresponding permits and the clearance of roads.	Procurement Department shall communicate to all Subcontractors, Vendors and Suppliers the limit dimensions of goods that can be transported in Bahraini roads without the need of permit, as per the Ministry of Works Roads Projects and Maintenance Directorate (RPMD) requirements.	----	-----	MINOR	UNLIKELY	LOW

<p><b>Traffic from Muharraq Engineering Jetty to ALBA PS5B4 (All Abnormal Loads for immediate installation)</b></p> <p>The load is considered an Abnormal Load when the total (Trailer plus Load) exceeds the following criteria:</p> <ol style="list-style-type: none"> <li>1. Gross weight is 40 tons.</li> <li>2. Length is 18 meters.</li> <li>3. Height is 4 meters.</li> <li>4. Width is 2.5 meters.</li> </ol>	<p>Collision with Private and/or Public facilities due to abnormal dimensions of load.</p>	<p>Private/Public Property Damage Injuries to staff and/or members of the public.</p>	<p>MAJOR</p>	<p>ALMOST CERTAIN</p>	<p>EXTREME</p>	<p>SEPCOIII to select a recognized 3rd party company to be in charge of the transportation of abnormal loads.</p> <p>SEPCOIII shall provide the abnormal loads drawings to the 3rd party transportation company in order to assess the route so as to ensure safe clearance for the loads to pass according to the height, length and width of the abnormal load (crossing under bridges, underpasses, traffic poles, traffic signs, other public and/or private facilities).</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to pass due to restrictions on roads under maintenance, temporary closure, etc.</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to cross according to the weight of the transported load (bridges, culverts, areas with transportation weight limitations).</p> <p>3rd party transportation company shall prepare the transportation route plan.</p> <p>For the specific case of abnormal loads transported from Muharraq Engineering Jetty the route requires to remove a line of 14 concrete jerseys in the middle of the King Hamad Highway just in front of the South Gate of ALBA B.S.C.</p> <p>-Avoid Roads 5135 and 5156 to enter industrial area to approach PS5B4 final destination.</p> <p>-Use Road 5136 to enter industrial area to approach PS5B4 final destination.</p> <p>-Use ALBA B.S.C. southwest gate to enter the premises when accessing from Road 5146 (This will require coordination with ALBA Security and the implementation of provisions to clear the internal road).</p> <p>SEPCOIII to request permit (with submittal of drawings of load and transportation route plan) before the Ministry of Works through the Roads Projects and Maintenance Directorate (RPM) for the transportation of Abnormal Loads.</p> <p>Once approval obtained from RPM, SEPCOIII to request permit to General Directorate of Traffic for coordination of Police Escort.</p> <p>MSRA to be prepared by the 3rd party company in charge of the transportation. MSRA must take into consideration the controls mentioned in this Risk Assessment. However, the mandatory requirements mentioned in the permits issued by RPM and General Directorate of Traffic shall be followed as a first priority. The 3rd party transportation company shall ensure to follow and implement the MSRA and the Permits. Coordination with Police shall be requested for the escort of the loads by patrols throughout the route.</p> <p>MSRA shall be approved by the Consortium and ESBI teams.</p> <p>-Request ALBA to contact Stakeholders having business located on Road 5136 to ensure road clearance during the scheduled night to transport the loads.</p> <p>All transportation shall be conducted after 12 AM and as per the schedule mentioned in the abnormal load transportation permit.</p>	<p>Provide awareness on MSRA/ Directorate Permit Requirements to all personnel involved.</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Speed of trailer shall be 10km/hr in certain areas. Also, the trailer will be invading 2 or 3 lanes on the roads.</p>	<p>Traffic Jam, blockage of roads, avenues.</p>	<p>MAJOR</p>	<p>MAJOR</p>	<p>LIKELY</p>	<p>EXTREME</p>	<p>All transportation shall be conducted after 12 AM and as per the schedule mentioned in the abnormal load transportation permit.</p>	<p>-Train all the team involved from the 3rd party transportation company and from the Consortium team on the Permit Requirements as well as the MSRA developed by the transportation company.</p>	<p>-----</p>	<p>-----</p>	<p>MODERATE</p>	<p>UNLIKELY</p>	<p>MODERATE</p>
<p>Unexpected failure of the hydraulic trailer in public roads.</p>	<p>Congestion of the normal traffic condition. Blockage of roads, avenues or streets along the route.</p>	<p>MAJOR</p>	<p>MAJOR</p>	<p>LIKELY</p>	<p>EXTREME</p>	<p>Develop Method Statement to address all technical, quality and HSE requirements to be followed.</p> <p>3rd party certifications of the trailer shall be available and reviewed by the Consortium before the transportation begins.</p> <p>-Traffic Emergency Response Plan to be developed and implemented.</p> <p>3rd party transportation company shall submit the records of the last preventive maintenance given to the trailer so the Consortium verifies that the trailer is in good condition.</p>	<p>Awareness session on MSRA to all personnel involved. All Consortium and 3rd party transportation company teams shall be briefed on the Traffic Emergency Response Plan</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Lack of competency</p>	<p>Accidents, property loss, injuries to members of the public</p>	<p>MAJOR</p>	<p>MAJOR</p>	<p>ALMOST CERTAIN</p>	<p>EXTREME</p>	<p>Verify 3rd party certifications of key positions in charge of the transportation</p>	<p>Awareness session on MSRA to all personnel involved from the Consortium and from the 3rd party transportation company.</p>	<p>-----</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>
<p>Fall/Roll over of load</p>	<p>Property damage (3rd party and/or public). Injuries to staff and/or members of the public.</p>	<p>MAJOR</p>	<p>MAJOR</p>	<p>LIKELY</p>	<p>EXTREME</p>	<p>The MSRA shall be implemented thoroughly by the involved personnel. MS shall include the calculations for the safe lifting, lashing, transportation of the load. Speed limits stated in the transportation permits shall be respected. MSRA shall include a section with the Emergency Response actions to be followed in case of accident and/or any other potential emergency scenario.</p>	<p>Awareness session on MSRA to all personnel involved.</p>	<p>Verify that the support equipment to respond to emergencies is available</p>	<p>-----</p>	<p>MINOR</p>	<p>UNLIKELY</p>	<p>LOW</p>

<p><b>Traffic from Muharraq Engineering Jetty to ALDUR LAYDOWN (All Abnormal Loads for immediate installation)</b></p> <p>It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PSSB4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage until PSSB4 conditions allow the reception of the abnormal load for immediate installation.</p> <p>The load is considered an Abnormal Load when the total (Trailer plus Load) exceeds the following criteria:</p> <ol style="list-style-type: none"> <li>1. Gross weight is 40 tons.</li> <li>2. Length is 18 meters.</li> <li>3. Height is 4 meters.</li> <li>4. Width is 2.5 meters.</li> </ol>	Collision with Private and/or Public facilities due to abnormal dimensions of load.	Private/Public Property Damage Injuries to staff and/or members of the public.	MAJOR	ALMOST CERTAIN	EXTREME	<p>SEPCOIII to select a recognized 3rd party company to be in charge of the transportation of abnormal loads.</p> <p>SEPCOIII shall provide the abnormal loads drawings to the 3rd party transportation company in order to assess the route so as to ensure safe clearance for the loads to pass according to the height, length and width of the abnormal load (crossing under bridges, underpasses, traffic poles, traffic signs, other public and/or private facilities).</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to pass due to restrictions on roads under maintenance, temporary closure, etc.</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to cross according to the weight of the transported load (bridges, culverts, areas with transportation weight limitations).</p> <p>3rd party transportation company shall prepare the transportation route plan.</p> <p>SEPCOIII to request permit (with submittal of drawings of load and transportation route plan) before the Ministry of Works through the Roads Projects and Maintenance Directorate (RPM) for the transportation of Abnormal Loads.</p> <p>Once approval obtained from RPM, SEPCOIII to request permit to General Directorate of Traffic for coordination of Police Escort.</p> <p>MSRA to be prepared by the 3rd party company in charge of the transportation. MSRA must take into consideration the controls mentioned in this Risk Assessment. However, the mandatory requirements mentioned in the permits issued by RPM and General Directorate of Traffic shall be followed as a first priority. The 3rd party transportation company shall ensure to follow and implement the MSRA and the Permits. Coordination with Police shall be requested for the escort of the loads by patrols throughout the route.</p> <p>MSRA shall be approved by the Consortium and ESBI teams.</p>	Provide awareness on MSRA/ Directorate Permit Requirements to all personnel involved.	-----	-----	MINOR	UNLIKELY	LOW
	Speed of trailer shall be 10km/hr in certain areas. Also, the trailer will be invading 2 or 3 lanes on the roads.	Traffic Jam, blockage of roads, avenues.	MAJOR	LIKELY	EXTREME	All transportation shall be conducted after 12 AM and as per the schedule mentioned in the abnormal load transportation permit.	-Train all the team involved from the 3rd party transportation company and from the Consortium team on the Permit Requirements as well as the MSRA developed by the transportation company.	-----	-----	MODERATE	UNLIKELY	MODERATE
	Unexpected failure of the hydraulic trailer in public roads.	Congestion of the normal traffic condition. Blockage of roads, avenues or streets along the route.	MAJOR	LIKELY	EXTREME	<p>Develop Method Statement to address all technical, quality and HSE requirements to be followed.</p> <p>3rd party certifications of the trailer shall be available and reviewed by the Consortium before the transportation begins.</p> <p>-Traffic Emergency Response Plan to be developed and implemented.</p> <p>3rd party transportation company shall submit the records of the last preventive maintenance given to the trailer so the Consortium verifies that the trailer is in good condition.</p>	<p>Awareness session on MSRA to all personnel involved.</p> <p>All Consortium and 3rd party transportation company teams shall be briefed on the Traffic Emergency Response Plan</p>	-----	-----	MINOR	UNLIKELY	LOW
	Lack of competency	Accidents, property loss, injuries to members of the public	MAJOR	ALMOST CERTAIN	EXTREME	Verify 3rd party certifications of key positions in charge of the transportation	Awareness session on MSRA to all personnel involved from the Consortium and from the 3rd party transportation company.	-----	-----	MINOR	UNLIKELY	LOW
	Fall/Roll over of load	Property damage (3rd party and/or public). Injuries to staff and/or members of the public.	MAJOR	LIKELY	EXTREME	<p>The MSRA shall be implemented thoroughly by the involved personnel.</p> <p>MS shall include the calculations for the safe lifting, lashing, transportation of the load.</p> <p>Speed limits stated in the transportation permits shall be respected.</p> <p>MSRA shall include a section with the Emergency Response actions to be followed in case of accident and/or any other potential emergency scenario.</p>	Awareness session on MSRA to all personnel involved.	-----	-----	MINOR	UNLIKELY	LOW

<p><b>Traffic from ALDUR Laydown to ALBA PSSB4 (abnormal Loads)</b></p> <p>It is not expected that this scenario occurs. However, in case of deviations of the planning of installation of abnormal loads in their final location in PSSB4, loads shall be transferred from Muharraq Engineering Jetty to ALDUR Laydown for temporary safe storage. Once the PSSB4 conditions allow the reception of the abnormal load for immediate installation, the abnormal load will be transported from ALDUR Laydown to ALBA PSSB4 Project Site.</p> <p>The load is considered an Abnormal Load when the total (Trailer plus Load) exceeds the following criteria:</p> <ol style="list-style-type: none"> <li>1. Gross weight is 40 tons.</li> <li>2. Length is 18 meters.</li> <li>3. Height is 4 meters.</li> <li>4. Width is 2.5 meters.</li> </ol>	<p>Collision with Private and/or Public facilities due to abnormal dimensions of load.</p>	<p>Private/Public Property Damage</p> <p>Injuries to staff and/or members of the public.</p>	MAJOR	ALMOST CERTAIN	EXTREME	<p>SEPCOIII to select a recognized 3rd party company to be in charge of the transportation of abnormal loads.</p> <p>SEPCOIII shall provide the abnormal loads drawings to the 3rd party transportation company in order to assess the route so as to ensure safe clearance for the loads to pass according to the height, length and width of the abnormal load (crossing under bridges, underpasses, traffic poles, traffic signs, other public and/or private facilities).</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to pass due to restrictions on roads under maintenance, temporary closure, etc.</p> <p>3rd party transportation company shall verify that the route has a safe clearance for the load to cross according to the weight of the transported load (bridges, culverts, areas with transportation weight limitations).</p> <p>3rd party transportation company shall prepare the transportation route plan.</p> <p>-For this specific case, the transportation shall avoid the use of the intersection between King Hamad Highway and the intersection of Road 5156 to enter the Industrial Area.</p> <p>-For this specific case, the transportation shall be from King Hamad Highway and exit in ASKAR Bridge (Bridge No. 1), crossing and then to take Road 5156 (West) and then to enter the industrial area through Road 5141.</p> <p>-Use ALBA B.S.C. southwest gate to enter the premises when accessing from Road 5146 (This will require coordination with ALBA Security and the implementation of provisions to clear the internal road).</p> <p>SEPCOIII to request permit (with submittal of drawings of load and transportation route plan) before the Ministry of Works through the Roads Projects and Maintenance Directorate (RPM) for the transportation of Abnormal Loads.</p> <p>Once approval obtained from RPM, SEPCOIII to request permit to General Directorate of Traffic for coordination of Police Escort.</p> <p>MSRA to be prepared by the 3rd party company in charge of the transportation. MSRA must take into consideration the controls mentioned in this Risk Assessment. However, the mandatory requirements mentioned in the permits issued by RPM and General Directorate of Traffic shall be followed as a first priority. The 3rd party transportation company shall ensure to follow and implement the MSRA and the Permits. Coordination with Police shall be requested for the escort of the loads by patrols throughout the route.</p> <p>MSRA shall be approved by the Consortium and ESBI teams.</p> <p>-Request ALBA to contact Stakeholders having business located on Roads 5141 and 5136 to ensure road clearance during the scheduled night to transport the loads.</p>	<p>Provide awareness on MSRA/ Directorate Permit Requirements to all personnel involved.</p>	----	----	MINOR	UNLIKELY	LOW	
	<p>Speed of trailer shall be 10km/hr in certain areas. Also, the trailer will be invading 2 or 3 lanes on the roads.</p>	<p>Traffic Jam, blockage of roads, avenues.</p>		MAJOR	LIKELY	EXTREME	<p>All transportation shall be conducted after 12 AM and as per the schedule mentioned in the abnormal load transportation permit.</p>	<p>-Train all the team involved from the 3rd party transportation company and from the Consortium team, on the Permit Requirements as well as the MSRA developed by the transportation company.</p>	-----	-----	MODERATE	UNLIKELY	MODERATE
	<p>Unexpected failure of the hydraulic trailer in public roads.</p>	<p>Congestion of the normal traffic condition.</p> <p>Blockage of roads, avenues or streets along the route.</p>		MAJOR	LIKELY	EXTREME	<p>Develop Method Statement to address all technical, quality and HSE requirements to be followed.</p> <p>3rd party certifications of the trailer shall be available and reviewed by the Consortium before the transportation begins.</p> <p>-Traffic Emergency Response Plan to be developed and implemented.</p> <p>3rd party transportation company shall submit the records of the last preventive maintenance given to the trailer so the Consortium verifies that the trailer is in good condition.</p>	<p>Awareness session on MSRA to all personnel involved.</p> <p>All Consortium and 3rd party transportation company teams shall be briefed on the Traffic Emergency Response Plan</p>	<p>Equipment provisions to respond to Traffic Emergencies shall be available before the transportation starts.</p>	----	MINOR	UNLIKELY	LOW
	<p>Lack of competency</p>	<p>Accidents, property loss, injuries to members of the public</p>		MAJOR	ALMOST CERTAIN	EXTREME	<p>Verify 3rd party certifications of key positions in charge of the transportation</p>	<p>Awareness session on MSRA to all personnel involved from the Consortium and from the 3rd party transportation company.</p>	----	----	MINOR	UNLIKELY	LOW
	<p>Fall/Roll over of load</p>	<p>Property damage (3rd party and/or public).</p> <p>Injuries to staff and/or members of the public.</p>		MAJOR	LIKELY	EXTREME	<p>The MSRA shall be implemented thoroughly by the involved personnel.</p> <p>MS shall include the calculations for the safe lifting, lashing, transportation of the load.</p> <p>Speed limits stated in the transportation permits shall be respected.</p> <p>MSRA shall include a section with the Emergency Response actions to be followed in case of accident and/or any other potential emergency scenario.</p>	<p>Awareness session on MSRA to all personnel involved.</p>	<p>Verify that the support equipment to respond to emergencies is available</p>	----	MINOR	UNLIKELY	LOW

