

Loss Prevention on Project Cargo Inland Transport

基建项目货物内陆运输防灾防损

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Preface 前言



One road one belt initiative provides opportunity to companies with strong financial capacity to invest on overseas market - status change from supplier/vendors to EPC, Investor and BOT operators

随着一路一带的发展，给那些有实力的企业带来了投资海外市场的机遇，身份也从原先的供应商/服务商，演变成工程承包商、投资方、合作运营方（建设—操作—转移）



Project evolves from traditional cement plant, power plant, metallurgy, petrochemical industry, to new energy and high technical industry, i.e. windmill power plant, Solar power plant, environmental protection, fine chemical industry etc.

涉及的工程项目，由传统的水泥厂、电厂、冶金、石化行业，扩展至新能源和技术较高的行业，如：风电、太阳能电厂、环保、精炼化工行业等；



Believe global large scale projects would embed China Footprint
相信将来全球大型的基建项目工程都会留下中国足迹



Agenda 概述

- 👉 What is project cargo?
什么是项目工程货物？
- 👉 Adequate Preparation – Method Statement
至臻的运筹帷幄——物流方案
- 👉 Type and Condition of Conveyance
运输工具的种类和状况
- 👉 Roll on & Roll off
滚装作业
- 👉 Road Transportation
道路运输
- 👉 Other Common Practice & Experience
其他行业惯例&经验

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What is project cargo? 什么是项目工程货物？

- ☞ Long replacement time – equipment cannot be repaired, shipped, installed, test and commissioned and/or leave a gap prior to the commencement of the commercial operation of a minimum of 3 months
重置时间较长——（一旦损坏）不能被修理、运输、安装、测试、失去功效，或/和至少需要3个月的商贸准备时间
- ☞ High value – unit value in excess of US\$5M, shipped as BB Cargo
价值高——作为件杂货运输的设备单价超过伍百万美元
- ☞ Require special use of conveyance and handling
需特定的运输工具和作业工具
- ☞ Out of gauge – does not fit into a 40' container
尺寸较大——不能放置于40尺标准集装箱
- ☞ Heavy lift – unit weight in excess of 75 tons
重件货——货物单元毛重超过75吨
- ☞ Ocean barge shipment
驳船运输

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Adequate Preparation – Method Statement

至臻的运筹帷幄——物流方案

Route Survey

BADRA OIL FIELD
Republic of Iraq

māsen
Moroccan Agency
for Solar Energy



PROJECT LOGISTICS PLAN



Route Survey Report for the
Bokpoort Solar Farm
(from the Port of Luderitz)



ROUTE DESCRIPTION

#	Km	Distance	Description	Road
Km reading starts from zero after each turn				
1	0	0	Exit the Port of Luderitz onto Bismarck Street	Bismarck Street
2	324,3	324,3	Traffic circle - Turn right onto B1 direction Grunau	B1
3	153,5	477,8	Turn left - Onto B3 direction Grunau	B3
4	158,4	636,2	Ariamsvlei Border post	B3 / N10
5	16,2	652,4	Nakop Border post	B3 / N10
6	302,8	780,6	Turn right - Onto N10	N10
7	1,7	782,3	Turn left - Onto Dekota Way	Dekota Way
8	0,6	782,9	Turn right - Onto Jan De Klerk Road	Jan De Klerk Road
9	0,5	783,4	Turn left - Onto Ds Aubrey street	Ds Aubrey Street
10	1,6	785,0	Turn left - Onto Schroder street	Schroder Street
11	41,4	826,4	Turn right - Onto Loop 16 gravel road	Loop 16
12	54,3	880,7	Turn left onto site road	Unknown Road

SUMMARY OF MEASUREMENTS

OVERHEAD		OVERPASS	
Eskom Power Lines	111	Culverts	136
Telkom Lines	118	Overpass Bridges	93
Municipal Lines	1	Road Conditions	24
Overhead Bridges	12	Layby Areas	110

