

ALE



SMARTER, SAFER, STRONGER

BRIDGES

# CASE STUDIES

WORLDWIDE HEAVY TRANSPORTATION AND LIFTING

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# BRIDGES

LAUNCHING

GENERAL INFORMATION

CANADA (CASE STUDY)

PARTICULAR CASES

MOBILE PILE

VARIABLE DEPTH

“FISHING” SYSTEM

RAILWAY BRIDGES

LIFTING OF FLOATING CENTRAL SPANS

PARTIAL LIFTING

ASSEMBLY/DISASSEMBLY WITH SPMT

STAY CABLE BRIDGES

TILTING OF ARCHES

JACKING UP OF SECTIONS



# BRIDGES / LAUNCHING / CANADA



Load in / load out to the barge



Positioning under gantry

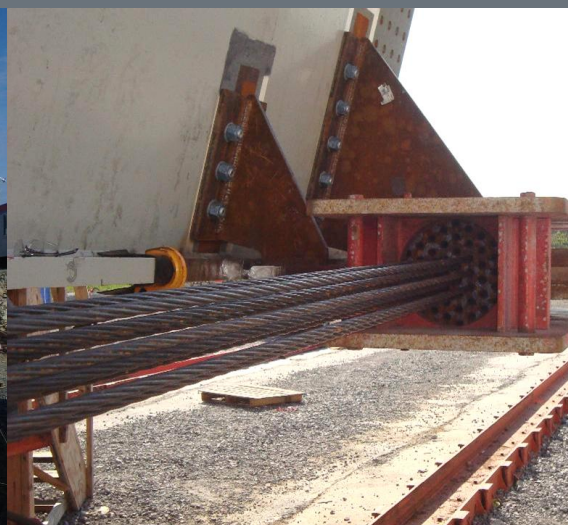


Join dowel

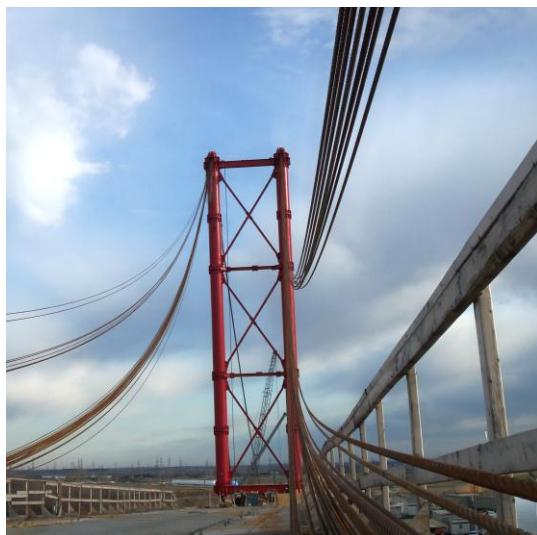


Skidding system

# BRIDGES / LAUNCHING / CANADA



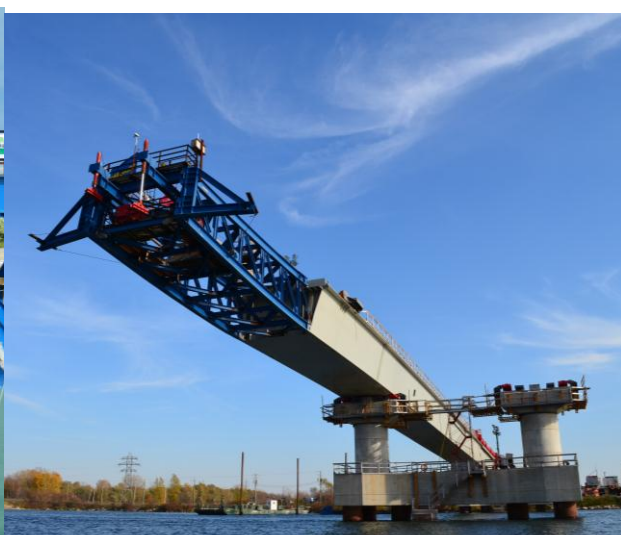
**Pulling System**

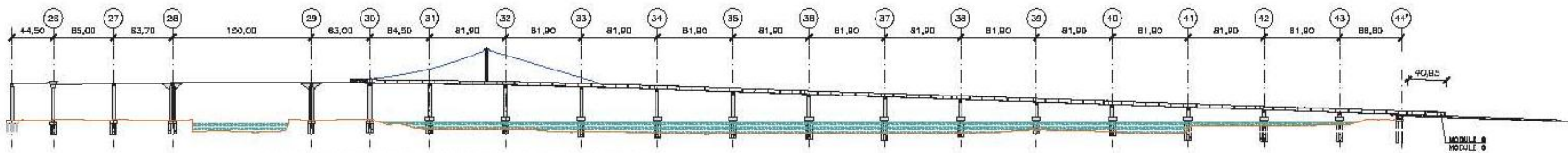


**Mast**



**System to compensate the deflection at front section**

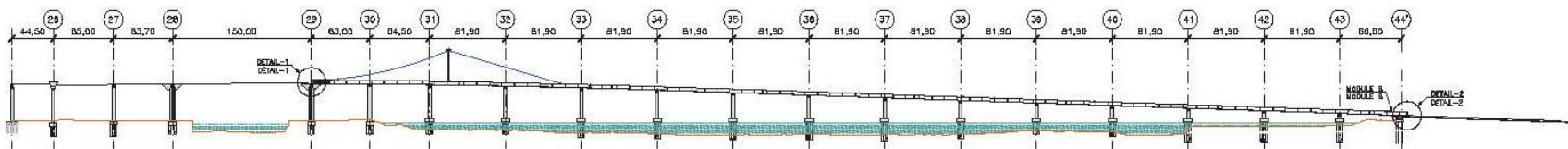