**Note 1:** North areas of Bahrain are considered those areas from Manama locations up to ALBA B.S.C. main gate  
**Note 2:** South areas of Bahrain are considered those areas from ALBA B.S.C. main gate to all towns in south Bahrain

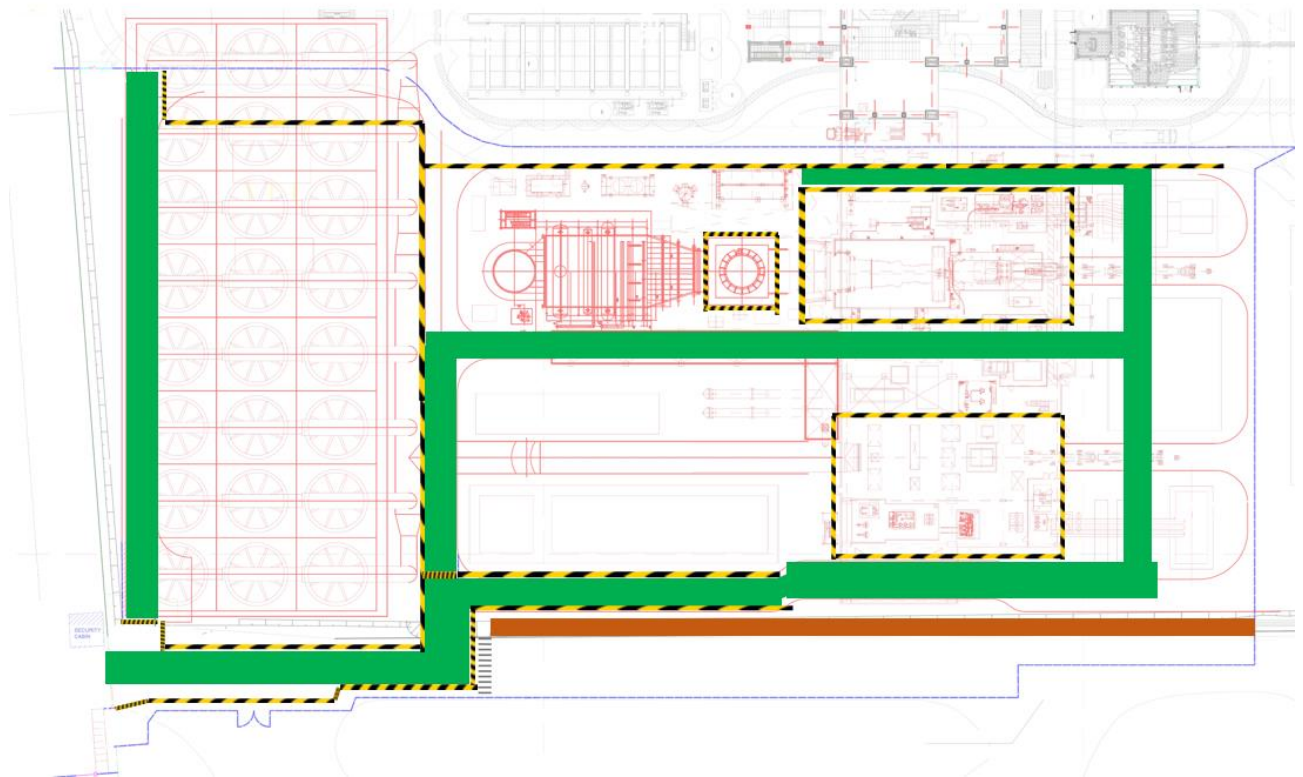


Attachment 2.1 – PS5B4 Project Site Traffic Plot Plan



**ALBA PS5B4 PROJECT**

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 10 – PS5B4 Traffic Plot Plan



### Attachment 2.2 – Parking Area

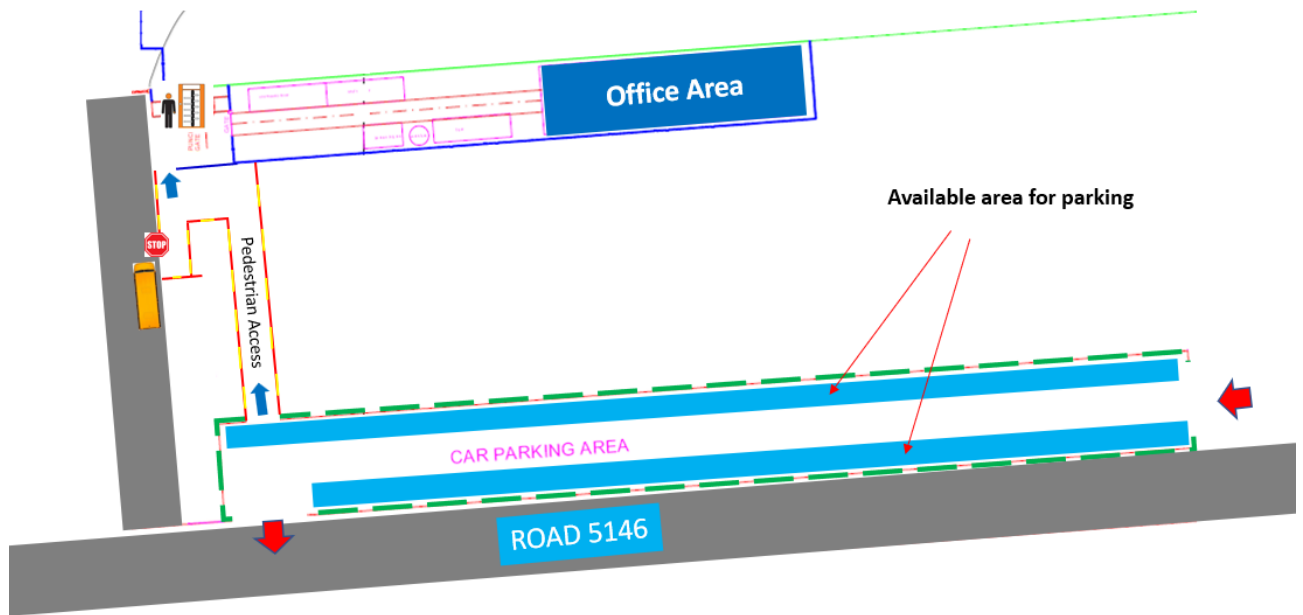


#### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 8 - PS5B4 Parking Area

2 place: 5 meters, then No. of available places=  $150/5=30 \times 2= 60$  places

For 2 rows=  $60 \times 2= 120$  lightweight vehicles



### Attachment 2.3 – Bus Stop



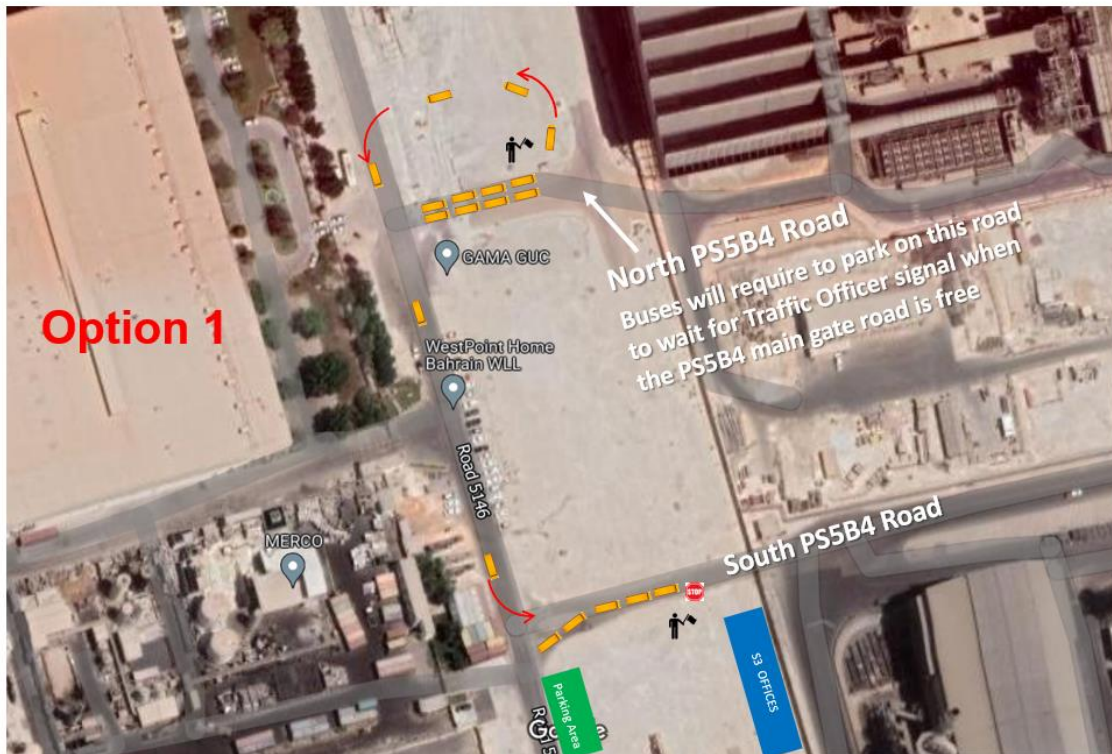
### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 9 – Bus Stop



### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 9 – Bus Stop





### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 9 – Bus Stop



Attachment 2.4 – PS5B4 Transit Transportation Routes in Public Roads



**ALBA PS5B4 PROJECT**

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
 Attachment 2 - PS5B4 Transportation Routes in Public Roads

**Location of ALBA PS5B4 Project Site**





## ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Location of ALBA PS5B4 Project Site





### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034

Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Location of SEPCOIII AL-DUR Laydown

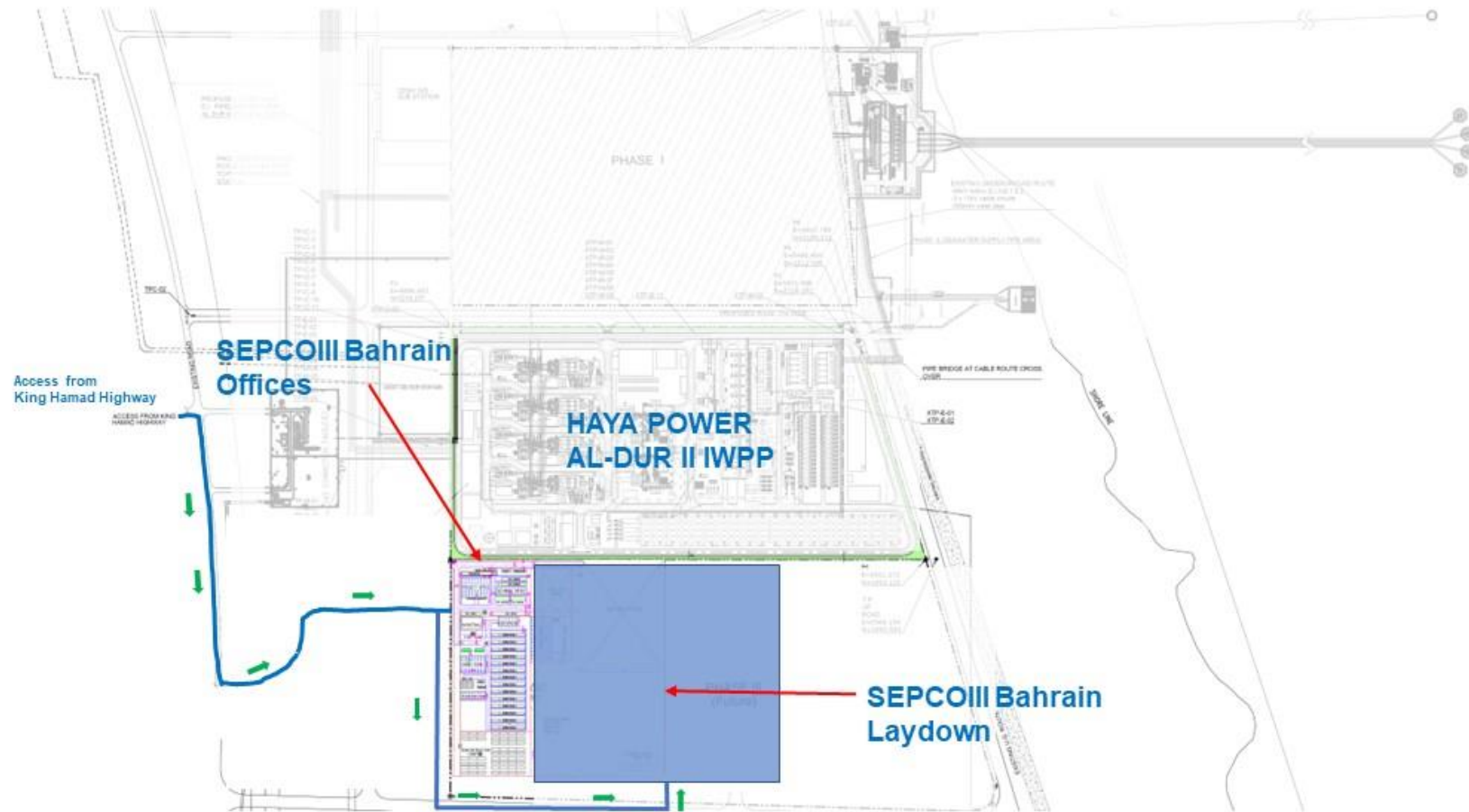




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Location of SEPCOIII AL-DUR Laydown







### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Traffic from North Areas of Bahrain to ALBA PS5B4 (Transportation of Personnel, Regular Loads from Local Suppliers)





### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034

Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from North Areas of Bahrain to ALDUR Laydown (Regular Loads)