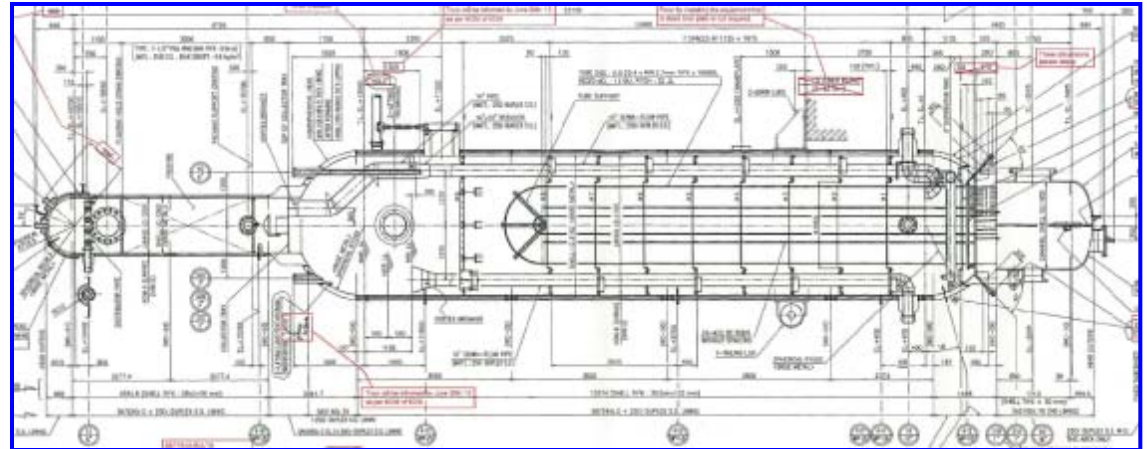
Adequate Preparation – Method Statement

至臻的运筹帷幄——物流方案

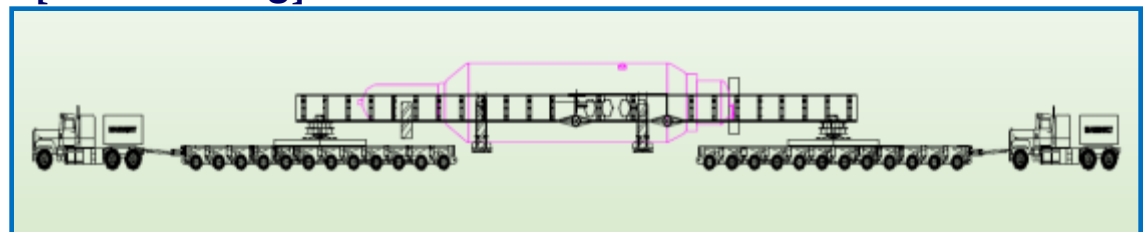
ITEM NO 产品编号	Description 产品名称	QT 数量	Weight (T) 重量 (吨)	Length (mm) 长度(毫米)	Width (mm) 宽度 (毫米)	Net Height (mm) 净高度 (毫米)
U-EA101	Condenser冷凝器	1	245	23100	5000	4600

Method of statement
based on characteristics
of the critical item

物流方案基于关键设备的特性



[GA Drawing] [总布置图]