**MODULE 8 ASSEMBLY**  
SCALE 1:2500  
ASSEMBLAGE DU MODULE 8  
ÉCHELLE 1:2500

1. REACTIONS PER INDIVIDUAL SUPPORT (SLIDING OR SKID SHOE) PRIOR TO LAUNCH  
1. RÉACTIONS PAR APPUI INDIVIDUEL (GLISSANT OU SKID SHOE) AVANT LE POUSSAGE

PIER PILE	P-26	P-27	P-28A	P-28B	P-29A	P-29B	P-30	P-31	P-32	P-33	P-34	P-35	P-36	P-37	P-38	P-39	P-40	P-41	P-42	P-43	P-44	SKID SHOE #1
REACTIONS COMB. 1 [kN]	---	---	---	---	---	---	520	1340	1950	1930	3190	1700	1990	1930	1860	3070	1900	1970	1690	2020	1150	700
REACTIONS COMB. 2 [kN]	---	---	---	---	---	---	630	1630	2320	2720	3980	2480	2760	2720	3650	2850	2880	2760	2680	2770	1700	680

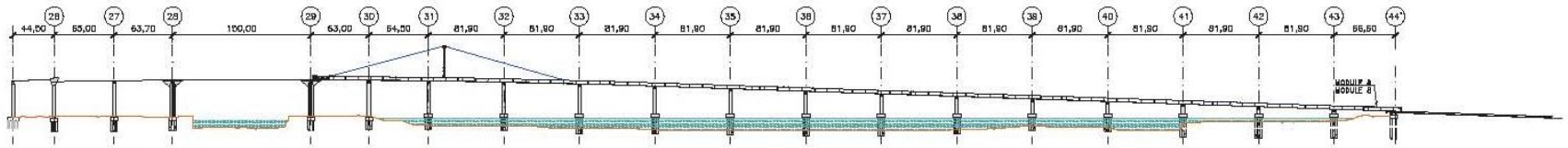


**MODULE 8 AT END OF LAUNCH**  
SCALE 1:2500  
MODULE 8 À LA FIN DU POUSSAGE  
ÉCHELLE 1:2500

REACTIONS PER INDIVIDUAL SUPPORT (SLIDING OR SKID SHOE) AFTER LAUNCH  
RÉACTIONS PAR APPUI INDIVIDUEL (GLISSANT OU SKID SHOE) APRÈS LE POUSSAGE