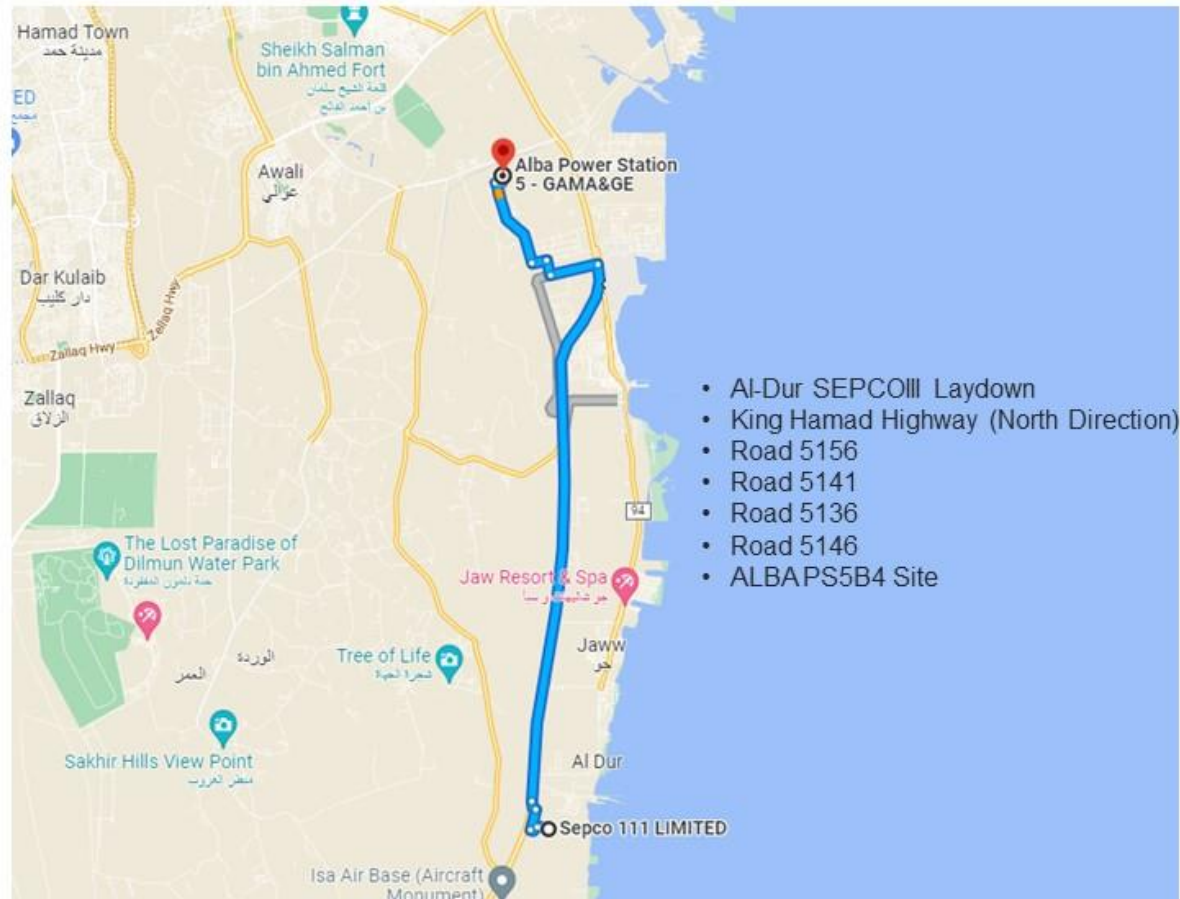




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
 Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from ALDUR Laydown to ALBA PS5B4 (Regular & Medium Size Loads)

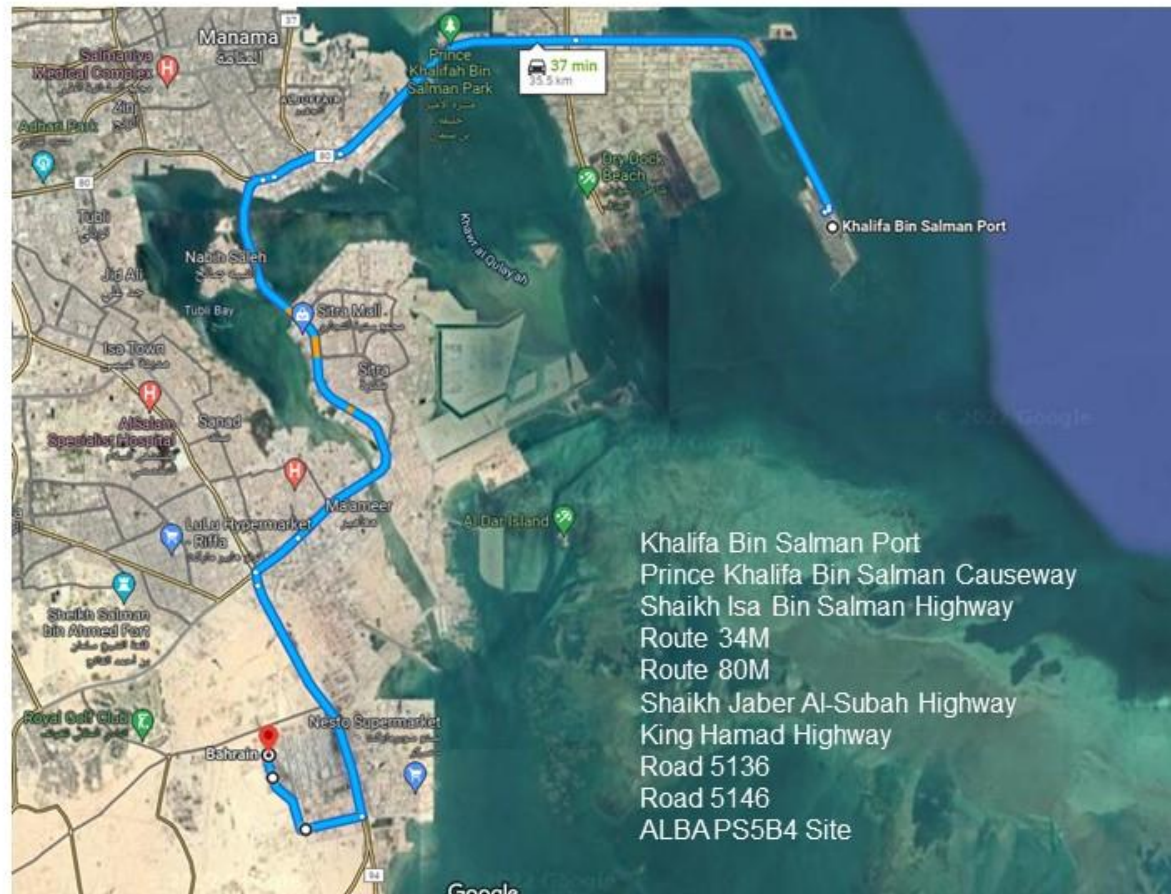




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from Khalifa Bin Salman Port to ALBA PS5B4 (Medium-Size Loads for immediate installation at site)





### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
 Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from Khalifa Bin Salman Port to ALDUR Laydown (Medium-Size Loads)

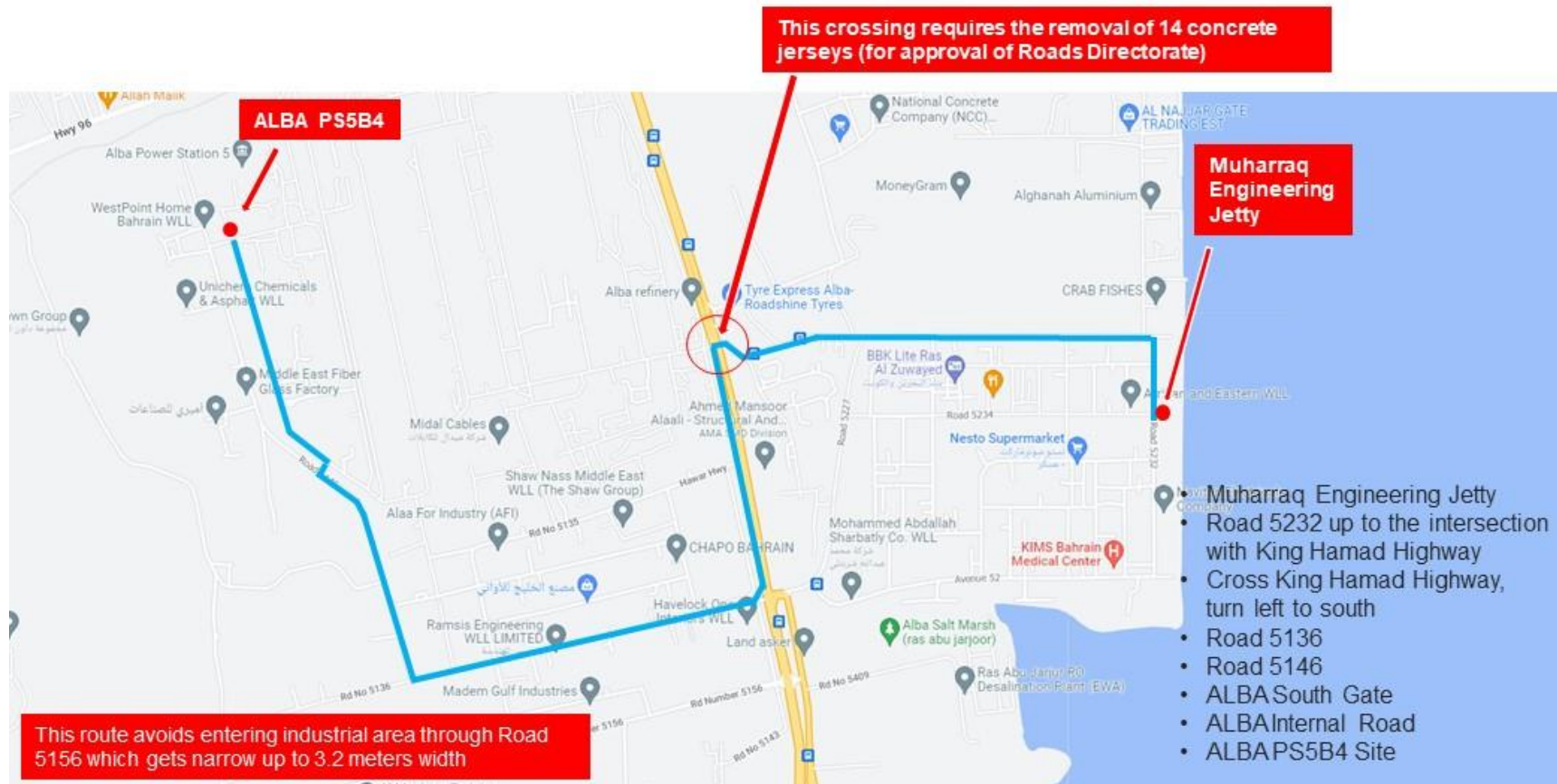




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Traffic from Muharraq Engineering Jetty to ALBA PS5B4 Site (All abnormal Loads for immediate installation)

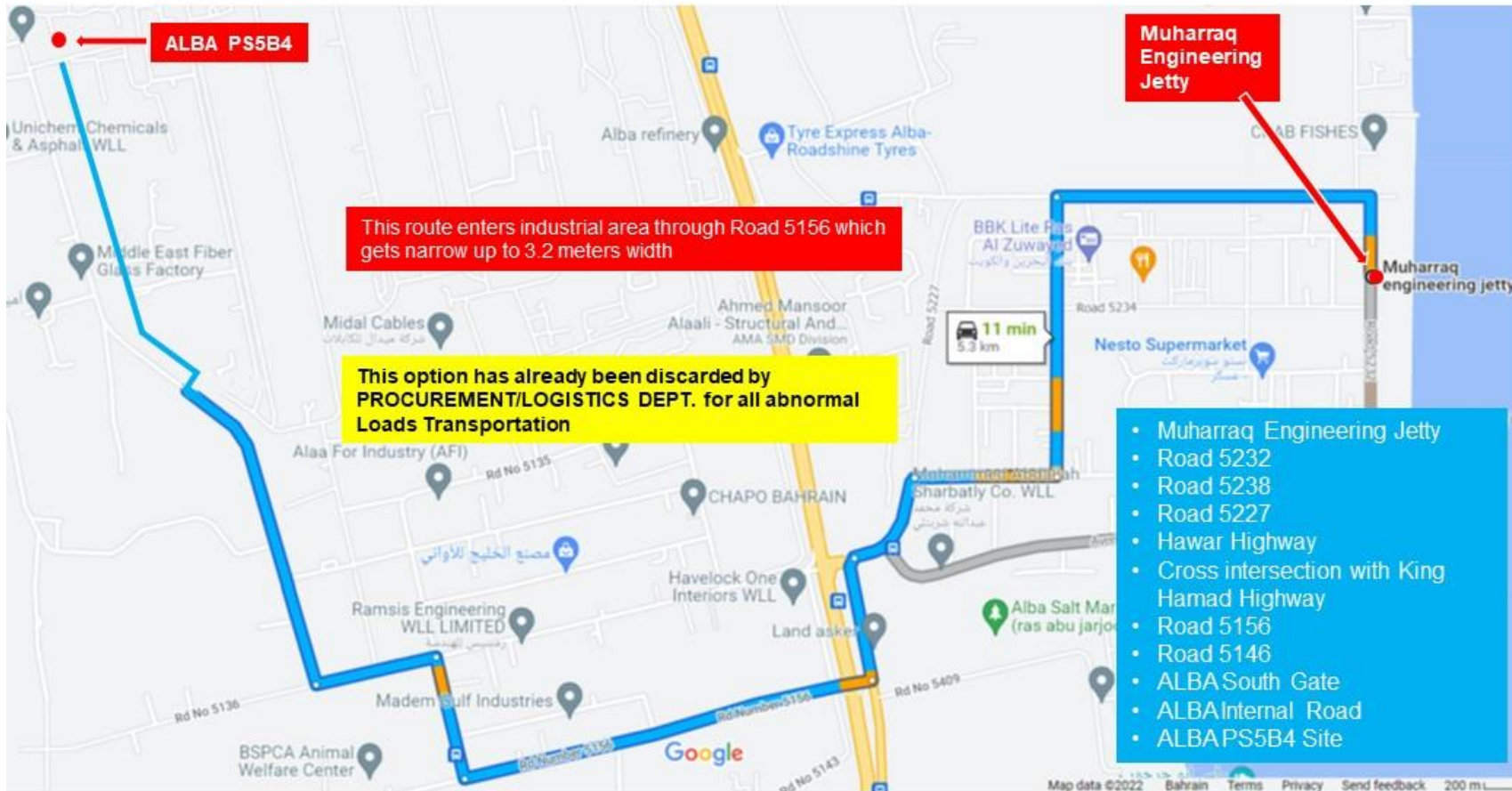




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Prohibited option from Muharraq Engineering Jetty to PS5B4

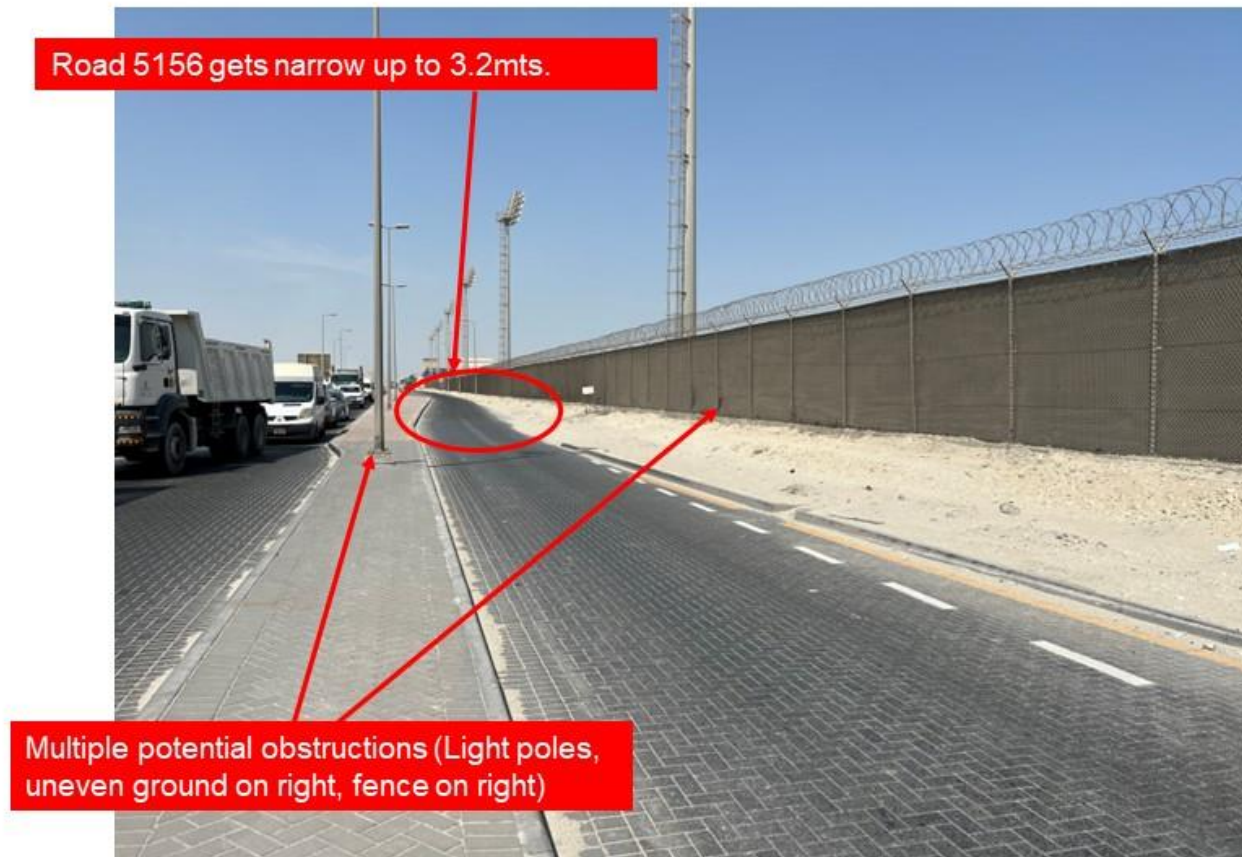




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Road 5156 Condition







### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

### Road 5156 Condition





### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from Muharraq Engineering Jetty to ALDUR Laydown (Abnormal Loads)