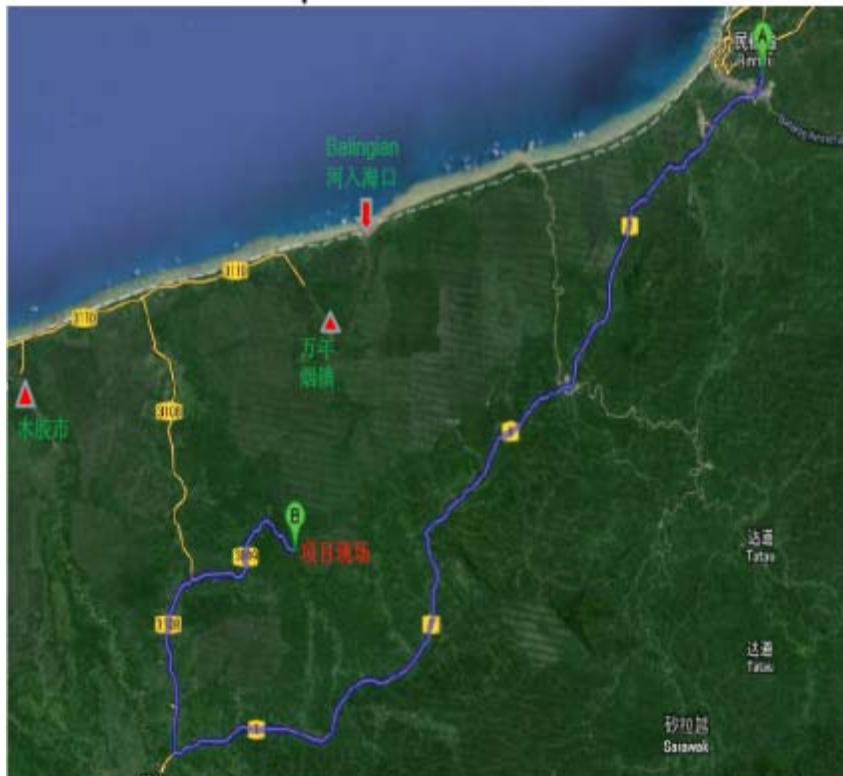


Trailer configuration 车板结构 24轴液压板
Conventional Hyd. Trailer 24 Axles

Adequate Preparation – Method Statement

至臻的运筹帷幄——物流方案

Container cargo route 集装箱货物路线



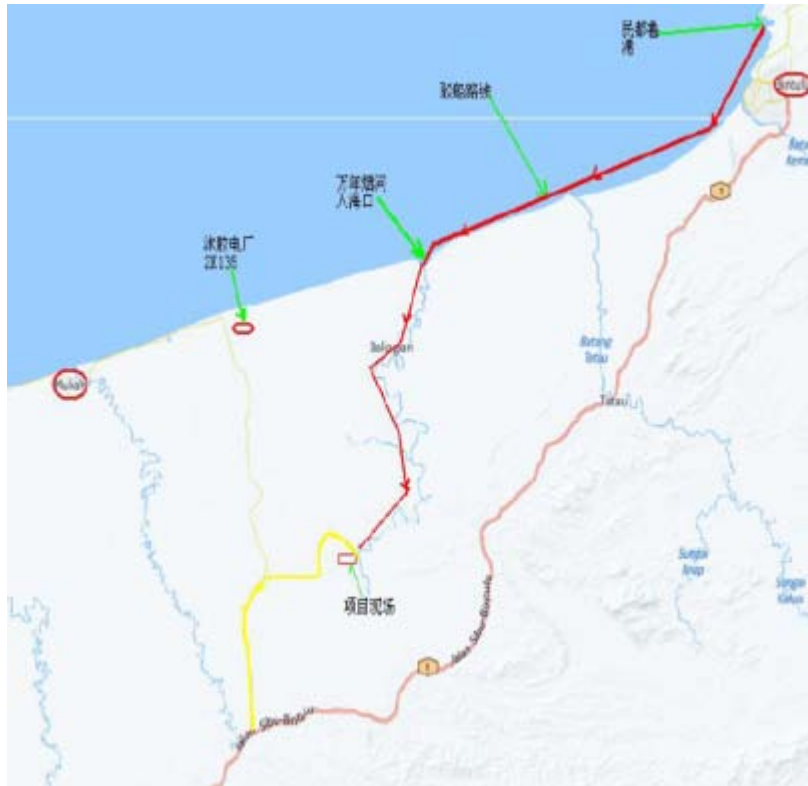
Actual road condition 实际路况



Adequate Preparation – Method Statement

至臻的运筹帷幄——物流方案

Inland waterway for heavy lifts
重大件水路运输路线



Actual condition of the inland
waterway
实际内河通行状况



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Type and Condition of Conveyance 运输工具的种类和状况