PIER PILE	P-26	P-27	P-28A	P-28B	P-29A	P-29B	P-30	P-31	P-32	P-33	P-34	P-35	P-36	P-37	P-38	P-39	P-40	P-41	P-42	P-43	P-44	
REACTIONS COMB. 1 [kN]	---	---	---	---	---	---	500	690	2440	360	4280	1800	1760	2100	1760	2050	1950	1840	1630	2000	1880	930
REACTIONS COMB. 2 [kN]	---	---	---	---	---	---	800	910	2740	760	5080	2580	2570	2890	2550	2840	2730	2720	2790	2870	1240	

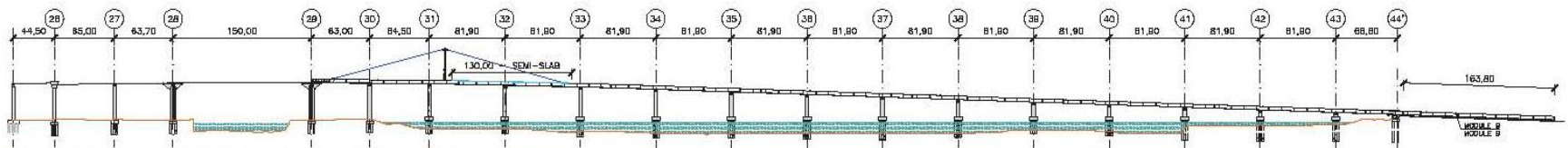
LAUNCHING SEQUENCE:



**CABLE PRESTRESS**  
 SCALE 1:2500  
 TENSION DANS LES CÂBLES  
 SCHEULE 1:2500

1. REACTIONS PER INDIVIDUAL SUPPORT (SLIDING OR SKID SHOE) PRIOR TO LAUNCH  
 1. RÉACTIONS PAR APPUI INDIVIDUEL (GLISSANT OU SKID SHOE) AVANT LE POUSSAGE

PIER PILE	P-26	P-27	P-28A	P-28B	P-29A	P-29B	P-30	P-31	P-32	P-33	P-34	P-35	P-36	P-37	P-38	P-39	P-40	P-41	P-42	P-43	P-44
REACTIONS COMB. 1 [kN]	---	---	---	---	---	---	530	3040	470	3840	1850	1770	2100	1760	2050	1950	1940	1930	2000	1990	830
REACTIONS COMB. 2 [kN]	---	---	---	---	---	100	780	3340	870	4430	2840	3550	2890	2550	2840	2730	2730	2720	2790	2870	1240
REACTIONS COMB. 2 [kN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

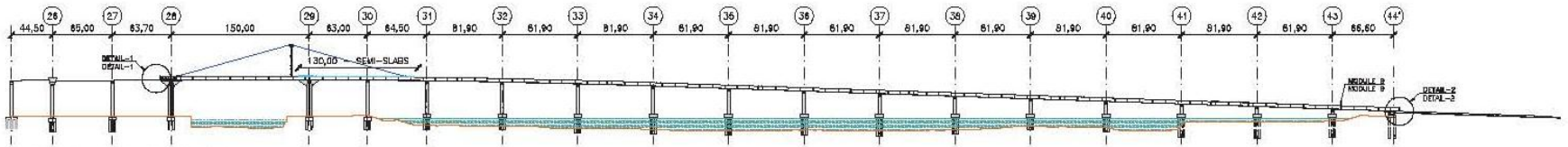


**MAIN SPAN SEMI-SLAB PLACEMENT AND MODULE 9 ASSEMBLY**  
 SCALE 1:2500  
 MONTAGE DES PRÉDALLES DANS LA TRAVÉE PRINCIPALE ET ASSEMBLAGE DU MODULE 9.  
 SCHEULE 1:2500