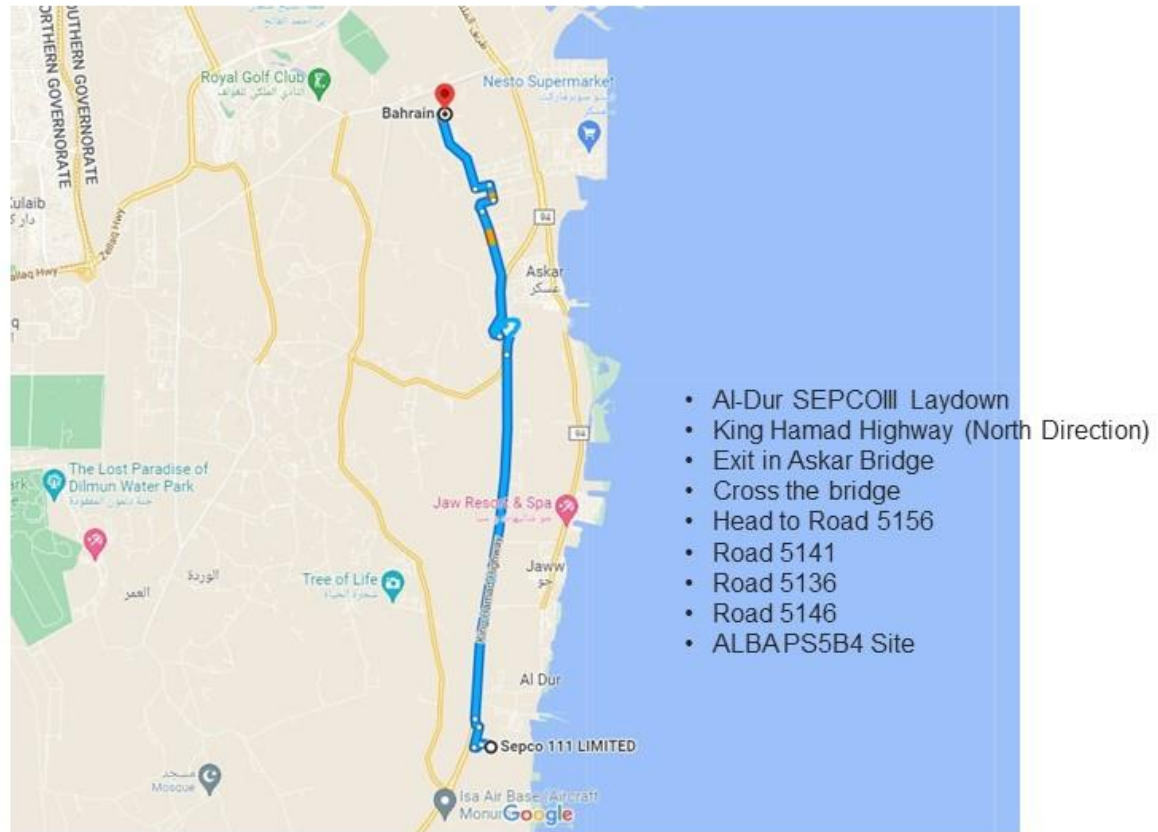




### ALBA PS5B4 PROJECT

PS5 Block 4 Traffic Management Plan PS5-B4-01-YDC-GGP-SEP-00034  
 Attachment 2 - PS5B4 Transportation Routes in Public Roads

#### Traffic from ALDUR Laydown to ALBA PS5B4 Site (abnormal Loads)



Attachment 3 – Vehicles, Drivers & Operators Register



S #	Type of Equipment / Veh	Brand	Model	Plate No. / Serial No.	Reg. Card Date	Insurance Expiration Date	Owner ID	Equipment 3rd Party Certification			Operator/Driver Name	Driving License Expiration Date	Operator 3rd Party Certification			Internal Gate Pass No.	Issue date	Remark
								3rd Party Inspection Date	Next 3rd Party Inspection Date	3rd Party Consultant			Assessment Certificate Date	Certificate Expiration Date	3rd Party Consultant			

Attachment 4 – Vehicles and Heavy Equipment Inspection Forms

	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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**MANLIFT INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
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<b>INSPECTOR:</b>	<b>DATE:</b>	
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**Equipment Information:**

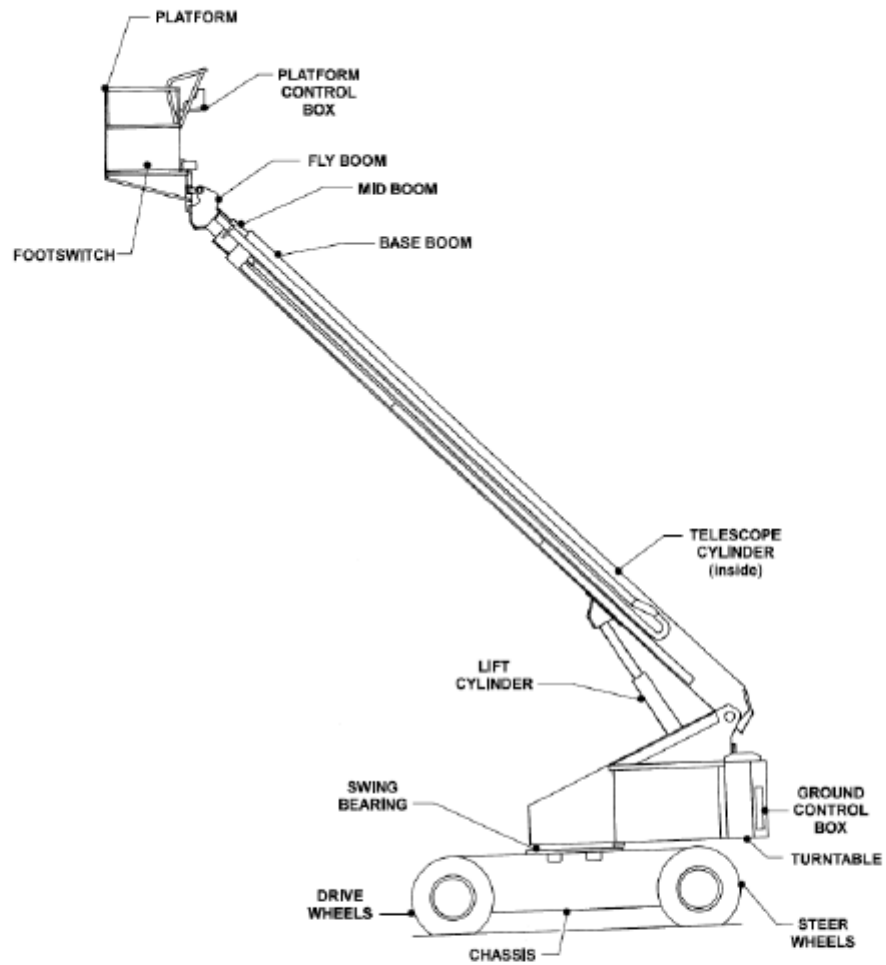
Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Wheels, tires and lug nuts in good condition and with suitable pressure	
4	Starting smoothly and free from unusual noise	
5	Exhaust system is free from leaks & excessive smoke	
6	Engine & Hydraulic oil level at suitable level	
7	Free from hydraulic oil, Water, Diesel leakage.	
8	Battery in good condition & secured	
9	Battery terminal/electrolyte in good condition	
10	Maximum SWL – Numbers of people sign posted	
11	Basket in good condition	
12	Basket free from surplus materials	
	Boom in good condition without damages	
13	Guardrails free from damage and crack.	
14	Basket Gate lock effective & secured in closed position	
15	Ground base emergency controls operation	
16	Ground controls return to neutral upon release	
17	Lever movement label clear and legible	
18	Lever handle complete with knob	
19	Basket controls return to neutral upon release	
20	Control lever hand guard effective	
21	Dead-man control in operational	
22	Hydraulic movement of basket - smooth	
23	Break/Accelerator of basket movement smooth & effective	
24	Basket pivot points free of excessive wear	
25	Pivot pins secured into position	
26	Movement alarm operational/effective	
27	Horn / reverse alarm in working condition	
28	Provided with fire extinguisher	



	<h2>ALBA PS5B4 PROJECT</h2>	
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**Corrective actions to take:**

**Inspector Signature:**

	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	DOC No PAGE No REV DATE	Lifting Operations Procedure 1 of 1 0 June 2022
MOBILE PLANT & VEHICLE INSPECTION CHECKLIST			

BRAND AND MODEL OF EQUIPMENT		INSPECTED BY				DATE OF INSPECTION					
CONDITION ( √ = SATISFACTORY / X = REPAIR / O = REPLACE ) * = WORK DONE											
REF	COMPONE	√	X	O	*	REF	COMPONE	√	X	O	*
1	UNDERFRAME/ CHASSIS					21	TRANSIT MIXER ( ADDL ITEMS )				
2	ENGINE					22	DRUM & DISCHARGE CHUTES				
3	COOLING SYSTEM (S)					23	SUPPORT ROLLERS				
4	CLUTCH/ COUPLING					24	AUXILIARY ENGINE & DRIVE				
5	TRANSMISSION/ GEARBOX					25	ASPHALT PAVER ( ADDL ITEMS )				
6	FINAL DRIVE/ REAR AXLE (S)					26	HOPPER 7 FLIGHT CONVEYORS				
7	SUSPENSION					27	SCREED				
8	RUNNING GEAR					28	AUGERS				
9	TRACKS/ TYRES/ ROLLS					29	TAMPERS				
10	BRAKES					30	JOINT MATCHERS & CROSSFALL				
11	STEERING					31	GENERATOR ( ADDL ITEMS )				
12	CAB / CANOPY/ (& CONTROLS)					32	STATOR & ROTAR				
13	BODY/ TANK/ SUPERSTRUCTURE					33	BRUSHGEAR				
14	HYDRAULIC SYSTEMS					34	CONTROL & SWITCHGEAR				
15	PNEUMATICS					35	TANKER ( ADDL ITEMS )				
16	ELECTRIC SYSTEM					36	PUMP ( & METERING DEVICE )				
17	FIFTH WHEEL/ TOW HITCH					37	SPRAYBAR/ HOSES				
18	BLADE/ BUCKET					38	HEALING SYSTEM				
19	RIPPER/ SCARIFIER					39	ROLLER ( ADDL ITEMS - ALSO 36 & 37 )				
20	HIAB CRANE/ SIDEBOOMS					40	VIBRATORS				
SAFETY AND FIRE		LUBRICATION & STANDARD OF MAINTENANCE				CLEANLINESS & GENERAL					
REF	MAJOR REPAIRS NECESSARY BRIEF	QUAN	MAJOR SPARES REQUIRED DESCRIPTION AND PART								
OUTPUT TOTDATE		PERCENT CONDITION				DATE					
		PRE-REPAIR		POST-REPAIR		REPAIRS COMPLETE					
PROJECT PLANT ENGINEER'S INSTRUCTION						GPM/ FIELD SERVICES' USE					
DISTRIBUTION: PROJECT PLANT ENGINEER/ AREA PLANT ENGINEER/ PLANT RECORD FILE/ M.O.A.											

	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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### MOBILE CRANE INSPECTION RECORD

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	



**Equipment Information:**

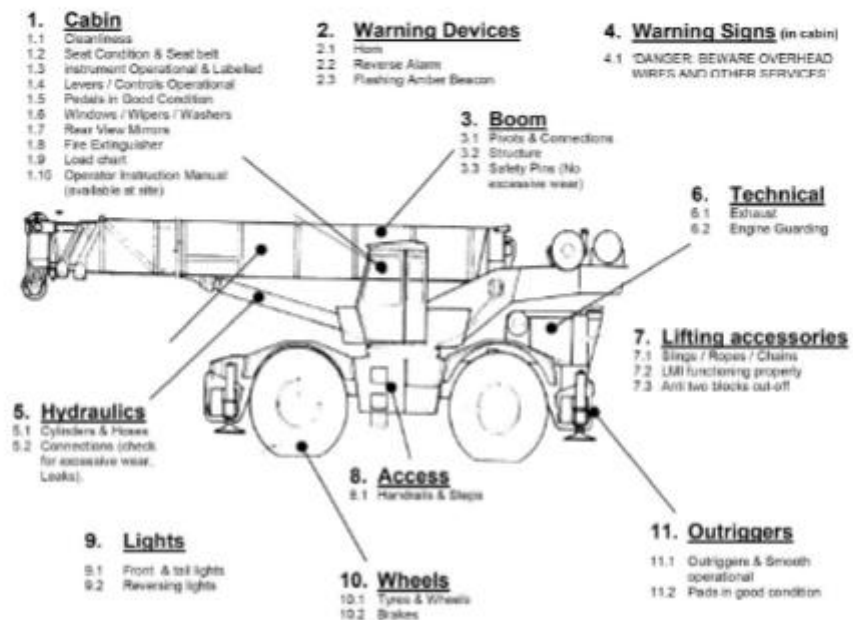
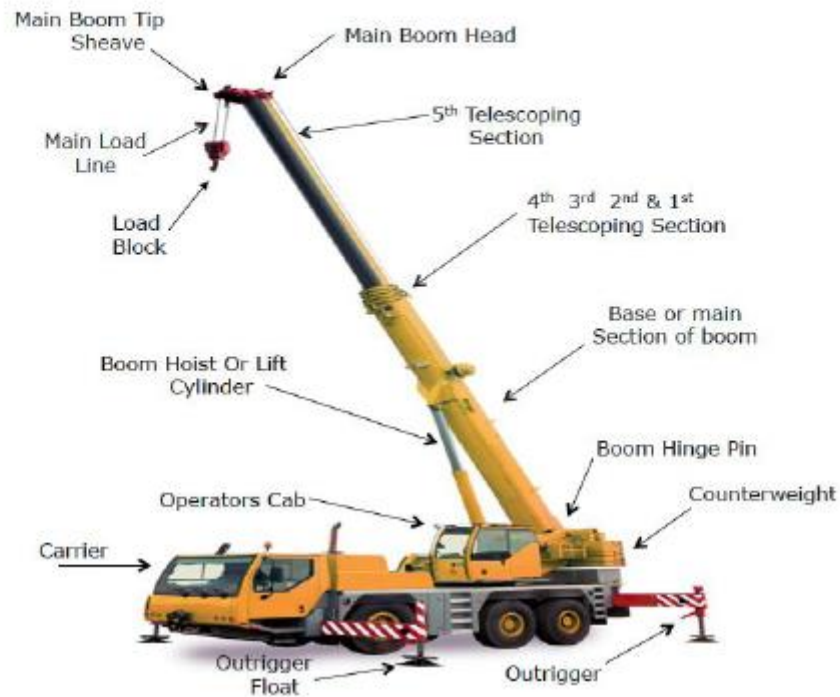
Brand: \_\_\_\_\_ Model: \_\_\_\_\_



Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Horn & reverse alarm in operational condition	
17	Service brake & Parking brake in good condition & operational	
18	Load charts available	
19	Safe work signal light in working condition	
20	Main wire rope greased and in good condition, not twisted, nor kinks or abrasive damaged	
21	Reel winding/drum lay in order without rope overlapping, properly lubricated.	
22	Boom/Jibs in good condition without cracks, deformed or corroded	
23	Boom extension in good condition and smoothly operable	
24	Main / Swing / Winch brake system functioning	
25	Main / Auxiliary block/hoist/hook in good condition	
26	Anti-two block devices & alarm in working condition	
27	Safe load indicator working	
28	Outriggers and all the system in good condition	
29	Outrigger pad in good condition	
30	Sheaves in good condition, not damaged nor bended	
31	Boom lock/swing lock in operation	
32	Wedge socket with pin, extra wire grip, clamp in proper condition	
33	Counter-weight in good condition	
34	Lattice fly jib in good condition	
35	Overload alarm	
36	Over-Hoist Alarm/Anti 2-Block	
37	Boom angle radius indicator	
38	Load indicator	
39	Horn / reverse alarm in working condition	
40	Provided with fire extinguisher	

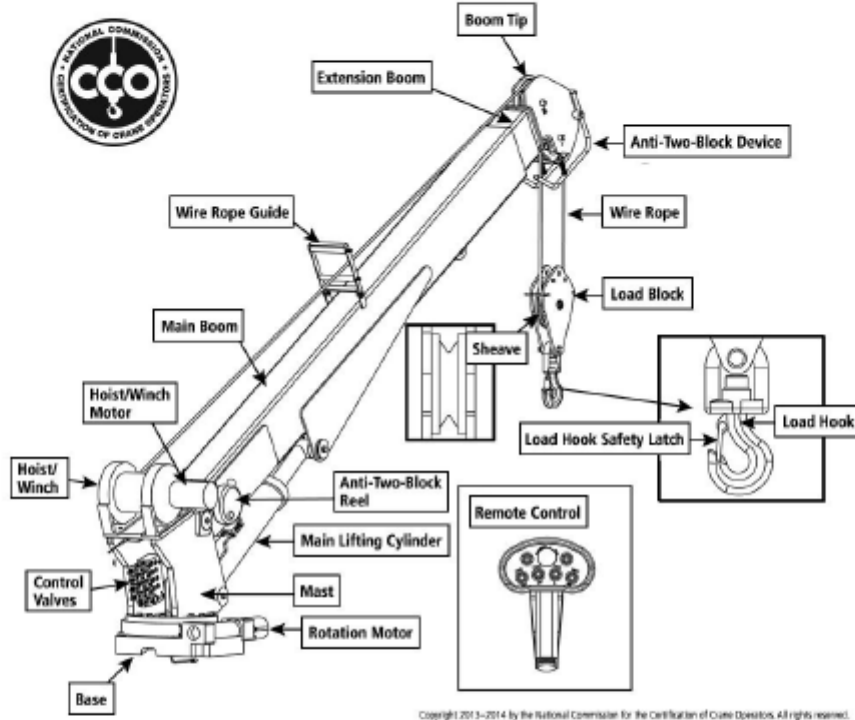


	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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	<b>ALBA PS5B4 PROJECT</b>	
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### Service Truck Crane Components & Terminology



Corrective actions to take:

Inspector Name & Signature:

HSE In-Charge Name & Signature:

Engineer in-Charge Name & Signature:

Approved for Issuance of Gate Pass:  Yes  No

Date:

	Weekday							Remarks	Week No.:	Location & contractor:	Daily Checklist Mobile Crane	
	S	S	M	T	W	T	F				ALBA PS5B4 PROJECT	
1.1									Reg. Number:	Model:	Number:	
1.2											Revision:	Date:
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9.1								Checks performed by Equipment Operator	Verification by Safety Officer:			
9.2								Name & Signature:	Name & Signature:			
10.1								Date:	Date:			
10.2												
11.1												
11.2												
12.1								Instructions:	- Indicate every day with '✓' if satisfactory; '✗' if not ok; 'N/A' if not applicable. Initial in the last row at the bottom every day. - This checklist must be kept in the vehicle until the end of the week. Every day the checklist must be completed and signed by the equipment operator and verified by the area safety officer. The filled-out form shall be filed by the relevant department.			
initial												

**1. Cabin**  
 1.1 Cleanliness  
 1.2 Seat Condition & Seat belt  
 1.3 Instruments Operational & Labelled  
 1.4 Levers / Controls Operational  
 1.5 Pedals in Good Condition  
 1.6 Windows / Wipers / Washers  
 1.7 Rear View Mirrors  
 1.8 Fire Extinguisher  
 1.9 Log Book  
 1.10 Operator Instruction (available on plant)

**2. Warning Devices**  
 2.1 Horn  
 2.2 Flashing amber beacon

**3. Boom**  
 3.1 Pivots & Connections  
 3.2 Structure  
 3.3 Safety Pins (No excessive wear)

**4. Warning Signs (in cabin)**  
 4.1 'DANGER: BEWARE OVERHEAD WIRES AND OTHER SERVICES'

**5. Lifting**  
 5.1 Hambone & Wedge  
 5.2 SWL & chart

**6. Hydraulics**  
 6.1 Cylinders & Hoses  
 6.2 Connections (check for excessive wear, leaks and creep)

**7. Wheels**  
 7.1 Tyres & Wheels  
 7.2 Brakes  
 7.3 Park Brake





**8. Access**  
 8.1 Handrails & Steps

**9. Lifting accessories**  
 9.1 Slings / Ropes / Chains (tagged and in good working order)  
 9.2 Steel of timber pads

**10. Technical**  
 10.1 Exhaust  
 10.2 Engine Guarding

**11. Lights**  
 11.1 Front & tail lights  
 11.2 Reversing lights

**12. Outriggers**  
 12.1 Outriggers & Rams operational

  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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**CRAWLER CRANE INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Steps/handholds in good condition and cleanliness	
7	Starting smoothly and free from unusual noise	
8	Exhaust system is free from leaks & excessive smoke	
9	Engine & Hydraulic oil level at suitable level	
10	Brake / Clutch / Power steering fluid	
11	Free from hydraulic oil, Water, Diesel leakage.	
12	Battery in good condition & secured	
13	Battery terminal/electrolyte in good condition	
14	Warning lights / Head Light / Break Light in working condition	
15	Horn & reverse alarm in operational condition	
16	Brakes in good condition & operational	
17	Load charts available	
	Safe load indicator working	
18	Main wire rope greased and in good condition, not twisted, nor kinks or abrasive damaged	
19	Reel winding/drum lay in order without rope overlapping, properly lubricated.	
20	Boom/Jibs in good condition without cracks, deformed or corroded	
21	Main / Swing / Winch brake system functioning	
22	Main / Auxiliary block/hoist/hook in good condition	
23	Anti-Two block device operable	
24	Sheaves in good condition, not damaged nor bended	
25	Wedge socket with pin, extra wire grip, clamp in proper condition	
26	Counter-weight in good condition	
27	Lattice fly jib in good condition	
28	Overload alarm	
29	Over-Hoist Alarm/Anti 2-Block	
30	Boom angle radius indicator	
31	Load indicator	
32	Caterpillar/chains without damages, deformations, loosened	
33	Upper/lower rollers without damages, deformations, loosened	
34	Provided with fire extinguisher	



  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>
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**BOOM TRUCK INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Service brake & Parking brake in good condition & operational	
17	Wire ropes checked, free of damage & kinks	
18	Operating Levers good & working properly	
19	Out rigger & out rigger pad available in good condition	
20	Boom free from any crack or damage and leakage	
21	Hoist drum / wire rope in good condition	
22	Boom/angle indicator/jib available and functioning	
23	Horn / reverse alarm in working condition	
24	Provided with fire extinguisher	







  	ALBA PS5B4 PROJECT
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**BACKHOE INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL #	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Loader Bucket free from wear, damage & cracks	
7	Loader bucket cylinder free damage & leaks.	
8	Back hoe bucket free from damage and cracks.	
9	Back hoe bucket cylinder and linkage free from damage and leaks.	
10	Back hoe stick/Boom and cylinders and linkage is free from damage and leaks.	
11	Back hoe pivot free from damage, leaks and unused grease	
12	Frame free from cracks and damage	
13	Steps/handholds in good condition and cleanliness	
14	Overall Machine is free from Loose or Missing Nuts & Bolts, Loose Guards, Cleanliness	
15	Air filter is cleaned or change	
16	Fuel filter serviced periodically	
17	Engine coolant level is appropriate and free from leaks/ blockage.	
18	Engine oil level is adequate and free from leaks	
19	Engine fan belts properly adjusted and free from damage.	
20	Hydraulic tank oil level functioning.	
21	Hydraulic lines in proper working condition	
22	Hydraulic control levers / valves working properly	
23	Free from leakage in the hydraulic hoses	
24	Batteries secured and terminals cleaned	
25	Engine compartment free from trash/dirt/leaks	
26	Wheels & tire assemblies are in good condition with suitable pressure	
27	Starting smoothly and free from unusual noise	
28	Exhaust system is free from leaks & excessive smoke	
29	Chassis adequately Lubricated	
31	Brakes, reverse & head lights in working condition	
32	Provided with revolving light and working	
33	Horn / reverse alarm in working condition	
34	Provided with fire extinguisher	



	Week day							Remarks	Week No.:	Location & contractor:		Daily Checklist Backhoe	
	S	S	M	T	W	T	F			Reg. Number:	Model:	Number:	ALBA PS5B4 PROJECT
1.1											Number:		
1.2											Revision: 00	Date:	
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**1. Cabin**

- 1.1 Cleanliness
- 1.2 Seat Condition
- 1.3 Operator Restraint Provided
- 1.4 Instruments Operational & Labelled
- 1.5 Levers / Controls Operational
- 1.6 Pedals in Good Condition
- 1.7 ROPS
- 1.8 Windows / Wipers / Washers
- 1.9 Rear View Mirrors
- 1.10 Fire Extinguisher

**2. Warning Devices**

- 2.1 Horn
- 2.2 Reverse Alarm
- 2.3 Flashing Amber Beacon

**3. Technical**

- 3.1 Exhaust
- 3.2 Engine Guarding

**4. Stick**

- 4.1 Pivots & Connections
- 4.2 Safety Pins (No excessive wear)

**5. Lifting**

- 5.1 SWL / crane chart

**6. Bucket**

- 6.1 Safety Pins
- 6.2 Quick hitch (where applicable)

**7. Warning Signs (in cabin)**

- 7.1 'DANGER: BEWARE OVERHEAD WIRES' & 'UNDERGROUND SERVICES!'

**8. Front Bucket**

- 8.1 Safety Pins & Connecting Rods

**9. Others**

- 9.1 Travelling hitch stabilisers
- 9.2

**10. Hydraulics**

- 10.1 Cylinders & hoses
- 10.2 Connections (check for excessive wear, leaks and creep)

**11. Lights**

- 11.1 Front & tail lights
- 11.2 Reversing lights

**12. Wheels**

- 12.1 Tyres & Wheels
- 12.2 Brakes
- 12.3 Park Brake

Checks performed by Equipment Operator: \_\_\_\_\_

Verification by HSE Officer: \_\_\_\_\_

Name & Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:**

- Indicate every day with 'O' if ok; 'N' if not ok; '-' if not applicable. Initial in the last row at the bottom every day.
- This checklist must be kept in the vehicle until the end of the week. After the last day (= Sunday), the checklist must be signed by the Equipment Operator and verified by the Supervisor. The filled out form shall be filed by the relevant department.

	Weekday							Remarks	Week No.:	Location & contractor:		Daily Checklist Skid Loader	
	S	S	M	T	W	T	F			Reg. Number:	Model:	Number:	ALBA PS5B4 PROJECT
1.1											Number:		
1.2											Revision: 00	Date:	
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**1. Cabin**

- 1.1 Cleanliness
- 1.2 Seat Condition
- 1.3 Operator Restraint Provided
- 1.4 Instruments Operational & Labelled
- 1.5 Levers / Controls Operational
- 1.6 Pedals in Good Condition
- 1.7 Windows / Wipers / Washers
- 1.8 Rear View Mirrors
- 1.9 Fire Extinguisher
- 1.10 Operator Instruction (available on plant)

**2. Warning Devices**

- 2.1 Horn
- 2.2 Reverse Alarm
- 2.3 Flashing Amber Beacon

**3. Hydraulics**

- 3.1 Cylinders
- 3.2 Hoses
- 3.3 Connections (check for excessive wear, leaks and creep)

**4. Bucket**

- 4.1 Pivots
- 4.2 Connections
- 4.3 Safety Pins (No excessive wear)

**5. Warning Signs (both sides)**

- 5.1 Crush point hazard sign

**6. Access**

- 6.1 Handrails & Steps

**7. Technical**

- 7.1 Exhaust
- 7.2 Engine Guarding

**8. Warning Signs (in cabin)**

- 8.1 'SEAT BELTS MUST BE WORN'
- 8.2 'DANGER: BEWARE OVERHEAD WIRES'

**9. Lights**

- 9.1 Front & Tail lights
- 9.2 Reversing lights

**10. Wheels**

- 10.1 Tyres & Wheels
- 10.2 Brakes
- 10.3 Park Brake

Checks performed by Equipment Operator: \_\_\_\_\_

Verification by Safety Officer: \_\_\_\_\_

Name & Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:**

- Indicate every day with 'S' if satisfactory; 'N' if not ok; 'N/A' if not applicable. Initial in the last row at the bottom every day.
- This checklist must be kept in the vehicle until the end of the week. Every day the checklist must be completed and signed by the equipment operator and verified by the area safety officer. The filled out form shall be filed by the relevant department.