Seaworthiness & Cargoworthiness 适航性&适货性



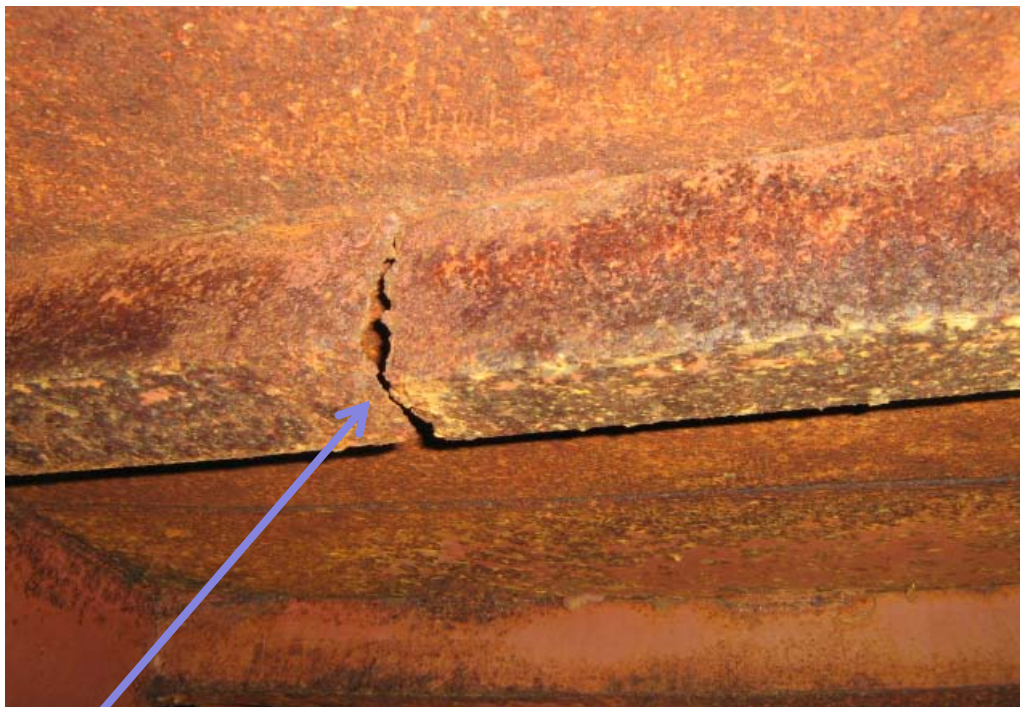
Deck Condition 主甲板状况



Tow line fairlead condition
拖缆导缆鐘

Type and Condition of Conveyance 运输工具的种类和状况

Seaworthiness & Cargoworthiness 适航性&适货性



Crack
裂缝



Type and Condition of Conveyance 运输工具的种类和状况



Prime Mover牵引车

Prime mover or SPMT – which type is more suitable for the cargo?
牵引车或自行式液压平板车——哪一种更适合?