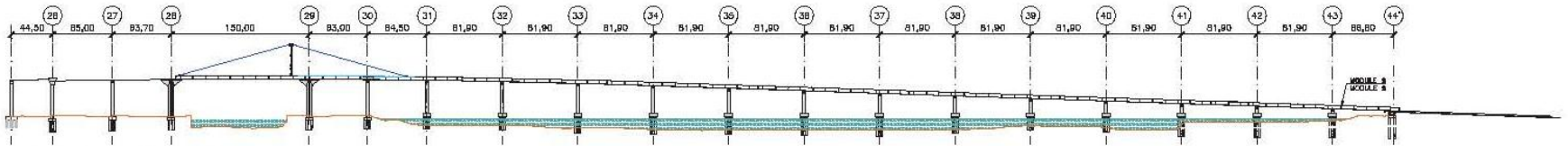
NOTE: THE ASSEMBLY OF MODULE 9 CAN PROCEED SIMULTANEOUSLY WITH THE SEMI-SLAB PLACEMENT  
 NOTE: L'ASSEMBLAGE DU MODULE 9 PEUT SE PRODUIRE EN MÊME TEMPS QUE L'INSTALLATION DES PRÉDALLES.

1. REACTIONS PER INDIVIDUAL SUPPORT (SLIDING OR SKID SHOE) PRIOR TO LAUNCH  
 1. RÉACTIONS PAR APPUI INDIVIDUEL (GLISSANT OU SKID SHOE) AVANT LE POUSSAGE

PIER PILE	P-26	P-27	P-28A	P-28B	P-29A	P-29B	P-30	P-31	P-32	P-33	P-34	P-35	P-36	P-37	P-38	P-39	P-40	P-41	P-42	P-43	P-44	SKID SHOE #1	SKID SHOE #2	SKID SHOE #3	SKID SHOE #4
REACTIONS COMB. 1 [kN]	---	---	---	---	---	8	600	3180	1400	4370	1760	1790	2100	1760	2050	1950	1940	1930	2000	1710	1970	830	1020	1080	650
REACTIONS COMB. 2 [kN]	---	---	---	---	---	120	720	3490	1900	5240	2530	2580	2880	2550	2840	2730	2730	2720	2790	3450	2090	1200	1410	1520	850
REACTIONS COMB. 2 [kN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---



**MODULE 9 AT END OF LAUNCH**  
 SCALE 1:2500  
**MODULE 9 À LA FIN DU POUSSAGE**  
 ÉCHELLE 1:2500



**LAUNCHING NOSE DISMANTLED.**  
 SCALE 1:2500  
**DÉMONTAGE DE L'AVANT-BEC**  
 ÉCHELLE 1:2500

**REACTIONS PER INDIVIDUAL SUPPORT (SLIDING OR SKID SHOE) AFTER LAUNCH**  
 RÉACTIONS PAR APPUI INDIVIDUEL [GLISSANT OU SKID SHOE] APRÈS LE POUSSAGE

PIER PILE	P-25	P-27	P-28A	P-28B	P-28A	P-28B	P-30	P-31	P-32	P-33	P-34	P-35	P-36	P-37	P-38	P-39	P-40	P-41	P-42	P-43	P-44
REACTIONS COMB. 1 [kN]	---	---	---	1960	4000	4000	---	2270	930	1960	2120	1680	2080	1940	1940	1950	1950	1970	2100	1950	900
REACTIONS COMB. 2 [kN]	---	---	---	1960	4760	4760	---	2880	1260	2710	2090	2460	2860	2730	2730	2730	2730	2760	2880	2740	1210



