ESS-BoB Board Design ToDo

# Schematics

* + 24V power input
* + Brake relay
* + Limit switches circuit
  + + Jumpers (solder or physical) to switch between positive and negative limits
  + + Connect to ESS
* + Step, Dir, Enable to ESS.
* + General purpose I/O from ESS to modular screw terminals.
* + Aux relay outputs (24V)
* + Earth to GND connection: decide what’s best and implement (consult with Zvika)
* + Decoupling for TPL7407L (needed?)
* + Decoupling for 5V of the board
* + 5V and 24V power-on LEDs
* See where additional LEDs could be helpful
* Go over spec document and see if everything is covered
* + Add footprints wherever missing

# Schematics DR

* + Aux 24V outputs need 24V in the connectors, not ground.
* + Aux 24V outputs need a smaller connector (e.g. 3.5mm screw terminal quick connects).
* ~~Nice to have: near each test point from the ESS, add test point of ground.~~
* + Add resistors for step and direction inputs (220 Ω 0805).
* + Layout: make cutout in the size of the Ethernet connector
  + Ethernet bottom-left: (2776, 1352) --> (2700, 1300) with clearance
  + Ethernet top-left (2776, 1991) --> (2700, 2040)
* + Error in brake connector: need GND in common and 24V at the NC and NO pins.

# Placement DR

* + Larger font for silkscreen of connectors
* + CSDJ connectors: move designators to long side of connectors
* Consider changing number of pins for J9
* + Some silkscreen explanation of jumpers
* + 2 additional mounting holes on left side

# Routing DR

* ~~Add polygon pour for GND on top side with a lot of vias between them. If it still doesn’t look like good ground, switch to 4-layer (extra 70$).~~
* + Switch to 4-layers. In JLCPCB it ends up as cheap as 2-layer in PCBWAY.
* Chassis GND:
  + + Get chassis GND externally from standoff(s).
  + + Connect chassis GND and regular GND with small cap and large resistor
  + + Connect chassis GND to CSDJ connectors using 0-Ω resistors or solder jumpers
* + Add 2-3 more GND test points.