SPMT 自行式液压平板车

Type and Condition of Conveyance - Accident

运输工具的种类和状况——意外事故



- Loading of 1st Main Engine
装载第一台主机

- Loading of 2nd Main Engine
装载第二台主机



Type and Condition of Conveyance - Accident

运输工具的种类和状况—意外事故



- Barge start to heel because of insufficient stability
驳船因稳性不足开始倾斜

- Loss of stability
失去稳性



Type and Condition of Conveyance - Accident

运输工具的种类和状况——意外事故



- Loss of barge
驳船倾覆

- CTL of 1st Main Engine
第一台主机推定全损



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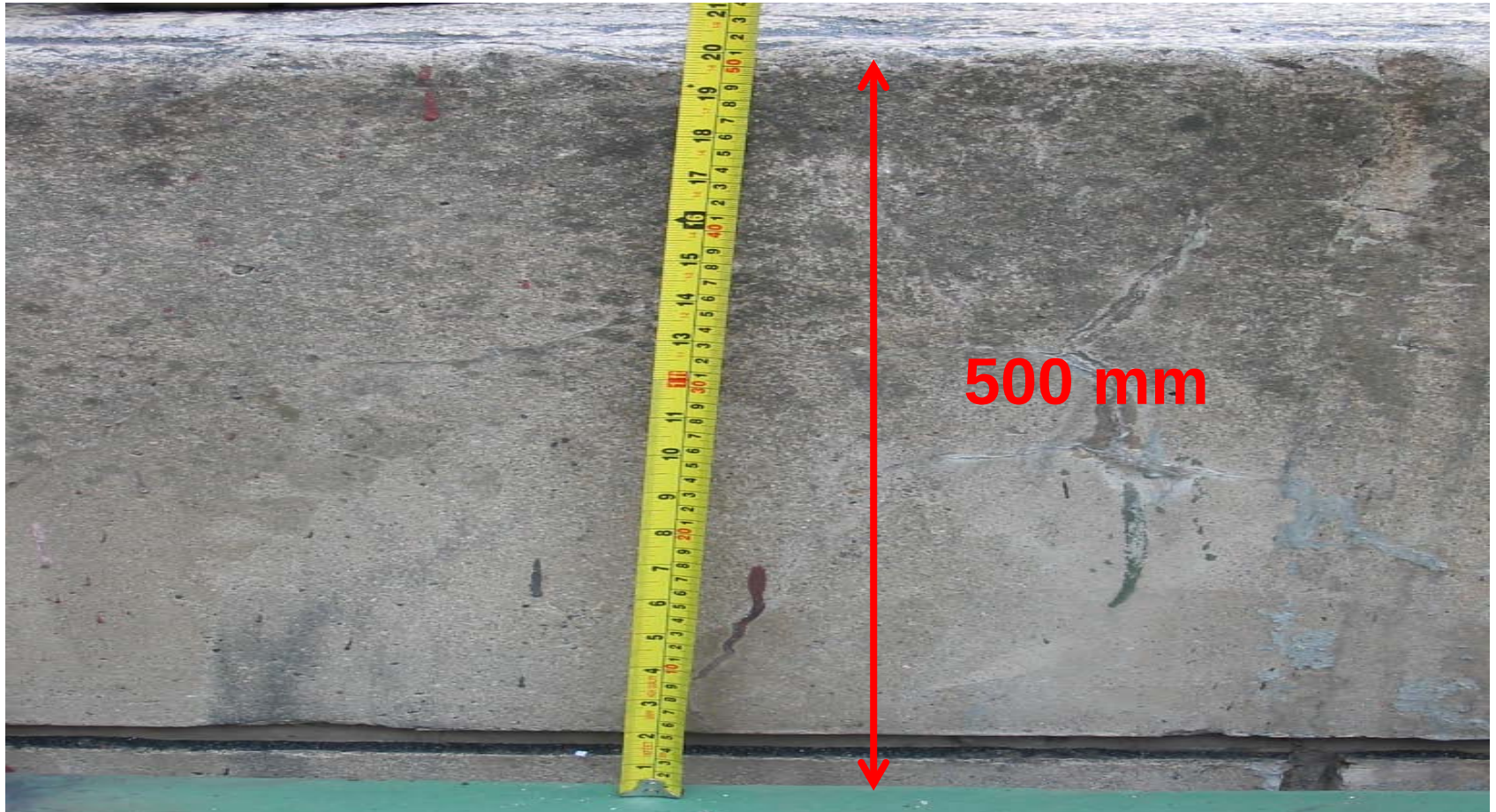
Roll on & Roll off 滚装操作

Careful planning and preparation 细致的规划和准备



Roll on & Roll off 滚装操作

Careful planning and preparation 细致的规划和准备



Roll on & Roll off 滚装操作

Weather condition – sea, current, wind and tide
气候条件 - 海浪、潮流、风、潮差



Roll on & Roll off 滚装操作

Equipment readiness – deballasting by portable pumps
装备准备——便携式潜水泵（压载水排水泵）



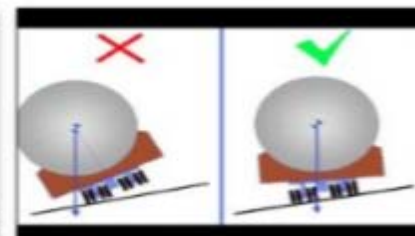
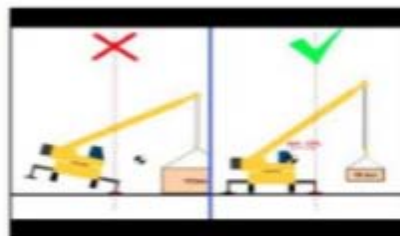
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Road Transportation 道路运输

Stability of the trailer 拖车的稳性

- Stability rules for cranes (75% of tipping)
克令吊的稳性规范 (75%倾侧力矩)
- Lifting appliances rules/ requirements (must have certificate to prove SWL)
起重机械负重的规范要求 (须具有安全工作负荷证书)
- Ship's stability requirement (positive GM)
船舶稳性的规范要求 (必须为正值的初稳性高度)
- Cargo securing guideline (IMO Cargo securing Manual)
货物系固指导规范 (国际海事组织——货物系固手册)
- **However, there is no stability rules for trailer**
但是, 拖车稳性方面无相应的规范要求