  	<b>ALBA PS5B4 PROJECT</b>
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**SKID LOADER INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

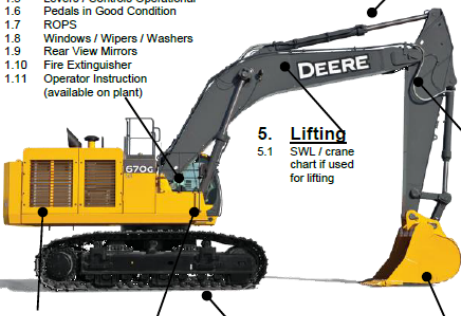
**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Operating handles fixed properly	
4	Air filter is cleaned or change	
5	Fuel filter serviced	
6	Radiator coolant level is appropriate and free from leaks	
7	Engine oil level is adequate and free from for leaks	
8	Engine belts properly adjusted and free from damage.	
9	Fuel tank cap available and drain off moisture & sediment	
10	Hydraulic tank oil level functioning	
11	Hydraulic lines in proper working condition	
12	Hydraulic control levers / valves working properly	
13	Free from leakage in the hydraulic hoses	
14	Bucket secured with pin	
15	Wheels & tire assemblies condition with sufficient pressure	
16	Engine starting smoothly and free from unusual noise	
17	Exhaust system (check for leaks & excessive smoke	
18	Steering / acceleration smooth	
19	Provided with revolving light?	
20	Chassis adequately Lubricated	
21	Brakes, reverse & head lights in working condition	
22	Horn / reverse alarm in working condition	
23	Provided with fire extinguisher	



	Week day							Remarks	Week No.:	Location & contractor:	Daily Checklist Excavator			
	S	S	M	T	W	T	F				ALBA PS5B4 PROJECT			
1.1									Reg. Number:	Model:	Number:			
1.2											Revision:	Date:		
1.3									 <p><b>1. Cabin</b>                      1.1 Cleanliness                      1.2 Seat Condition                      1.3 Operator Restraint Provided                      1.4 Instruments Operational &amp; Labelled                      1.5 Levers / Controls Operational                      1.6 Pedals in Good Condition                      1.7 ROPS                      1.8 Windows / Wipers / Washers                      1.9 Rear View Mirrors                      1.10 Fire Extinguisher                      1.11 Operator Instruction (available on plant)</p> <p><b>2. Stick</b>                      2.1 Pivots                      2.2 Connections                      2.3 Safety Pins</p> <p><b>3. Lights</b>                      3.1 Front lights                      3.2 Reversing lights</p> <p><b>4. Warning Signs</b> (in cabin)                      4.1 'DANGER-BEWARE OVERHEAD WIRES &amp; UNDERGROUND SERVICES'</p> <p><b>5. Lifting</b>                      5.1 SWL / crane chart if used for lifting</p> <p><b>6. Technical</b>                      6.1 Exhaust                      6.2 Engine Guarding</p> <p><b>7. Hydraulics</b>                      7.1 Cylinders &amp; Hoses                      7.2 Connections (check for excessive wear, leaks and creep)                      7.3 Non-return valves</p> <p><b>8. Access</b>                      8.1 Handrails &amp; Steps</p> <p><b>9. Tracks</b>                      9.1 Tracks complete                      9.2 Drivers free from leaks</p> <p><b>10. Bucket</b>                      10.1 Safety Pins                      10.2 Quick hitch (where applicable) (If Quick Hitch is fitted NO LIFTING POINTS Allowed on back of bucket)</p> <p><b>11. Warning Devices</b>                      11.1 Horn                      11.2 Motion Alarm                      11.3 Flashing Amber Beacon</p> <p><b>NOTE:</b> To be used as a lifting device an excavator MUST be fitted with non-return valves on the hydraulics and have a safe load limit clearly marked on the boom. The lifting point MUST have a fitted and working safety catch on the hook.</p>					
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8.1														
9.1								Checks performed by Equipment Operator	Verification by Safety Officer:					
9.2								Name & Signature:	Name & Signature:					
10.1								Date:	Date:	Date:				
10.2														
11.1														
11.2														
11.3														
initial								<b>Instructions:</b> - Indicate every day with '✓' if satisfactory; '✗' if not ok; 'N/A' if not applicable. Initial in the last row at the bottom every day. - This checklist must be kept in the vehicle until the end of the week. Every day the checklist must be completed and signed by the equipment operator and verified by the area safety officer. The filled-out form shall be filed by the relevant department.						

  	ALBA PS5B4 PROJECT
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**EXCAVATOR INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Steps/handholds in good condition and cleanliness	
7	Starting smoothly and free from unusual noise	
8	Exhaust system is free from leaks & excessive smoke	
9	Engine & Hydraulic oil level at suitable level	
10	Brake / Clutch / Power steering fluid	
11	Free from hydraulic oil, Water, Diesel leakage.	
12	Battery in good condition & secured	
13	Battery terminal/electrolyte in good condition	
14	Warning lights / Head Light / Break Light in working condition	
15	Horn & reverse alarm in operational condition	
16	Brakes in good condition & operational	
17	Caterpillar/chains without damages, deformations, loosened	
18	Upper/lower rollers without damages, deformations, loosened	
19	Bucket free from excessive wear or damage	
20	Bucket cylinder and linkage without excessive wear, damage or leaks.	
21	Boom and cylinders without excessive wear or damage, with original components.	
22	No visible leaks underneath the excavator	
23	Swing gear in good condition and without excessive noise	
24	Engine compartment free from trash/dirt/leaks	
25	Provided with fire extinguisher	





	Weekday							Remarks	Week No.:	Location & contractor:	<b>Daily Checklist Wheel Loader</b>			
	S	S	M	T	W	T	F				ALBA PS5B4 PROJECT			
1.1									Reg. Number:	Model:	Number:			
1.2											Revision: 00	Date:		
1.3									<p><b>1. Cabin</b>                      1.1 Cleanliness                      1.2 Seat Condition                      1.3 Operator Restraint Provided                      1.4 Instruments Operational &amp; Labelled                      1.5 Levers / Controls Operational                      1.6 Pedals in Good Condition                      1.7 Windows / Wipers / Washers                      1.8 Rear View Mirrors                      1.9 Fire Extinguisher                      1.10 Operator Instruction (available on plant)</p> <p><b>2. Warning Devices</b>                      2.1 Horn                      2.2 Reverse Alarm                      2.3 Flashing Amber Beacon</p> <p><b>3. Hydraulics</b>                      3.1 Cylinders                      3.2 Hoses                      3.3 Connections (check for excessive wear, leaks and creep)</p> <p><b>4. Bucket</b>                      4.1 Pivots                      4.2 Connections                      4.3 Safety Pins (No excessive wear)</p> <p><b>5. Lifting</b>                      5.1 SWL if used for lifting</p> <p><b>6. Warning Signs (both sides)</b>                      6.1 Crush point hazard sign</p> <p><b>7. Access</b>                      7.1 Handrails &amp; Steps</p> <p><b>8. Technical</b>                      8.1 Exhaust                      8.2 Engine Guarding</p> <p><b>9. Warning Signs (in cabin)</b>                      9.1 "SEAT BELTS MUST BE WORN"                      9.2 "DANGER: BEWARE OVERHEAD WIRES"</p> <p><b>10. Lights</b>                      10.1 Front &amp; Tail lights                      10.2 Reversing lights</p> <p><b>11. Wheels</b>                      11.1 Tyres &amp; Wheels                      11.2 Brakes                      11.3 Park Brake</p>					
1.4														
1.5														
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6.1														
7.1														
8.1														
8.2														
9.1								Checks performed by Equipment Operator	Verification by Safety Officer:					
9.2								Name & Signature:	Name & Signature:					
10.1								Date:	Date:	Date:				
10.2														
11.1														
11.2														
11.3														
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**Instructions:**

- Indicate every day with '✓' if satisfactory; '✗' if not ok; 'N/A' if not applicable. Initial in the last row at the bottom every day.
- This checklist must be kept in the vehicle until the end of the week. Every day the checklist must be completed and signed by the equipment operator and verified by the area safety officer. The filled-out form shall be filed by the relevant department.

  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>
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**WHEEL LOADER INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	


**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Service brake & Parking brake in good condition & operational	
17	Bucket without damages or cracks, misalignment, check welds, locking pins in place and secure.	
18	Loader bucket cutting edge, moldboard free from excessive wear, damage & cracks	
19	Bucket Lift and Tilt Cylinders, Lines, Hoses free from damage, excessive wear and leaks.	
20	Loader frame/arms free from excessive wear and damage	
21	Axles – Final Drives, Differentials, Brakes, Duo-cone Seals free from leak, damage and excessive wear.	
22	Air Tank (if equipped w/ air brakes)	
23	Boom free from any crack or damage and leakage	
24	Horn / reverse alarm in working condition	
25	Provided with fire extinguisher	



	<h2 style="margin: 0;">ALBA POWER STATION 5 BLOCK 4 PROJECT</h2>
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**DIESEL REFUELLING TRUCK INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Service brake & Parking brake in good condition & operational	
17	Diesel pump in good condition without water leaks, diesel leaks, hoses in good condition.	
18	Diesel hoses in good condition and rated for the discharge pressure. Clamps available.	
19	Diesel vessel without dents, damages or leaks	
20	Diesel nozzle in good condition and operable	
21	Diesel SDS Available	
22	Safety signs for flammable material, no smoking available inside the truck in order to be displayed during refueling.	
23	PPE available for operator during refueling (rubber gloves, goggles)	
24	Basic spill kit available	
25	Grounding point available and in good condition	
26	Horn / reverse alarm in working condition	
27	Provided with at least 2 fire extinguisher	

**Corrective actions to take:**

Inspector Name & Signature: \_\_\_\_\_

HSE In-Charge Name & Signature: \_\_\_\_\_

Engineer in-Charge Name & Signature: \_\_\_\_\_

Approved for Issuance of Gate Pass:    Yes    No

Date: \_\_\_\_\_

	<h2 style="margin: 0;">ABA PS5B4 PROJECT</h2>
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**DOZER INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

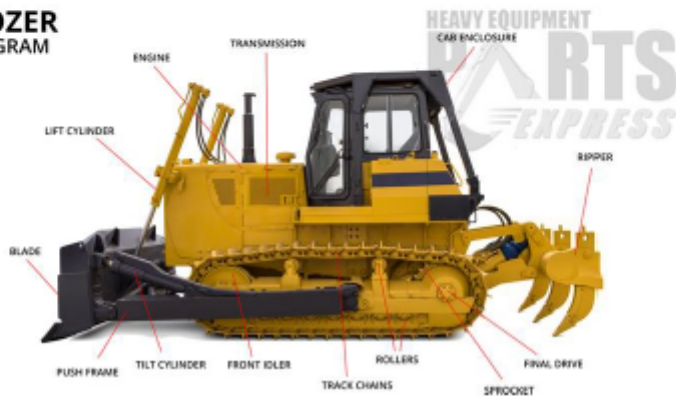
**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Steps/handholds in good condition and cleanliness	
7	Starting smoothly and free from unusual noise	
8	Exhaust system is free from leaks & excessive smoke	
9	Engine & Hydraulic oil level at suitable level	
10	Brake / Clutch / Power steering fluid	
11	Free from hydraulic oil, Water, Diesel leakage.	
12	Battery in good condition & secured	
13	Battery terminal/electrolyte in good condition	
14	Warning lights / Head Light / Break Light in working condition	
15	Horn & reverse alarm in operational condition	
16	Brakes in good condition & operational	
17	Caterpillar/chains, roller, sprocket, ripper without damages, deformations, loosened	
18	Upper/lower rollers without damages, deformations, loosened	
19	Blade free from excessive wear or damage	
20	Blade cylinder and linkage without excessive wear, damage or leaks.	
21	Cylinders without excessive wear or damage, with original components.	
22	No visible leaks underneath the excavator	
23	Swing gear in good condition and without excessive noise	
24	Engine compartment free from trash/dirt/leaks	
25	Provided with fire extinguisher	

**BULLDOZER  
PARTS DIAGRAM**





  	ALBA PS5B4 PROJECT
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**ROLLER COMPACTOR INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Seat and seat belt adjustment functioning and free from damage	
4	Side and rear view mirrors in good condition	
5	Doors /Steps/handholds free from damage and in good condition/cleanliness	
6	Windshield Wipers working and free from damage	
7	Overall Machine is free from Loose or Missing Nuts & Bolts, Loose Guards, Cleanliness	
8	Air Filter periodical serviced and replaced	
9	Fuel Tank with cap and free from damage	
10	Fuel filter serviced periodically	
11	Engine coolant level is appropriate and free from leaks/ blockage.	
12	Engine oil level is adequate and free from leaks	
13	All motor fan belts properly adjusted and free from damage.	
14	Engine compartment free from trash/dirt/leaks	
15	Hydraulic tank with cap and oil level functioning.	
16	Hydraulic lines in proper working condition	
17	All hoses free from leakages.	
18	Radiator free from debris, damage and leaks	
19	Gauges, indicator, switch and controls in good & working condition	
20	Batteries secured and terminals cleaned	
21	Drum Scrapers available and free from excessive wear/ damage	
22	Drum Cooling Oil free from leaks	
23	Eccentric Weight Housing free from leaks	
24	Isolation Mounts free from damage/crack/splitting	
25	Steering Cylinders / Ends free from damage, excessive wear and leaks.	
26	Axles – Final Drives (Axle / Drum) free from leaks and damage.	
27	Wheels, tire assemblies and steam caps are in good condition with suitable pressure and free from inflation	
28	Lights, Front and Rear, Beacon functioning and free from damage to lens/ Housing/ Wiring	
29	Starting smoothly and free from unusual noise	
30	Exhaust system is free from leaks & excessive smoke	
31	Brakes / parking brakes effective	
32	Horn / reverse alarm in working condition	
33	Provided with fire extinguisher	

	<h2>ALBA PS5B4 PROJECT</h2>
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<b>Corrective actions to take:</b>	
<b>Inspector Name &amp; Signature:</b>	
<b>HSE In-Charge Name &amp; Signature:</b>	
<b>Engineer in-Charge Name &amp; Signature:</b>	
<b>Approved for Issuance of Gate Pass:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Date:</b>	



  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>
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DUMP TRUCK INSPECTION RECORD		
<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	
<b>Equipment Information:</b>		
Brand: _____ Model: _____		
Serial No: _____ Date of last 3 <sup>rd</sup> party inspection: _____		
SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Horn & reverse alarm in operational condition	
17	Service brake & Parking brake in good condition & operational	
18	Engine compartment free from trash/dirt/leaks	
19	Main Hydraulic jack is in good condition, greased and operable	
20	Back gate opens smoothly	
21	Provided with fire extinguisher	



  	ALBA PS5B4 PROJECT
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**WATER TANKER INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Service brake & Parking brake in good condition & operational	
17	Water pump in good condition without water leaks, diesel leaks, hoses in good condition.	
18	Water hoses in good condition and rated for the discharge pressure. Clamps available.	
19	Water vessel without dents, damages or leaks	
20	Top side of water vessel with hand rail for safe operation by user	
21	Horn / reverse alarm in working condition	
22	Provided with fire extinguisher	

	<p><b>ALBA PS5B4 PROJECT</b></p>
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<p><b>Corrective actions to take:</b></p>          <p><b>Inspector Signature:</b></p>
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  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>
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**CONCRETE MIXERS INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

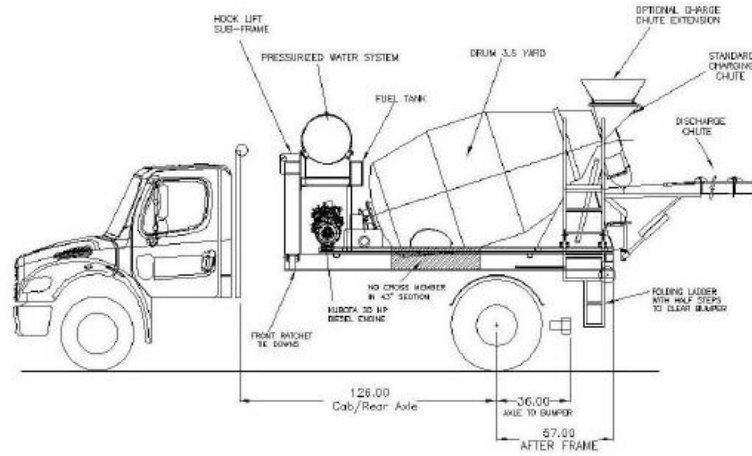
**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Horn & reverse alarm in operational condition	
17	Service brake & Parking brake in good condition & operational	
18	Drum is in good condition without major dents or damages?	
19	Drum blades are in good condition without excessive wear, holes or distortion.	
20	Drum revolution counter and speed	
21	Charging hopper in good condition, not bended or compromise for the safe reception of concrete.	
22	Discharge opening/chutes in good condition, not bended or damaged	
23	Water system in good condition without leaks or damages. All gauges, pump, tank, nozzles, level gauges and instruments working properly.	
24	Provided with fire extinguisher	

	<h1>ALBA PS5B4 PROJECT</h1>
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**Corrective actions to take:**

**Inspector Name & Signature:**

**HSE In-Charge Name & Signature:**

**Engineer in-Charge Name & Signature:**

**Approved for Issuance of Gate Pass:**  Yes  No

**Date:**

  	ALBA PS5B4 PROJECT
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**CONCRETE PUMP TRUCK INSPECTION RECORD**


<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Horn & reverse alarm in operational condition	
17	Service brake & Parking brake in good condition & operational	
18	Emergency push button operable	
19	Out rigger & out rigger pad available in good condition	
20	Boom free from any crack or damage and leakage	
21	Is pumping pipeline/elbows in good condition (no dents or pinholes) and properly fixed? Thickness testing has been carried out at least once a year?	
22	Are the pipeline clamps in good condition and rated to the operational pressure?	
23	Is the remote control in good condition and working properly?	
24	Pressurized air reservoir tank is in good condition and has pressure gauge and it's in operation?	
25	Are all pressurized air system in good condition, no leaks, no dents or damaged pipelines/hoses?	
26	Provided with fire extinguisher	
27	Is the area free of overhead obstructions (power lines, communication cables, etc.) for the safe extension of the boom? When working close to energized power lines, boom shall respect the safe distance as per the table 1.	