# BRIDGES / LAUNCHING / SPECIFIC CASES / MOBILE PILE



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# BRIDGES / LAUNCHING / SPECIFIC CASES / VARIABLE DEPTH



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# BRIDGES / LAUNCHING / SPECIFIC CASES / FISHING SYSTEM



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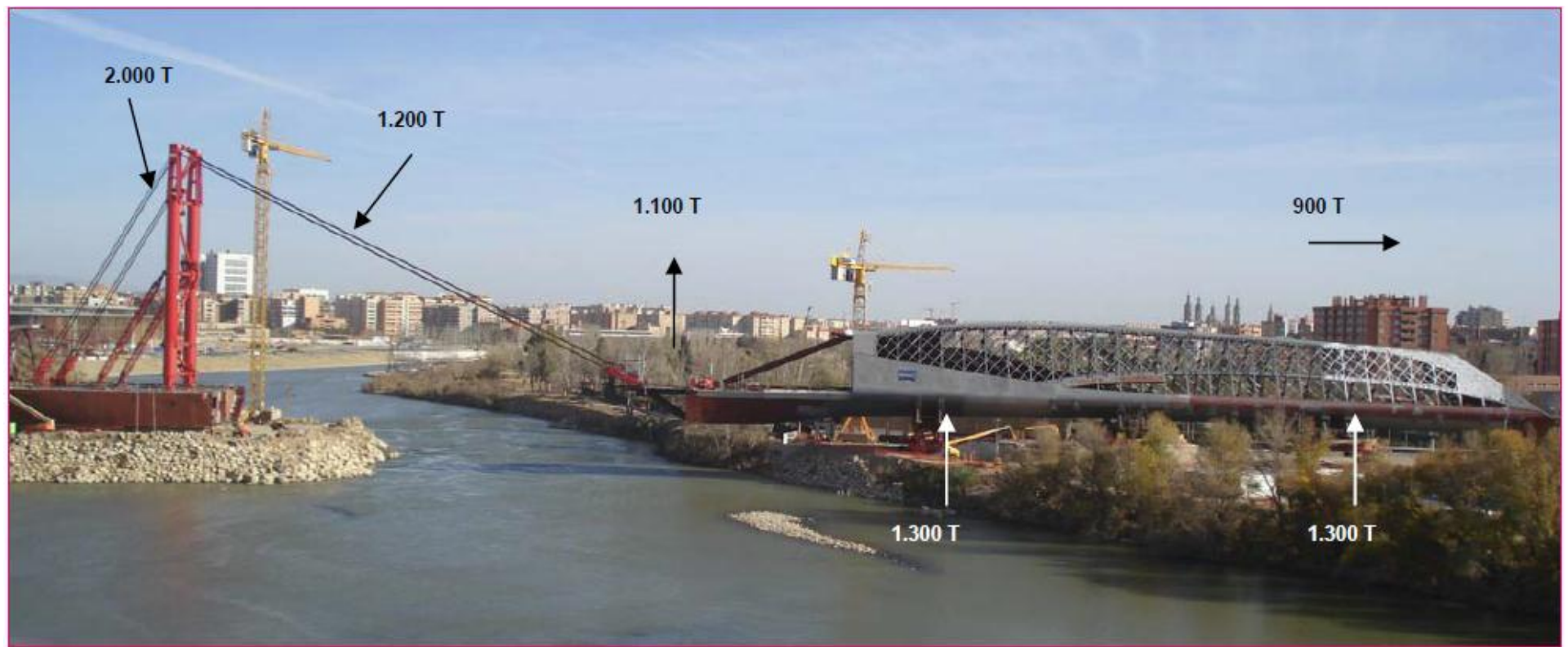
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# BRIDGES / LAUNCHING / SPECIFIC CASES / FISHING SYSTEM



# BRIDGES / LAUNCHING / SPECIFIC CASES / FISHING SYSTEM



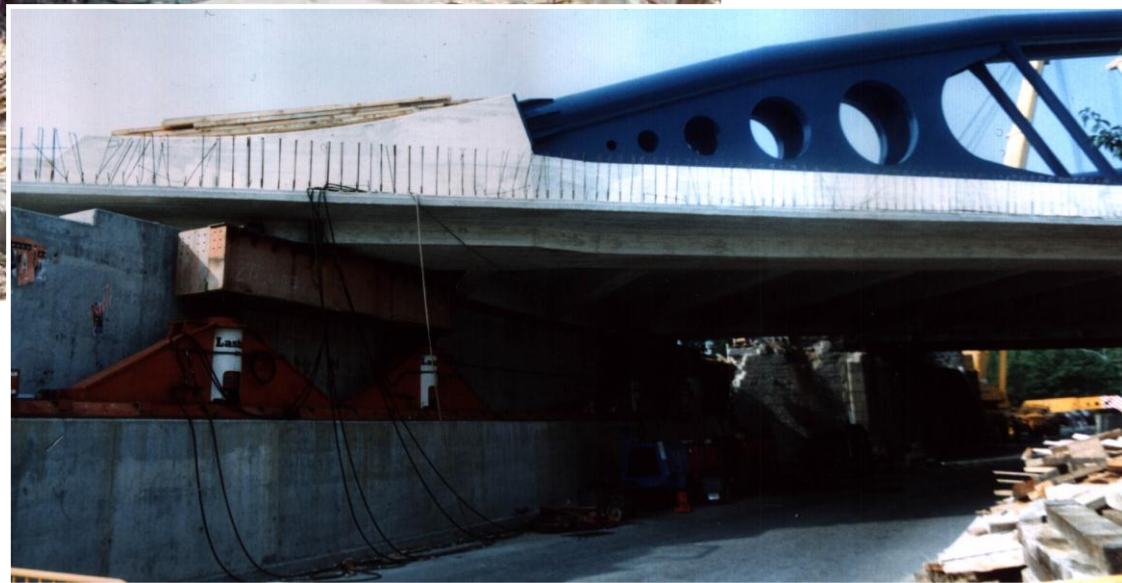
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# BRIDGES / RAILWAY BRIDGES