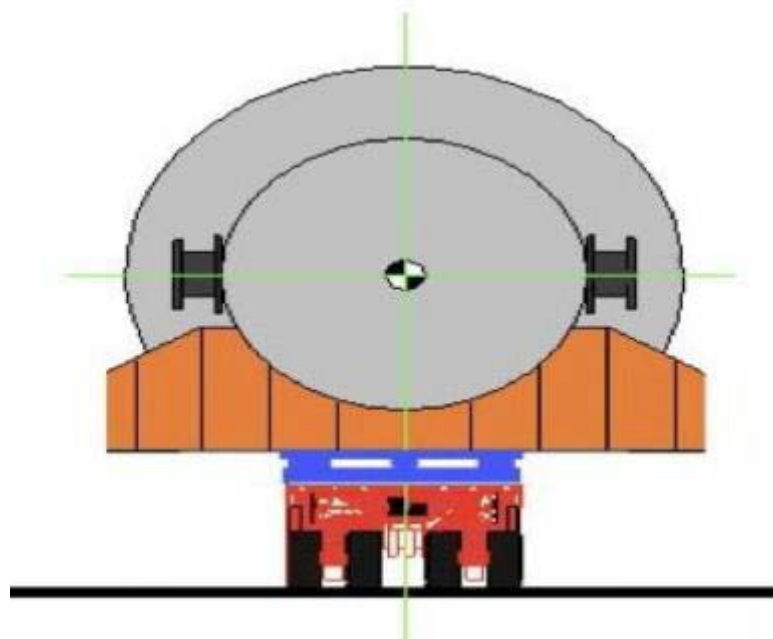
Road Transportation 道路运输

Which one can offer more stability ?
哪一种能够提供更充足的稳性？

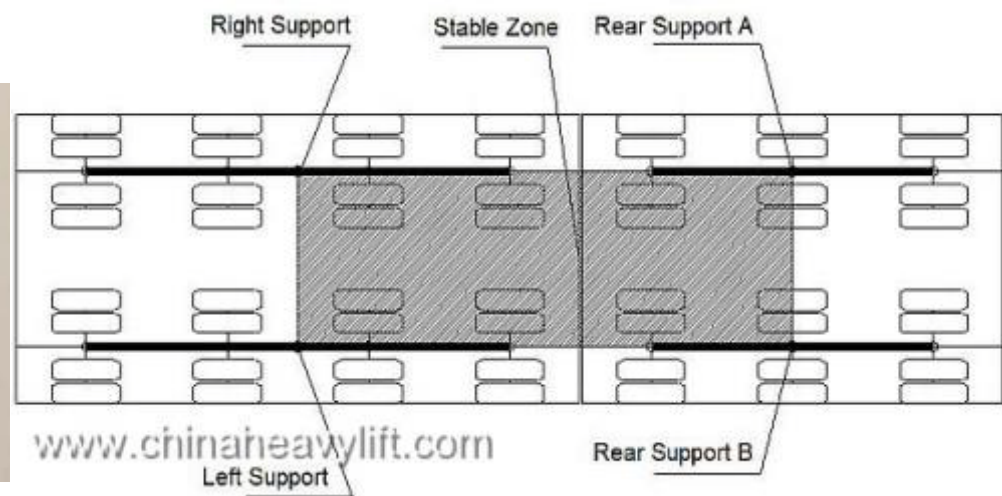
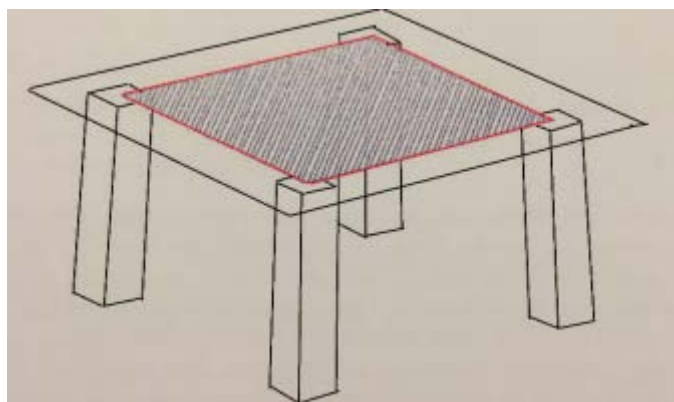
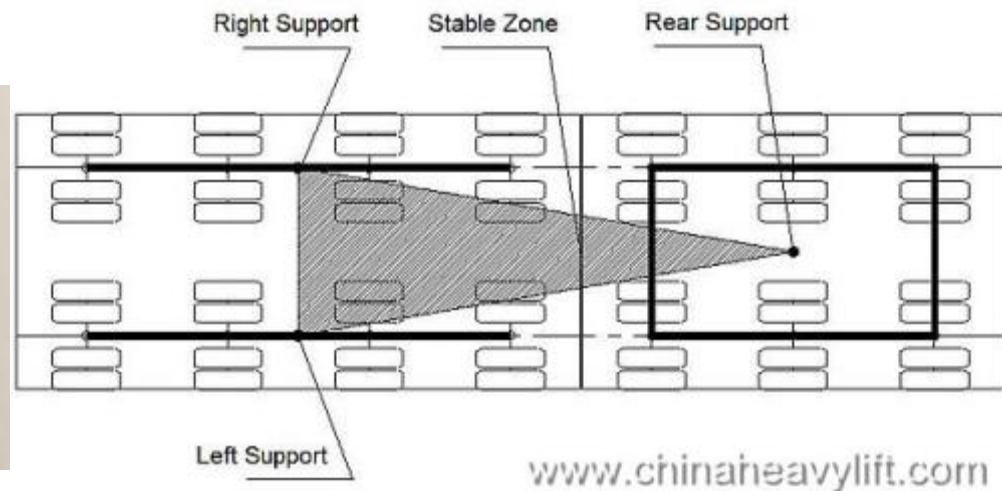
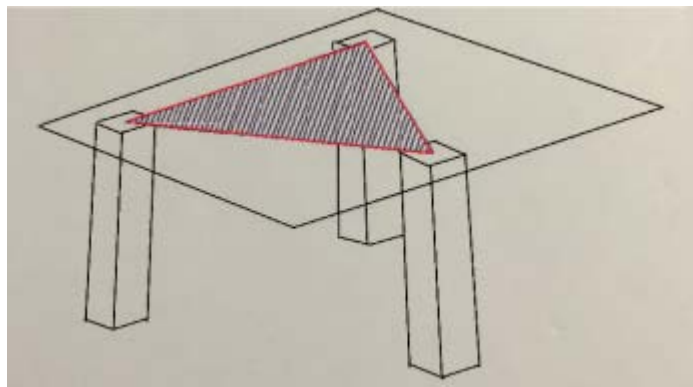
A