	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>
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All employees and equipment shall respect the following minimum distances from approaching to NON-INSULATED energized cables and/or terminals:	
Nominal phase-to-phase voltage rating	Clearance distance (meters)
750 or more volts but no more than 150,000 volts	3 meters
More than 150,000 volts, but no more than 250,000 volts	4.5 meters
More than 250,000 volts	6 meters

Table 1 – Clearance Distance from non-insulated energized cables



Corrective actions to take:



  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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**FORKLIFT INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	




**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5		
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Forks in good condition	
17	Mast chain, cables and stops in good condition without leaks or damages.	
18	Overhead guard available	
19	Steering operation functioning	
20	Mast Lift Up/Down & Tilt properly	
21	Horn / reverse alarm in working condition	
22	Provided with fire extinguisher	



  	<h2 style="margin: 0;">ALBA PS5B4 PROJECT</h2>	
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**TELEHANDLER INSPECTION RECORD**

<b>COMPANY:</b>	<b>LOCATION:</b>	
<b>INSPECTOR:</b>	<b>DATE:</b>	

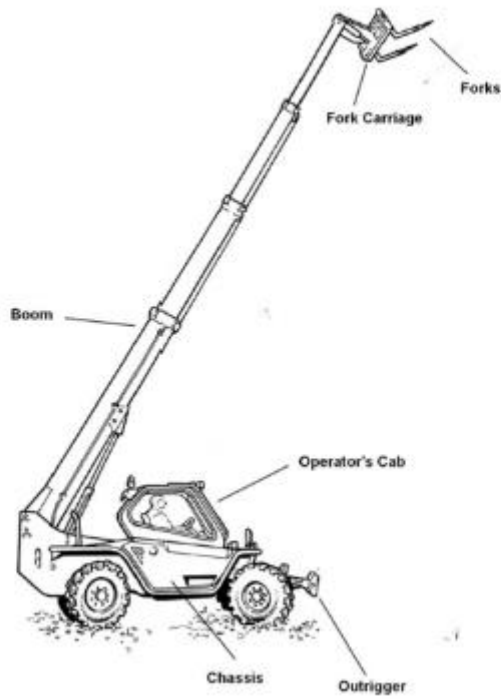
**Equipment Information:**

Brand: \_\_\_\_\_ Model: \_\_\_\_\_

Serial No: \_\_\_\_\_ Date of last 3<sup>rd</sup> party inspection: \_\_\_\_\_

SL	COMPONENTS	Remarks
1	Valid insurance & 3 <sup>rd</sup> party certificate of equipment.	
2	Operator with Complete PPE, Site Orientation & valid 3 <sup>rd</sup> party certificate	
3	Side and rear view mirrors in good condition	
4	Seat adjustment functioning and free from damage	
5	Windshield Wipers working and free from damage	
6	Wheels, tires and lug nuts in good condition and with suitable pressure	
7	Steps/handholds in good condition and cleanliness	
8	Starting smoothly and free from unusual noise	
9	Exhaust system is free from leaks & excessive smoke	
10	Engine & Hydraulic oil level at suitable level	
11	Brake / Clutch / Power steering fluid	
12	Free from hydraulic oil, Water, Diesel leakage.	
13	Battery in good condition & secured	
14	Battery terminal/electrolyte in good condition	
15	Warning lights / Head Light / Break Light in working condition	
16	Service brake & Parking brake in good condition & operational	
17	Forks/Bucket without damages or cracks, misalignment, check welds, locking pins in place and secure.	
18	Out rigger & out rigger pad available in good condition	
19	Boom free from any crack or damage and leakage	
20	Horn / reverse alarm in working condition	
21	Provided with fire extinguisher	

	<p><b>ALBA PS5B4 PROJECT</b></p>	
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Attachment 5 – Safe Transportation of Loads




CODE OF PRACTICE

Safety of Loads on Vehicles

Third edition

TSO: London

## Attachment 6 – Traffic Emergency Preparedness and Response Guide

	<b>ALBA PS5B4 Project</b>	Traffic Management Plan Rev. 0 Attachment 6
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## TRAFFIC EMERGENCY PREPAREDNESS AND RESPONSE GUIDE

### 1. Purpose

This Traffic Emergency Preparedness Guide is intended to provide the steps to manage traffic emergencies in public roads occurring to the Consortium, Subcontractors, Suppliers and/or Vendors engaged in ALBA PS5B4 Project.

### 2. Scope

This guide is applicable to Consortium, Subcontractors, Suppliers, Vendors and/or Transportation Companies' vehicles engaged in any activity related to ALBA PS5B4 Project, when on route in public roads in the Kingdom of Bahrain.

### 3. References

- PS5 Block 4 Emergency Preparedness and Response Procedure PS5-B4-01-YDC-GGP-SEP-00004

### 4. Definitions

**ALBA PS5B4 Project:** Alba Power Station 5 Block 4 Project

**Owner:** Aluminium Bahrain B.S.C. (ALBA).

**The Consortium (The EPC Contractors):**

The 3 companies that were awarded with the ALBA PS5B4 contract:

- SEPCOIII Bahrain Construction Company W.L.L.
- Tiejun International DMCC
- Mitsubishi Power, LTD

**SHE/HSE:** Safety, Health and Environment

**PRO:** Public Relations Officer

**Company Logistics Emergency Team (LET):** Each company engaged in ALBA PS5B4 Project (the Consortium, Subcontractor, Supplier, Vendor or Transportation Providers) shall have a LET. This LET must be conformed by the following members:

- HSE Manager or his designee
- Public Relations Officer
- Logistics representative
- Operations representative (e.g.; Construction, Maintenance, Operations, etc.)
- Employees trained in firefighting, chemical handling, first aids, defensive driving, Emergency Preparedness and Response and PPE use.
- Riggers
- Flagmen

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### MSRA: Method Statement and Risk Assessment

## 5. Responsibilities

### 5.1 Project Director

- Responsible for the overall implementation and update of this guide.
- Overseeing the implementation of planning and response to emergencies of vehicles engaged in ALBA PS5B4 when occurring outside the project premises.
- Ensure that all emergencies are managed in responsible and effective manner so as to ensure potential impact is reduced to as low as reasonably practicable level.
- Ensure adequate resources are available to implement this procedure.
- Keep communications with senior management from ALBA/ESBI during the development and control of any emergency response.

### 5.2 Vice Project Director

- Ensure that all companies engaged in ALBA PS5B4 Project appoint a Logistics Emergency Team.
- Ensure training and information is provided to employees on this emergency guide.
- Ensure that this guide is implemented;
- Ensure appropriately qualified and trained personnel are available to implement this guide;

### 5.3 Procurement/Logistics Manager or designee (Consortium, Subcontractors, Vendors, Suppliers, Transportation Companies)

- Lead the Logistics Emergency Team as the most senior management member of his/her company.
- Communicate and implement this guide across his/her company;
- Comply with all his/her responsibilities listed in the section 6 of this procedure.
- Maintain list of insurance companies contact information always updated.

### 5.4 Construction Manager, Operations Managers (Consortium, Subcontractors, Suppliers, Vendors, Transportation Companies)

- Conform the Logistics Emergency Team of his/her company.
- Ensure resources are always available and maintained in order to respond to emergencies of vehicles on the roads of the Kingdom.


### 5.5 Consortium HSE Manager

- Liaise with the Procurement/Logistics Manager to implement this guide.
- Provide appropriate training to all personnel involved in the implementation of this procedure.
- Periodically review this guide along with the Traffic Management Plan.
- Conduct audits to verify that this guide is effectively implemented.

### 5.6 Company Logistics in Charge

- Comply with all the responsibilities listed for his/her position in the section 6 of this guide.
- Monitor drivers and/or operators of vehicles when on route to make deliveries related to ALBA PS5B4 Project.



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- Provide proper communication devices to drivers and/or operators to maintain open communication when required.
- Maintain open communication channels with the Consortium Procurement/Logistics Manager.
- Maintain list of insurance companies contact information always updated.

### 5.7 Company Logistics Emergency Team

- Comply with all their responsibilities listed in section 6 of this guide.
- Conduct response to emergencies to ALBA PS5B4 vehicles when on route, in coordination with Bahrain's Emergency Service representatives and Police.
- Coordinate activities for the recovery of the public roads following an emergency.
- Liaise with Insurance Companies on arrival at the scene.
- Assess the emergency for the proper response.
- Update Procurement/Logistics Manager with progress of emergency development and control.
- Maintain List of Service Providers contact numbers always updated (e.g.; lifting equipment service providers, hazardous waste transportation companies, transportation rental companies, etc.);
- Contact Service Providers companies to ensure the proper response from the company to manage the emergency (e.g.; Lifting Equipment Service Providers, Hazardous Waste Transportation Companies, transportation rental companies, etc.)

### 5.8 Drivers, Operators, Passengers

- Attend the training related to this guide.
- Comply with all the driving requirements listed in the Traffic Management Plan
- Comply with their responsibilities listed in the section 6 of this guide.

## 6. Procedure

### 6.1 General


All companies (Consortium, Subcontractors, Suppliers, Vendors and/or Transportation Companies) shall follow the steps listed for each one of the identified emergency scenarios response when occurring.

The emergency scenarios response takes into consideration that at least 1 of the passengers of the vehicle is able to speak and to make phone calls.

All companies shall always take into consideration the scenario of unconscious driver or all passengers injured during traffic accidents. For such scenario, the Consortium shall ensure that all companies engaged in ALBA PS5B4 are aware of the requirements to monitor vehicles and drivers so as to verify that vehicles arrive to destinations as per plans and schedules. Procurement and Management teams coordinating transportation of personnel and/or goods from/to ALBA PS5B4 Project site, shall always confirm departures and arrivals with drivers and/or operators in order to verify that vehicles arrive at the destination accordingly. The Consortium shall ensure that all companies are aware that in case of failure to comply with this requirement, this may provoke that companies in charge of vehicles engaged in ALBA PS5B4 Project are not aware of the occurrence of severe accidents on public roads and the consequent lack of support from Logistics Emergency Teams.

### 6.2 Emergency Scenarios


The potential traffic accident scenarios identified to occur in public roads are the following:

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- A. Malfunction of vehicle
- B. Minor collision with a 3<sup>rd</sup> party vehicle and/or with public/private property which only involves property damage
- C. Collision (any severity) involving injuries to company employees and/or members of the public.
- D. Accidents with/without collision involving:
  - o Loss of bulk loads
  - o Severe damage to owned, private and/or public property
- E. Accidents with/without collision involving:
  - o Fires
  - o Spillage of hazardous chemicals and/or leak of hazardous gases
- F. Accidents during transportation of abnormal loads

### 6.3 Emergency Response


SCENARIO	ACTION
<p><b>A. Malfunction of vehicle</b></p>	<p><u>Company Driver and/or Passenger</u></p> <ol style="list-style-type: none"> <li>1. Switch on hazard warning lights.</li> <li>2. Make yourself as safe as possible without putting yourself in danger out of the vehicle.</li> <li>3. Look for possible dangers (potential fire, oncoming vehicles, leaking fuel, etc.).</li> <li>4. Make a single attempt to place the vehicle aside the road without putting yourself in danger. Do not attempt again if unable to do so.</li> <li>5. Make the vehicle as safe as possible (e.g.; place reflective triangles). Coordinate traffic to place passengers in a safe location away from the road.</li> <li>6. Call Company Logistics in Charge and inform the event and location.</li> <li>7. Upon arrival handover control of vehicle to insurance company.</li> <li>8. Upon arrival, handover control of goods and/or passengers to Company Logistics Emergency Team.</li> <li>9. If Police arrives at scene, ensure to follow officers' instructions.</li> </ol> <p><u>Company Logistics in Charge</u></p> <ol style="list-style-type: none"> <li>1. Call insurance company to request roadside assistance service (e.g.; towing truck, towing platform truck, mechanic workshop team, etc.).</li> <li>2. Call Consortium Procurement Manager to inform the event.</li> <li>3. Call Company Logistics Emergency Team to coordinate support to transfer of goods and/or personnel to another company/rented vehicle, when required.</li> <li>4. Monitor along with Consortium Procurement Manager the events until goods and/or personnel arrive safely to destination.</li> </ol> <p><u>Company Logistics Emergency Team</u></p> <ol style="list-style-type: none"> <li>1. Support driver/operator on administrative issues as well as the transfer of goods and/or personnel to another company/rented vehicle as required.</li> <li>2. Ensure to render public road in normal condition as per the guidance of Emergency Services and Police.</li> </ol>

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SCENARIO	ACTION
<p><b>B. Minor collision with a 3<sup>rd</sup> party vehicle and/or with public/private property which only involves property damage</b></p>	<p><u>Company Driver and/or Passenger</u></p> <ol style="list-style-type: none"> <li>1. Switch on hazard warning lights.</li> <li>2. Make yourself as safe as possible without putting yourself in danger out of the vehicle.</li> <li>3. Look for possible dangers (potential fire, oncoming vehicles, leaking fuel, etc.).</li> <li>4. Look for personal injuries to passengers and/or members of the public. If not injuries occurred, follow step 5. When found, follow steps for scenario involving injured people.</li> <li>5. Call Company Logistics in Charge and inform the event and location.</li> <li>6. Dial 199 to call Traffic Police. Give all information required to Call Center in Charge.</li> <li>7. Take pictures of the scene.</li> <li>8. Make a single attempt to place the vehicle aside the road without putting yourself in danger. Do not attempt again if unable to do so.</li> <li>9. Make the vehicle as safe as possible (e.g.; place reflective triangles). Coordinate traffic to place passengers in a safe location away from the road.</li> <li>10. Upon arrival, handover control of event to insurance companies.</li> <li>11. Upon arrival, handover control of goods and/or passengers to Company Logistics Emergency Team.</li> <li>12. Upon arrival of Police at scene, ensure to follow officers' instructions.</li> </ol> <p><u>Company Logistics in Charge</u></p> <ol style="list-style-type: none"> <li>1. Logistics in Charge to call insurance company to request roadside assistance service (e.g.; loss adjuster, towing truck, towing platform truck, mechanic workshop team, etc.).</li> <li>2. Logistics in Charge to call Consortium Procurement Manager to inform the event and location.</li> <li>3. Logistics in Charge to call Company Logistics Emergency Team to coordinate support to transfer of goods and/or personnel to another company/rented vehicle when required.</li> <li>4. Monitor along with Consortium Procurement Manager the events until goods and/or personnel arrive safely to destination.</li> </ol> <p><u>Consortium Procurement Manager</u></p> <ol style="list-style-type: none"> <li>1. Consortium Procurement Manager to call Consortium insurance company to request roadside assistance service in the case the transported goods are covered under a valid insurance policy. Consortium Procurement Manager to send a representative of his team to the event site.</li> <li>2. Open communication channels with Consortium Top Management to be kept updated on the development and control of the emergency.</li> </ol> <p><u>Company Logistics Emergency Team</u></p> <ol style="list-style-type: none"> <li>1. Support driver/operator on administrative issues as well as the transfer of goods and/or personnel to another company/rented vehicle as required.</li> <li>2. Ensure to render public road in normal condition as per the guidance of Emergency Services and Police.</li> </ol>