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# BRIDGES / LIFTING OF FLOATING CENTRAL SPANS



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# BRIDGES / LIFTING OF FLOATING CENTRAL SPANS



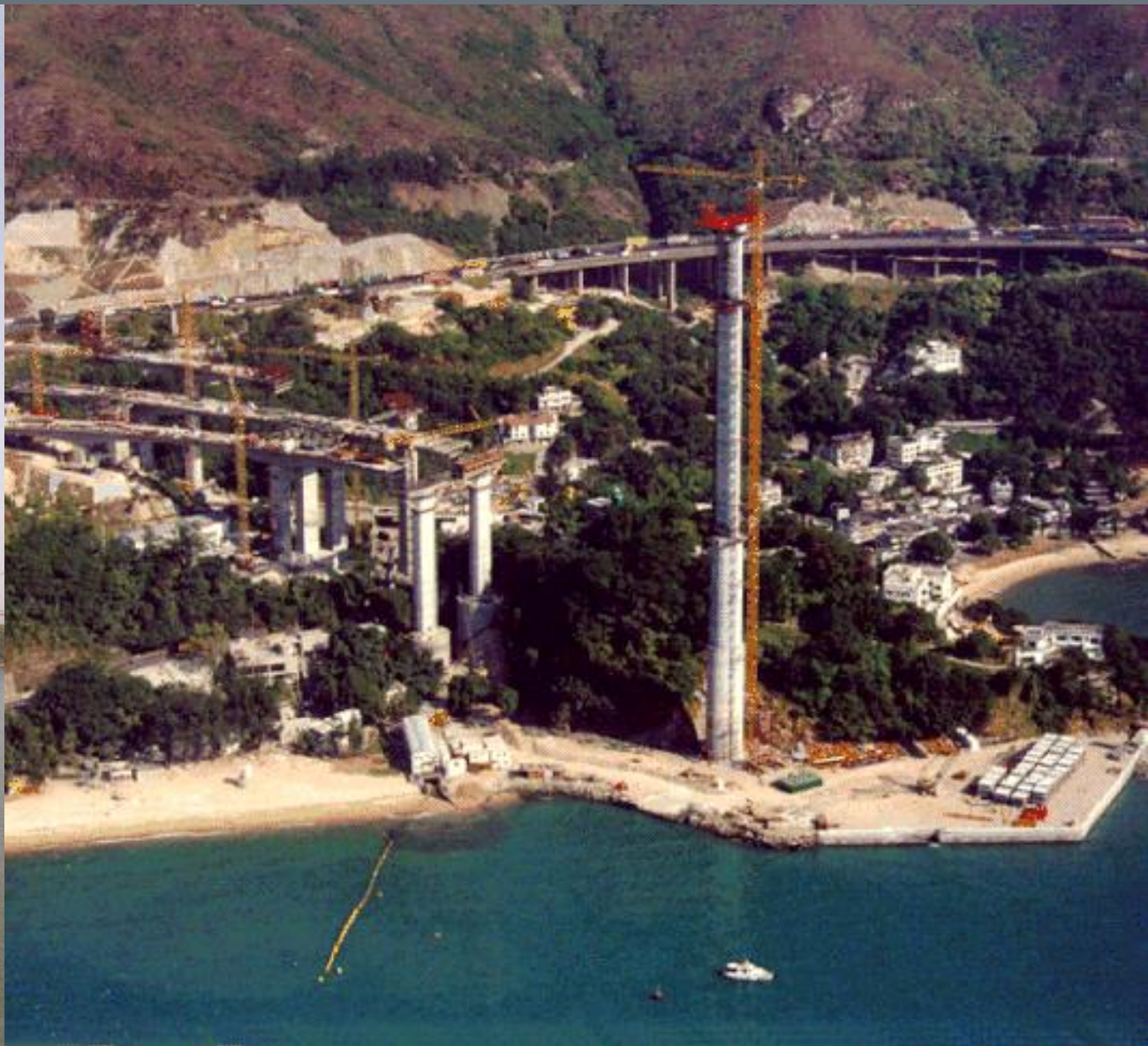
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# BRIDGES / PARTIAL LIFTING



