

Cross-Over Ladder

Manhole Bottom Finishing



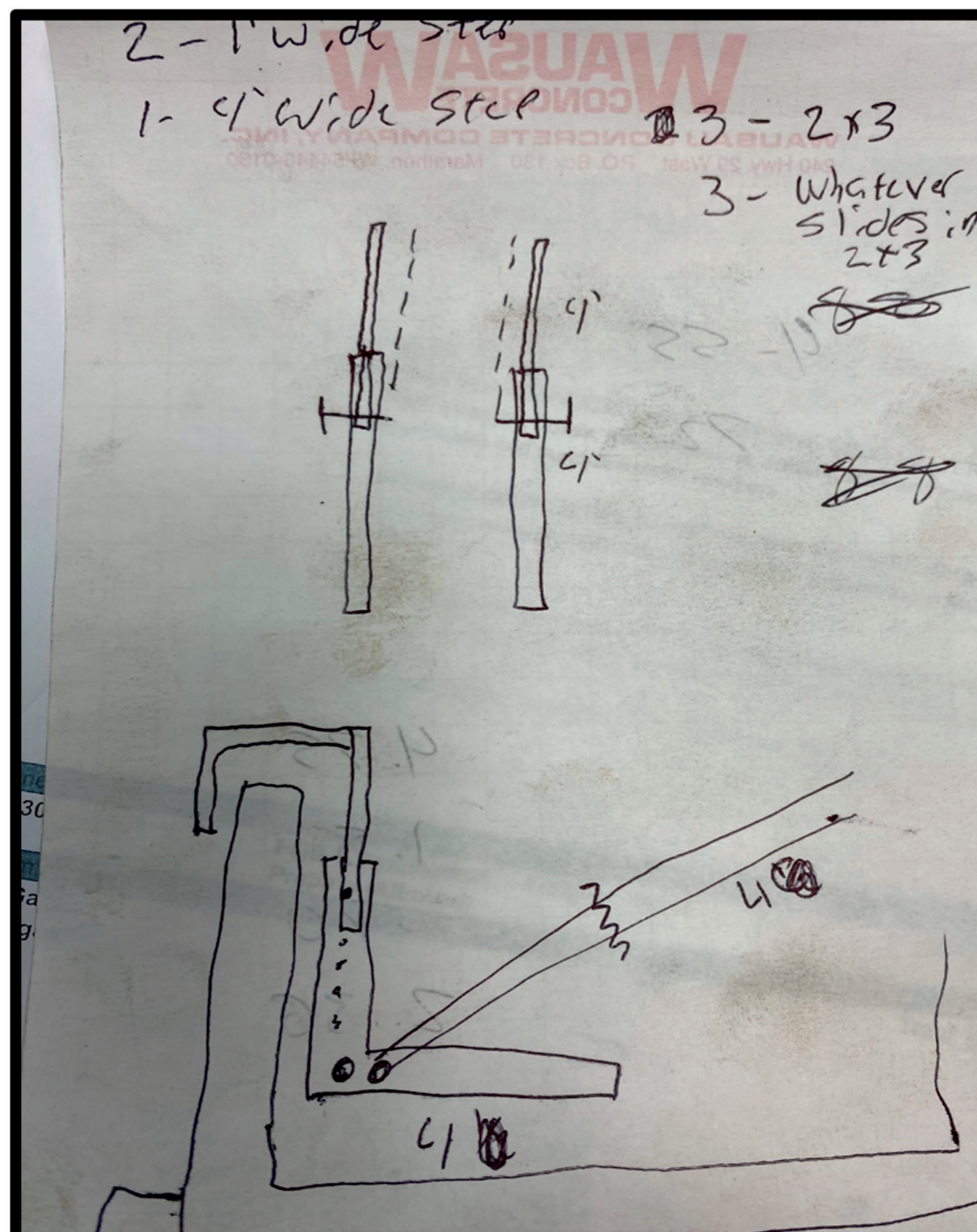
Problem:

1. Unsafe access into manhole
2. Awkward work positioning when trying to reach entire bottom to finish
3. Inconsistent cutout locations (limiting access from side)



Concept:

Create a device that would hang from the structure and allow ladder access, with a safe crossover point, into the manhole. This device would work regardless of cut-outs/joint openings. The device would have an expandable base to allow finishing of the manhole bottom while hovering just above the surface. Maximize the availability of the overhead crane to reduce manual handling/adjusting where possible.



Note: Sketch of original design concept

Solution:

- Ladder sections expand/collapse to fit all manhole heights
- Grabrails to assist during cross-over
- Work platform expands to allow reach for manholes 84"-144" in diameter
- Integrated crane pick-points allow for adjustable leveling

