

DSI PROJECT – UNITED BULK TERMINAL

TRANSFER MAGNET MONORAIL

C1-C2-C6 Tower

Located in Davant, LA, USA, UBT requested DSI to develop a support structure and translating mechanism for magnetic separators at existing C1-C6 transfer for future C2-C6 transfer. DSI designed monorails to translate the magnets over the respective conveyors.

C1 Conveyor is an integral part of the terminal as it connects the storage yard C to the unloading barges. As part of the terminal's expansion, a new conveyor – C2 was to be installed parallel to the existing C1 Conveyor. The existing tower structure for C1 Conveyor was further expanded and reinforced to accommodate the new conveyor.



Figure 1: Magnetic separators used to remove scrap metal from the material at the transfer.

The client requested a support structure for the magnetic separators that would be used to remove scrap metal from the material at the transfer. The client also requested the magnets to be able to translate away from the transfer for cleaning and maintenance work. For optimum use, it was decided that the magnetic separators would be lowered into the chute and tilted, so that they are nearly parallel to the material trajectory at the transfer.

During initial development of the drawings, it was realized that DSI had limited space in terms of elevation with which to work. This issue of a limit on the top elevation of the support structure was resolved by using low headroom trolleys to translate the magnetic separators.

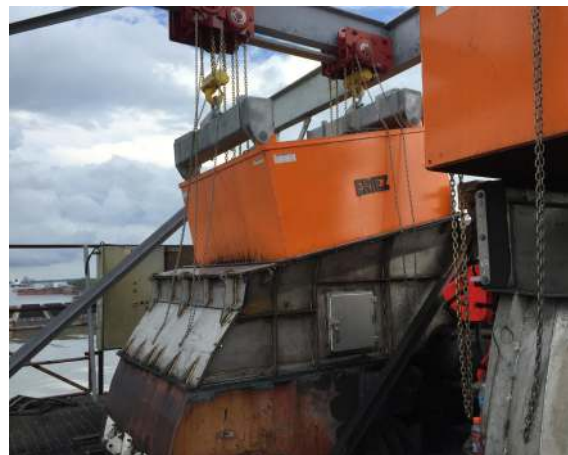


Figure 2:

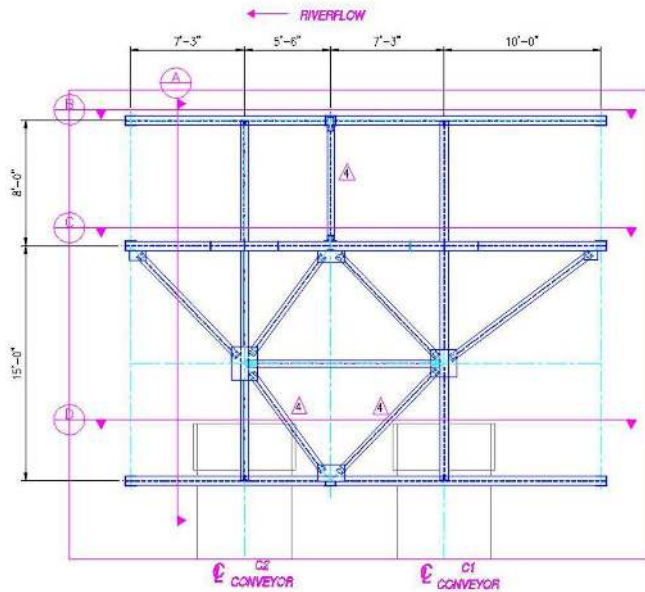


Figure 3: Plan View

Designing a monorail system for each transfer by translating a rather heavy magnet of about 23 kips over a length of 23 ft proved to be quite a challenge. After many preliminary drawings and iterations, it was decided the most optimum solution would be to use two trolley hoists to translate each magnetic separator on a single monorail. Each magnetic separator would be hoisted by an 8 ton geared trolley and an 8 ton plain trolley, translating on an S18x54.7 as the monorail.

Installation of the monorail systems over the conveyors will provide functionality in terms of maintenance and cost effectiveness.

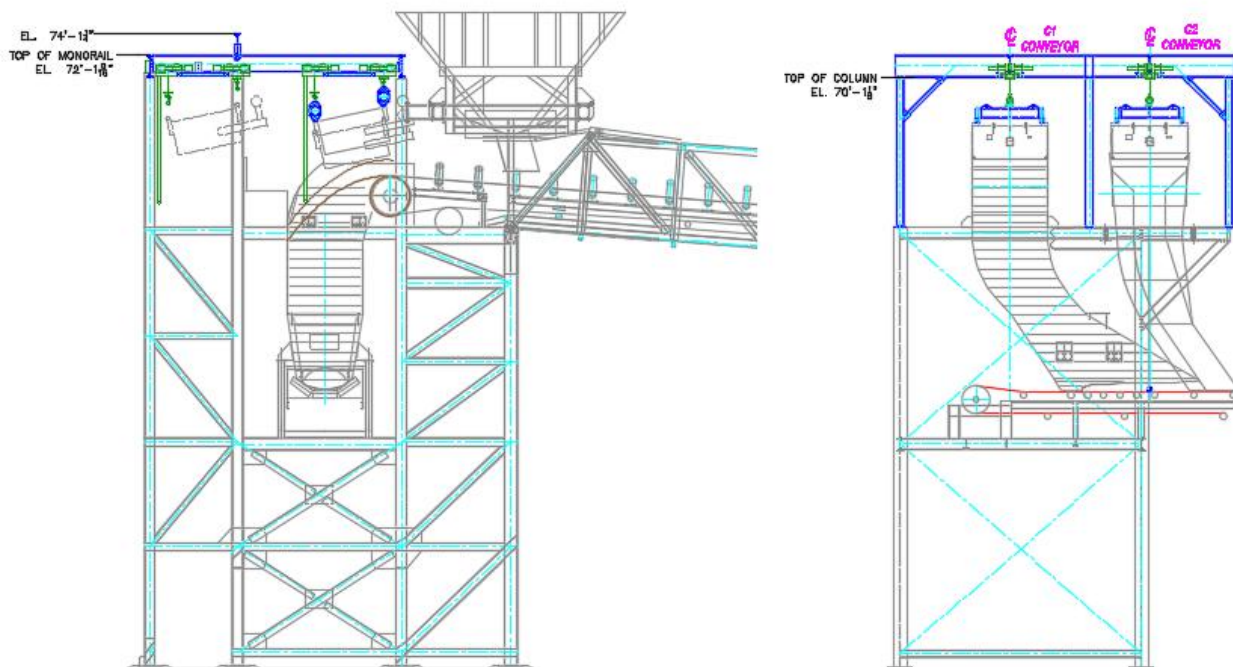


Figure 4: Elevation Side View and End View