Project Cargo Security

Background

Project cargo essentially involves 'one-off' or otherwise unusual cargo, that differs from conventional cargo due to its excessive or irregular size or which is too heavy to be loaded in a conventional manner using normal lifting techniques and/or which cannot be stowed and secured in the conventional manner for the vessel considered. TMC can investigate static and dynamic stowage and securing forces for project cargoes using our in-house series of analytical tools as well as from first principles. For each individual cargo and lashing arrangement, we determine all the relevant loadings including tensile, compressive and racking loads acting on the securing arrangement and the effects of additional strengthening, securing or dunnage as required.

In some cases there are arrangements already in place for the cargo to be secured (e.g. welded lugs and internal stiffening in way of) and on the vessel (e.g. hatch cover mounted container feet, deck 'D' rings, lashing points on wing tank longitudinal bulkheads), but where there are no such provisions in-place for either cargo securing points and/or on board the vessel due to the ship-type or cargo size/orientation, then adequate fastenings, suitably tested for SWL, may be incorporated.

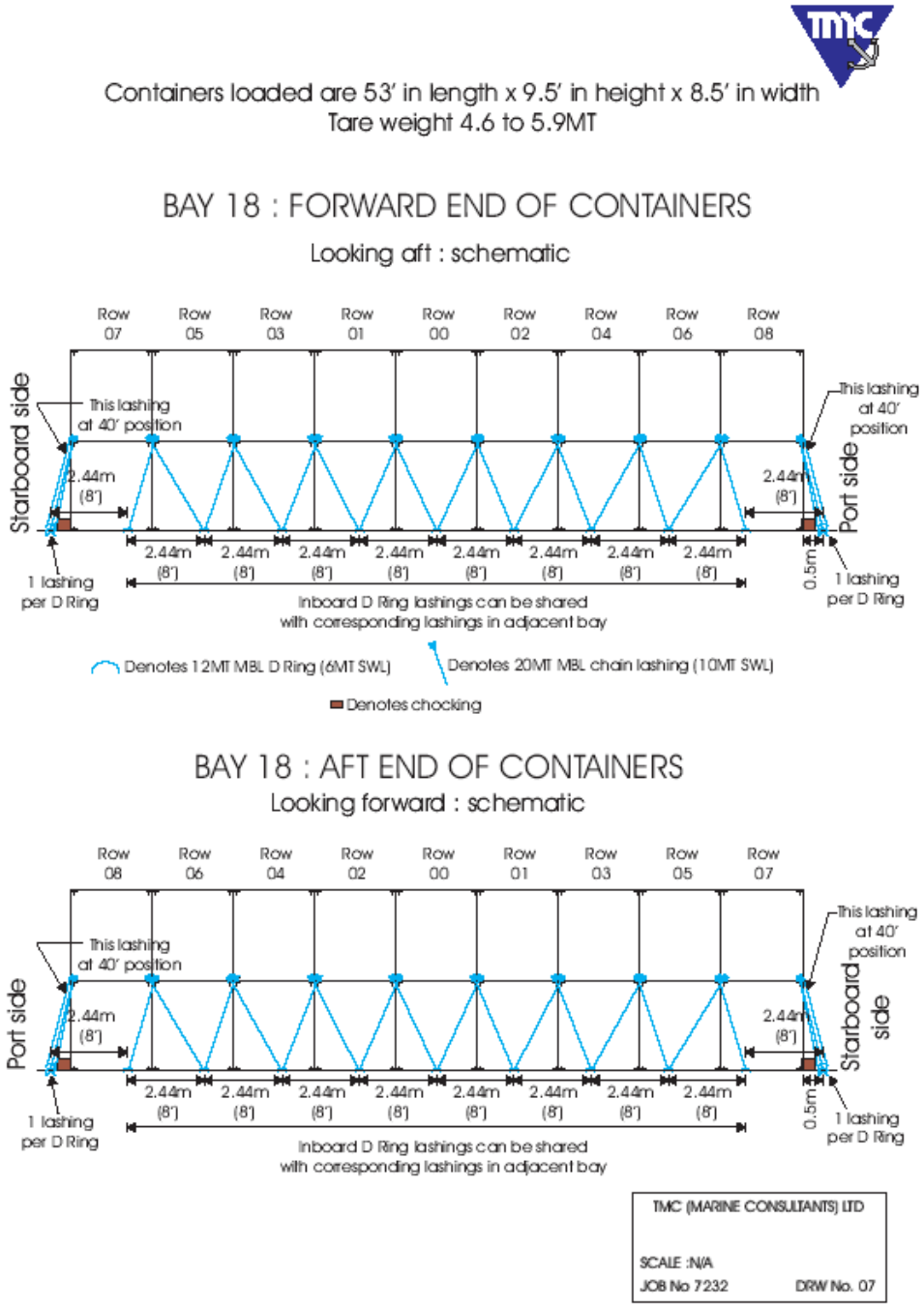
Case Examples

Project cargoes we have dealt with have been for loading on main weather deck, hatch covers, 'tween deck and lower hold and also barge mounted for towage. In addition to the final positioning, and securing for sea, the logistics of loading and discharging using the vessel's own gear or other cranes is considered. Project cargo cases to date include heavy lift and irregular geometry items, either disassembled or complete, but are not necessarily restricted to break-bulk cargo items and include unusual bulk/liquid cargoes. Examples are:

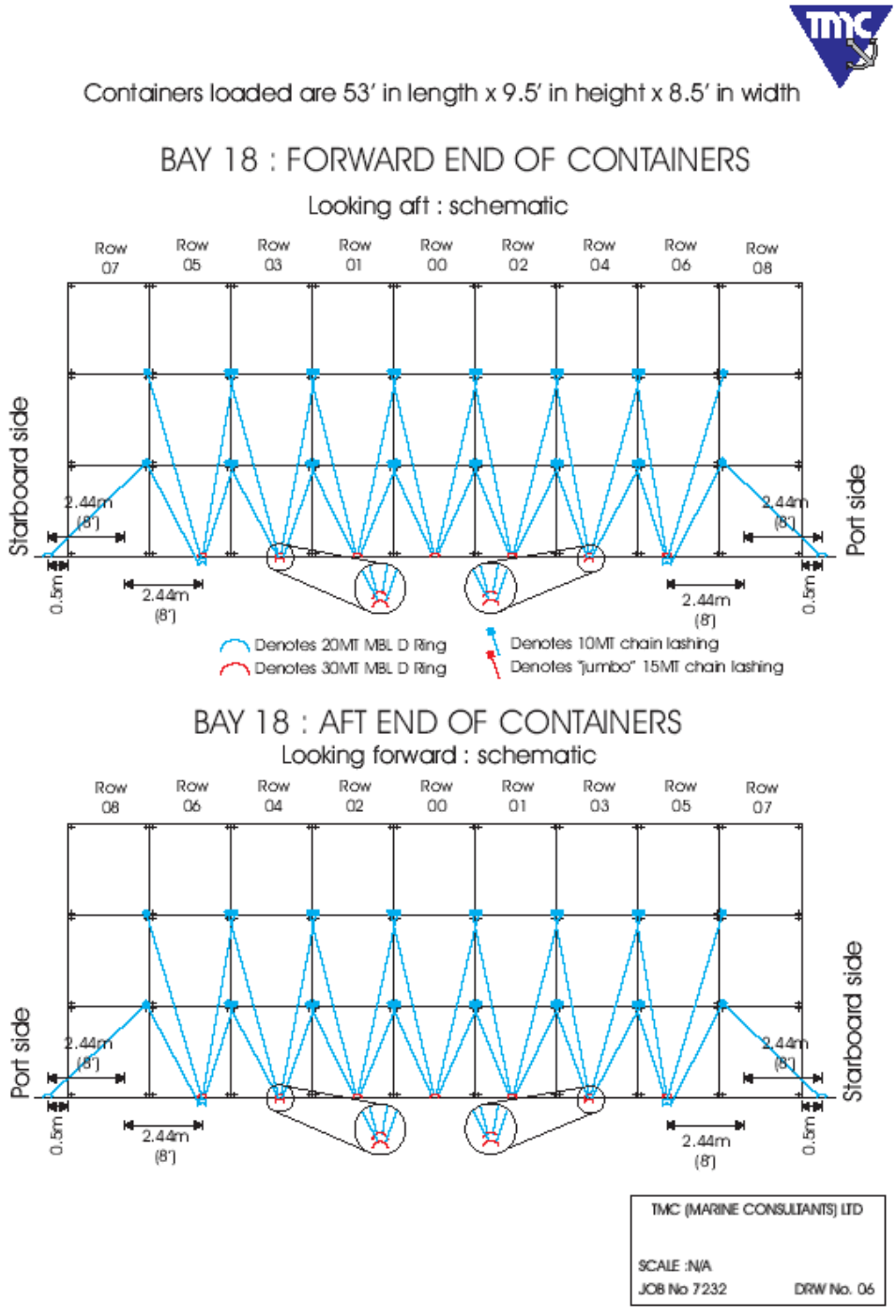
- Processing plants;
- Water/wastewater plants;
- Machinery items;
- Transformers;
- Wind farm turbines;
- Oversized containers;
- Oversized steel coils and drums;
- Cranes (assembled/parts);
- Vessels (dumb barges);
- Offshore units/templates;
- Other vessels (e.g. yachts/small craft);
- Civil engineering projects (e.g. bridge parts).
- Hazardous cargoes;
- Rdioactive cargoes.

A comprehensive service is offered, which accounts for vessel longitudinal strength and stability assessment (i.e. SEAMASTER program), local strength assessment (e.g. 3D Beam, PULS programs and Mathcad assessments) together with dynamic motions analysis using our seakeeping program (Wolfson Unit Motions Program). Compliance with the appropriate loading and/or towing requirements is also assessed. In the case of over-sized or unusual containers, our in-house program COMLASH and associated security and stack force programs may also be used, as applicable

Figures 1: Example of project cargo case study (oversized container units)



Figures 2: Example of project cargo case study (oversized container units)



Figures 3: Example of project cargo case study (wind forces)