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# BRIDGES / ASSEMBLY / DISASSEMBLY WITH SPMT



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# BRIDGES / ASSEMBLY / DISASSEMBLY WITH SPMT



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# BRIDGES / ASSEMBLY / DISASSEMBLY WITH SPMT



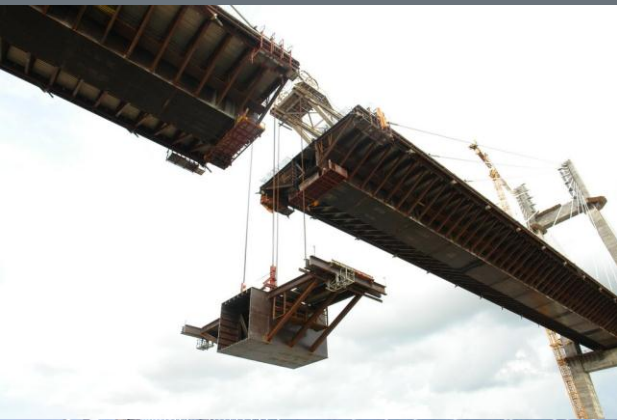
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# BRIDGES / LIFTING OF SECTIONS OF STAY CABLE BRIDGES



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# BRIDGES / TILTING OF ARCHES



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# BRIDGES / JACK UP OF SECTIONS



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# SPECIFIC ALE EQUIPMENT FOR LAUNCHING

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**SPECIFIC ALE  
EQUIPMENT  
FOR  
LAUNCHING**

**SKIDDING SYSTEM**

**PULLING SYSTEM**

**STATIONARY SLIDING SYSTEM  
AT ABUTMENTS, PILES AND  
AUXILIARY STEEL STRUCTURE**

**SYSTEM TO COMPENSATE THE  
DEFLECTION AT FRONT SECTION**

**MECHANICAL**

**HYDRAULIC**





# SPECIFIC EQUIPMENT FOR LAUNCHING / SKIDDING SYSTEM



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# SPECIFIC EQUIPMENT FOR LAUNCHING / PULLING SYSTEM



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# SPECIFIC EQUIPMENT FOR LAUNCHING / PULLING SYSTEM



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# SPECIFIC EQUIPMENT FOR LAUNCHING / STATIONARY SLIDDING SYSTEM AT ABUTMENTS, PILES AND AUXILIARY TOWER



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# SPECIFIC EQUIPMENT FOR LAUNCHING / STATIONARY SLIDING SYSTEM AT ABUTMENTS, PILES AND AUXILIARY TOWER



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# SPECIFIC EQUIPMENT FOR LAUNCHING / STATIONARY SLIDING SYSTEM AT ABUTMENTS, PILES AND AUXILIARY TOWER



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# SPECIFIC EQUIPMENT FOR LAUNCHING / SYSTEM TO COMPENSATE THE DEFLECTION AT FRONT SECTION



# SPECIFIC EQUIPMENT FOR LAUNCHING / SYSTEM TO COMPENSATE THE DEFLECTION AT FRONT SECTION



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