OR

B



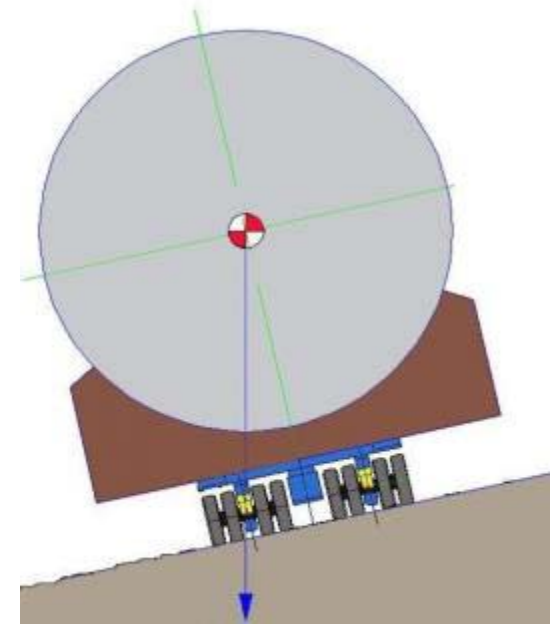
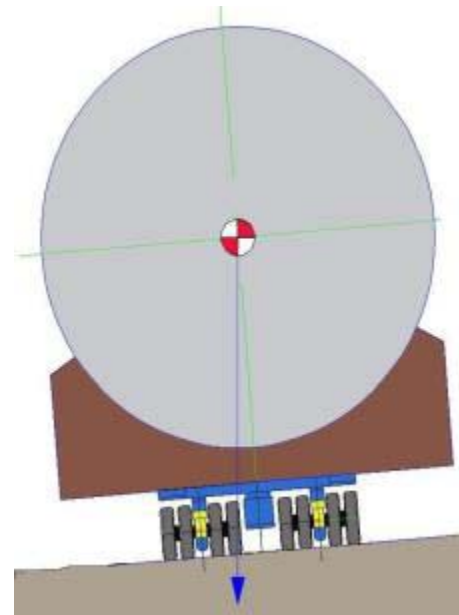
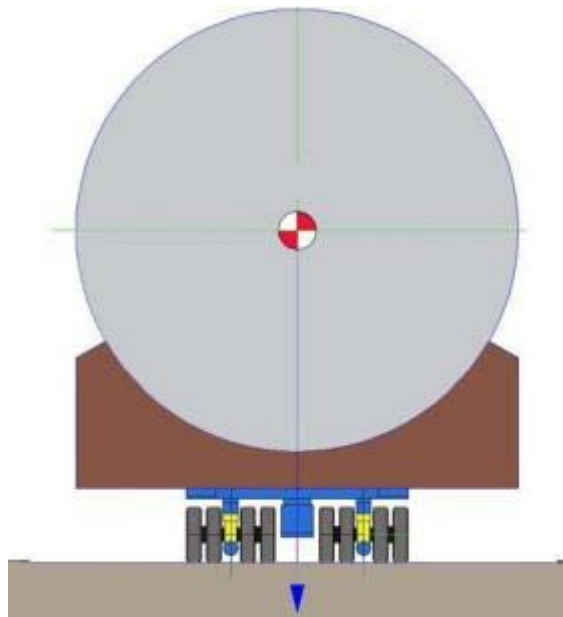
Road Transportation 道路运输