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SCENARIO	ACTION
<p><b>C. Collision (any severity) involving injuries to company employees and/or members of the public.</b></p>	<p><u>Company Driver and/or Passenger</u></p> <ol style="list-style-type: none"> <li>1. Switch on hazard warning lights.</li> <li>2. Make yourself as safe as possible without putting yourself in danger out of the vehicle.</li> <li>3. Look for possible dangers (potential fire, oncoming vehicles, leaking fuel, etc.).</li> <li>4. Look for personal injuries to passengers and/or members of the public. When found, follow step 5.</li> <li>5. Call Company Logistics in Charge and inform the event and the number of injured persons (either from the company or members of the public) and location.</li> <li>6. Dial 999 to call Bahrain’s Emergency Call Centre. The following information shall be given:             <ol style="list-style-type: none"> <li>I. Clearly state the requirement of an ambulance.</li> <li>II. Provide clear details of the nature and seriousness of the incident, number of casualties, additional hazards</li> <li>III. Provide the accident location.</li> <li>IV. Provide name and contact phone number</li> <li>V. Do not end the phone call until the control officer clears the line.</li> </ol> </li> <li>7. If there are no other risks– DO NOT move any injured person;</li> <li>8. Make a single attempt to place the vehicle aside the road without putting yourself or the injured person(s) in danger. Do not attempt again if unable to do so.</li> <li>9. Make the vehicle as safe as possible (e.g.; place reflective triangles). Coordinate traffic to place passengers able to walk in a safe location away from the road.</li> <li>10. Render first aid and extinguish fires if competent and safe to do so;</li> <li>11. Take pictures of the scene, when possible. DO NOT TAKE PICTURES OF CASUALTIES.</li> <li>12. Upon arrival of Police and Emergency Services at scene, ensure to follow their instructions.</li> <li>13. Upon arrival, handover control of event to insurance companies.</li> <li>14. Upon arrival, handover control of goods and/or passengers (those without injuries) to Company Logistics Emergency Team once Emergency Services and/or Police authorize it.</li> </ol> <p><u>Company Logistics in Charge</u></p> <ol style="list-style-type: none"> <li>1. Logistics in Charge to call insurance company to request roadside assistance service (e.g.; loss adjuster, towing truck, towing platform truck, mechanic workshop team, etc.).</li> <li>2. Logistics in Charge to call Consortium Procurement Manager to inform the event and location.</li> <li>3. Logistics in Charge to call Company Logistics Emergency Team to coordinate support to transfer of goods and/or personnel to another company/rented vehicle when required.</li> <li>4. Monitor along with Consortium Procurement Manager the events until goods and/or personnel arrive safely to destination.</li> </ol> <p><u>Consortium Procurement Manager</u></p> <ol style="list-style-type: none"> <li>1. Consortium Procurement Manager to call Consortium insurance company to request roadside assistance service in the case the transported goods are</li> </ol>

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	<p>covered under a valid insurance policy. Consortium Procurement Manager to send a representative of his team to the event site.</p> <ol style="list-style-type: none"> <li>2. Open communication channels with Consortium Top Management to be kept updated on the development and control of the emergency.</li> </ol> <p><b>Company Logistics Emergency Team</b></p> <ol style="list-style-type: none"> <li>1. Support driver/operator on administrative issues as well as the transfer of goods and/or personnel to another company/rented vehicle as required once it is approved by the Emergency Services and/or Police.</li> <li>2. Ensure to render public road in normal condition as per the guidance of Emergency Services and Police.</li> </ol>
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SCENARIO	ACTION
<p><b>D. Accident with/without collision involving:</b></p> <ul style="list-style-type: none"> <li>• Loss of bulk loads</li> <li>• Severe damage to owned, private and/or public property</li> </ul>	<p><u>Company Driver and/or Passenger</u></p> <ol style="list-style-type: none"> <li>1. Switch on hazard warning lights.</li> <li>2. Make yourself as safe as possible without putting yourself in danger out of the vehicle.</li> <li>3. Look for possible dangers (potential fire, oncoming vehicles, leaking fuel, etc.).</li> <li>4. Look for personal injuries to passengers and/or members of the public.</li> <li>5. Call Company Logistics in Charge and inform the details of the event and location.</li> <li>6. Dial 999 to call Bahrain’s Emergency Call Centre. The following information shall be given:             <ol style="list-style-type: none"> <li>I. Clearly state the requirement of an ambulance, if required.</li> <li>II. Provide clear details of the nature and seriousness of the incident (e.g. loss of load, roll over, blockage of roads, number of vehicles involved, etc.), number of casualties (when found), additional hazards</li> <li>III. Provide the accident location.</li> <li>IV. Provide name and contact phone number</li> <li>V. Do not end the phone call until the control officer clears the line.</li> </ol> </li> <li>7. If there are no other risks– DO NOT move any injured person;</li> <li>8. Make a single attempt to place the vehicle aside the road without putting yourself or the injured person(s) in danger. Do not attempt again if unable to do so.</li> <li>9. Make the vehicle as safe as possible (e.g.; place reflective triangles). Coordinate traffic to place passengers able to walk in a safe location away from the road.</li> <li>10. Render first aid and extinguish fires if competent and safe to do so;</li> <li>11. Take pictures of the scene, when possible. DO NOT TAKE PICTURES OF CASUALTIES.</li> <li>12. Upon arrival of Police and Emergency Services at scene, ensure to follow their instructions.</li> <li>13. Coordinate transfer of injured persons (if required by Emergency Services) to ambulance and request information about the destination hospital.</li> <li>14. Upon arrival, handover control of event to insurance companies.</li> <li>15. Upon arrival, handover control of goods, loads and/or passengers (those without injuries) to Company Logistics Emergency Team once Emergency Services and/or Police authorize it.</li> </ol> <p><u>Company Logistics in Charge</u></p> <ol style="list-style-type: none"> <li>1. Logistics in Charge to call insurance company to request roadside assistance service (e.g.; loss adjuster, towing truck, towing platform truck, mechanic workshop team, etc.).</li> <li>2. Logistics in Charge to call Consortium Procurement Manager to inform the event and location.</li> <li>3. Logistics in Charge to call Company Logistics Emergency Team to coordinate support to transfer of goods and/or personnel (those without injuries) to another company/rented vehicle when required.</li> <li>4. Monitor along with Consortium Procurement Manager the events until goods and/or personnel arrive safely to destination.</li> </ol> <p><u>Consortium Procurement Manager</u></p>


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	<ol style="list-style-type: none"> <li>1. Consortium Procurement Manager to call Consortium insurance company to request roadside assistance service in the case the transported goods are covered under a valid insurance policy. Consortium Procurement Manager to send a representative of his team to the event site.</li> <li>2. Open communication channels with Consortium Top Management to be kept updated on the development and control of the emergency.</li> </ol> <p><u>Company Logistics Emergency Team</u></p> <ol style="list-style-type: none"> <li>1. Support driver/operator on administrative issues as well as the transfer of goods and/or personnel (those without injuries) to another company/rented vehicle as required once it is approved by the Emergency Services and/or Police. Coordinate with Insurance Companies to contact 3<sup>rd</sup> party providers of lifting equipment (e.g.; mobile cranes, forklifts, boom trucks, front loaders, backhoe loaders, etc.) and/or transportation companies to provide emergency equipment to conduct the transfer of the load safely to a trailer/ truck/ pickup, etc., to resume transportation of goods/equipment to the final destination.</li> <li>2. Ensure to render public road in normal condition as per the guidance of Emergency Services and Police.</li> </ol>
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SCENARIO	ACTION
<p><b>E. Accidents with/without collision involving:</b></p> <ul style="list-style-type: none"> <li>• Fires</li> <li>• Spillage of hazardous chemicals and/or leak of hazardous gases</li> </ul>	<p><u>Company Driver and/or Passenger</u></p> <ol style="list-style-type: none"> <li>1. Switch on hazard warning lights.</li> <li>2. Make yourself as safe as possible without putting yourself in danger out of the vehicle.</li> <li>3. Look for possible dangers (potential fire, oncoming vehicles, leaking fuel, etc.).</li> <li>4. Do not attempt to move the vehicle.</li> <li>5. Make the first attempt to evacuate all persons (company's, passengers and/or members of the public) from the affected radius due to the leakage, spill and/or fire. Coordinate traffic to place passengers able to walk in a safe location away from the road.</li> <li>6. Make the first attempt to control leak, spill and/or fire, if competent to do so and without putting yourself or others at risk.</li> <li>7. Look for personal injuries to passengers and/or members of the public. Make an attempt to evacuate injured passengers/persons if safe to do so. Otherwise, evacuate the area.</li> <li>8. Call Company Logistics in Charge and inform the details of the event and location.</li> <li>9. Dial 999 to call Bahrain's Emergency Call Centre. The following information shall be given:                         <ol style="list-style-type: none"> <li>I. Clearly state the requirement of an ambulance, if required.</li> <li>II. Provide clear details of the nature and seriousness of the incident (e.g. fire, fuel leakage, specific liquid hazardous chemical spillage, specific hazardous gas leak, number of vehicles involved, etc.), number of casualties (when found), additional hazards;</li> <li>III. Provide the accident location.</li> <li>IV. Provide name and contact phone number</li> <li>V. Do not end the phone call until the control officer clears the line.</li> </ol> </li> <li>10. Make the vehicle and the affected radius as safe as possible (e.g.; place reflective triangles) and continue with the evacuation of personnel and/or members of the public from the affected radius.</li> <li>11. Render first aid if competent and safe to do so;</li> <li>12. Take pictures of the scene, when possible. <b>DO NOT TAKE PICTURES OF CASUALTIES.</b></li> <li>13. Upon arrival of Police and Emergency Services at scene, ensure to follow their instructions.</li> <li>14. Coordinate transfer of injured persons (if required by Emergency Services) to ambulance and request information about the destination hospital.</li> <li>15. Upon arrival, handover control of event to insurance companies.</li> <li>16. Upon arrival, handover control of goods, loads and/or passengers (those without injuries) to Company Logistics Emergency Team once Emergency Services and/or Police authorize it.</li> </ol> <p><u>Company Logistics in Charge</u></p> <ol style="list-style-type: none"> <li>1. Logistics in Charge to call insurance company to request roadside assistance service (e.g.; loss adjuster, towing truck, towing platform truck, mechanic workshop team, etc.).</li> <li>2. Logistics in Charge to call Consortium Procurement Manager to inform the event and location.</li> </ol>



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	<ol style="list-style-type: none"> <li>3. Logistics in Charge to call Company Logistics Emergency Team to coordinate support to transfer of goods and/or personnel (those without injuries) to another company/rented vehicle when required.</li> <li>4. Monitor along with Consortium Procurement Manager the events until goods and/or personnel arrive safely to destination.</li> </ol> <p><u>Consortium Procurement Manager</u></p> <ol style="list-style-type: none"> <li>1. Consortium Procurement Manager to call Consortium insurance company to request roadside assistance service in the case the transported goods are covered under a valid insurance policy. Consortium Procurement Manager to send a representative of his team to the event site.</li> <li>2. Open communication channels with Consortium Top Management to be kept updated on the development and control of the emergency.</li> </ol> <p><u>Company Logistics Emergency Team</u></p> <ol style="list-style-type: none"> <li>1. Support driver/operator on administrative issues as well as the transfer of goods and/or personnel (those without injuries) to another company/rented vehicle as required once it is approved by the Emergency Services and/or Police.</li> <li>2. Deploy resources (e.g.; manpower, spill kits, specialized team to handle equipment involved in accident) to support Emergency Services in order to contain and clean spillages, leaks, ashes, debris produced after fire, etc.</li> <li>3. Coordinate with Insurance Companies to contact 3<sup>rd</sup> party providers of lifting equipment (e.g.; mobile cranes, forklifts, boom trucks, front loaders, backhoe loaders, etc.) and/or transportation companies to provide emergency equipment to conduct the transfer of the load safely to a trailer/ truck/ pickup, etc., to resume transportation of goods/equipment to the final destination.</li> <li>4. Ensure to render public road in normal condition as per the guidance of Emergency Services and Police.</li> </ol>
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SCENARIO	ACTION
<b>F. Accidents during transportation of abnormal loads</b>	<p>The Consortium will appoint a specialized 3<sup>rd</sup> party company for the transportation of all abnormal loads in ALBA PS5B4 Project.</p> <p>The Consortium will ensure to make an agreement with a recognized 3<sup>rd</sup> party transportation company. The agreement will involve the development of a Method Statement and a Risk Assessment to be implemented throughout the whole operation of the transportation of each abnormal load. The Method Statement and Risk Assessment will be submitted to the Consortium for review. The Consortium shall submit the MSRA for the review and approval of ALBA/ESBI.</p> <p>As part of the Method Statement and Risk Assessment, the appointed 3<sup>rd</sup> party transportation company shall develop its own Emergency Preparedness and Response Guide as well as to provide all the necessary resources to respond to all predicted emergency scenarios involving the transportation of the abnormal load.</p> <p>The Consortium shall ensure to review the submitted Emergency Preparedness and Response Guide in order to verify that it is aligned to this Traffic Emergency Preparedness and Response Guide, the ALBA PS5B4 Traffic Management Plan (PS5-B4-01-YDC-GGP-SEP-00034), the ALBA PS5B4 Emergency Preparedness and Response Plan (PS5-B4-01-YDC-GGP-SEP-00004) and the PS5 Block 4 Health, Safety &amp; Environmental Management Plan (PS5-B4-01-YDC-GGP-SEP-00002)</p>

### 6.4 Emergency Preparedness

In order for all companies to ensure preparedness to face Emergencies related to traffic accidents on public roads in the Kingdom of Bahrain, the following provisions must always be available for companies to ensure that the public roads are rendered to its normal condition in the shortest period of time and with the least impact:

- Contact information of key positions of Consortium personnel
- Contact information of key positions within the company owning the vehicles
- Contact information of Insurance Companies
- Contact information of leasing vehicle companies (when using leased vehicles)
- Contact information of vehicles' repair shops
- Contact information of companies providing services such as:
  - Rental personnel transportation vehicles (e.g.; buses, mini-buses)
  - Rental of heavy equipment (e.g.; forklifts, front loaders, backhoe loaders, skid loaders, etc.)
  - Rental of lifting equipment (e.g.; mobile cranes different capacities)
  - Rental of Lighting Tower equipment
- Contact information of Hospitals with private ambulance services
- Hazardous Waste Transportation Companies
- Spill Kits compatible with the transported hazardous chemical substances and in enough quantities
- Basic Fire Protection Equipment (e.g.; fire extinguishers in different capacities)
- Barricading Material (steel barricades, plastic jerseys, barricading tape, cones)
- Traffic Diversion Material (signs, warning reflective triangles, etc.)
- All vehicles shall display the Emergency Contact Information of each company at least in 2 sides so Emergency Services and/or Police can contact in case of drivers, operators and/or passengers are unable to activate this Emergency Response Guide.

*In case of emergency call  
 XXXX-XXXX or  
 XXXX-XXXX*

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#### 6.4 Monitoring Requirements

The Consortium shall verify on quarterly basis that the provisions of this guide are in place and complied by all companies with vehicles engaged in transportation operation in ALBA PS5B4 Project.

#### 6.4 Emergency Preparedness

The Consortium shall ensure that all employees are trained on the provisions of this guide as part of the HSSE & SR Induction process and every four (4) months for refresh. The Consortium shall ensure to highlight that any person engaged in ALBA PS5B4 Project, is a potential passenger/drivers/operators of vehicle and everybody has the responsibility to activate this guide, when needed.

Attachment 7 – MSRA sample abnormal loads

WORLDWIDE HEAVY  
TRANSPORTATION  
AND LIFTING



# METHOD STATEMENT

for the

## RECEIVING, LAND AND MARINE TRANSPORTATION OF GAS TURBINE & GAS TURBINE GENERATOR

at

### BAHRAIN

Project Number	AA7245.11					
Project	Al Dur 2 IWPP					
Client	SEPCO III					
Document number	AA7245.11-ENG-MSP-01					
A1	05/12/2019	For Approval	KPT	DDP	EVM	
A0	25/11/2019	First Issue	KPT	DDP	EVM	
Revision	Date	Description	Prepared	Checked	Approved	Approved
ALE Middle East LLC						Client



Attachment 7 -  
MSRA sample.pdf