Road Transportation 道路运输

Trailer will turn over if load CG moves out of the area formed by the tilt characteristics.

如果载货重心的偏移超出设计的倾斜角度，拖车会倾覆。



Road Transportation 道路运输

Loss of trailer stability 拖车失去稳性



Road Transportation 道路运输

Loss of trailer stability 拖车失去稳性



Road Transportation 道路运输

Height restriction 通行高度（净高度）限制



NOTES:

Left lane 5070mm
Right lane 5065mm

This is the lowest overhead obstruction on this route

Higher loads to be stopped and the trailer lowered to pass under the bridge

Lower trailer for better clearance

Bridge # 4 in the background

Left lane 7900mm

2.3km reading

Bridge # 3 & 4

Road Transportation 道路运输

Physical measurement is critical! 实际现场勘验非常关键！



Road Transportation 道路运输

Trailer tyres air pressure release to achieve 30mm air clearance
调节车板轮胎（放气），方能保留30毫米的间隙。



Road Transportation 道路运输

Overpass bridge -load bearing capacity in doubt ?
桥——载重能力值得忧虑？



NOTES:
Load bearing capacity to be confirmed

culvert under construction

6.6km reading



Road Transportation 道路运输

Overpass bridge 立交桥



Road Transportation 道路运输

Overpass bridge – better planning can resolve the problem - extend trailer width and length to ensure safe passage

桥 —— 采用好的计划方案 —— 延伸车板的长度和加宽来确保其通过。



PIC #071

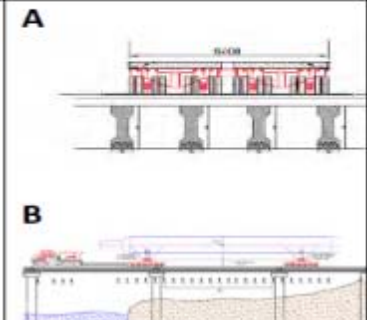
30.5804 N 47.7509
E

70 m long
5 spans 12 m each

Km 94,4

10 beam pillars

- A) Side By Side or an additional half trailer's side configuration would increase the surface area reducing the ground bearing pressure giving the ability to load the transversal beams to 100% therefore to their gross maximum capacity.
- B) Reducing the Longitudinal ground bearing pressure by means of dolly configuration open compound on bolsters and long pulling bar



Road Transportation 道路运输



Road Transportation 道路运输

Additional pontoon place on bridge for strengthing
在桥上直接铺设加强钢模，增加强度。



Road Transportation 道路运输



Soft ground 软土路面

Uneven road 路面不平整



Road Transportation 道路运输

Remedial measure 补救措施



Road Transportation 道路运输

Remedial measure 补救措施



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Other Common Practice & Experience

其他行业惯例和经验

- ☞ **Comply with local insurance regulation – local policy ?**
遵循当地保险法规——当地出保单？
- ☞ **Comply with local traffic regulation & international industry convention**
遵循当地交通运输法规和国际性的运输行业惯例
- ☞ **Know Climatic Condition and Geographical Position**
知悉气候条件和地理位置
- ☞ **Security and Safety First**
安全第一
- ☞ **No project cargo transportation are alike**
没有项目工程的运输完全一样



Loss Control Ultimate Goal 防损最终目标

“To get it there safe and sound !”

“把货物安全顺利地送达目的地”



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Thank You