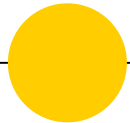


EPICS : Camp Riley



*Spring House Team Semester Design Review
Fall 2017*

Introduction of Members

Josh Hernandez

Multidisciplinary Engineering

December 2017

Design Lead

Francis Sullivan

Multidisciplinary Engineering

May 2018

Team Member

Adam Cameron

FYE

May 2021

Team Member

Adam Harris

FYE

May 2021

Project Archivist

Jacki Knight

Industrial Management

May 2019

Project Partner Liaison





Project Background

- ◉ Create an ADA compliant ramp to make the Spring House accessible from the road
- ◉ Create a landing area next to the Spring House for viewing and educational purposes
- ◉ **Stakeholders:**

Primary Stakeholders:

- ❖ Bradford Woods
- ❖ Camp Riley
- ❖ Staff
- ❖ Visitors

Secondary Stakeholders:

- ❖ Donors
- ❖ Indiana University

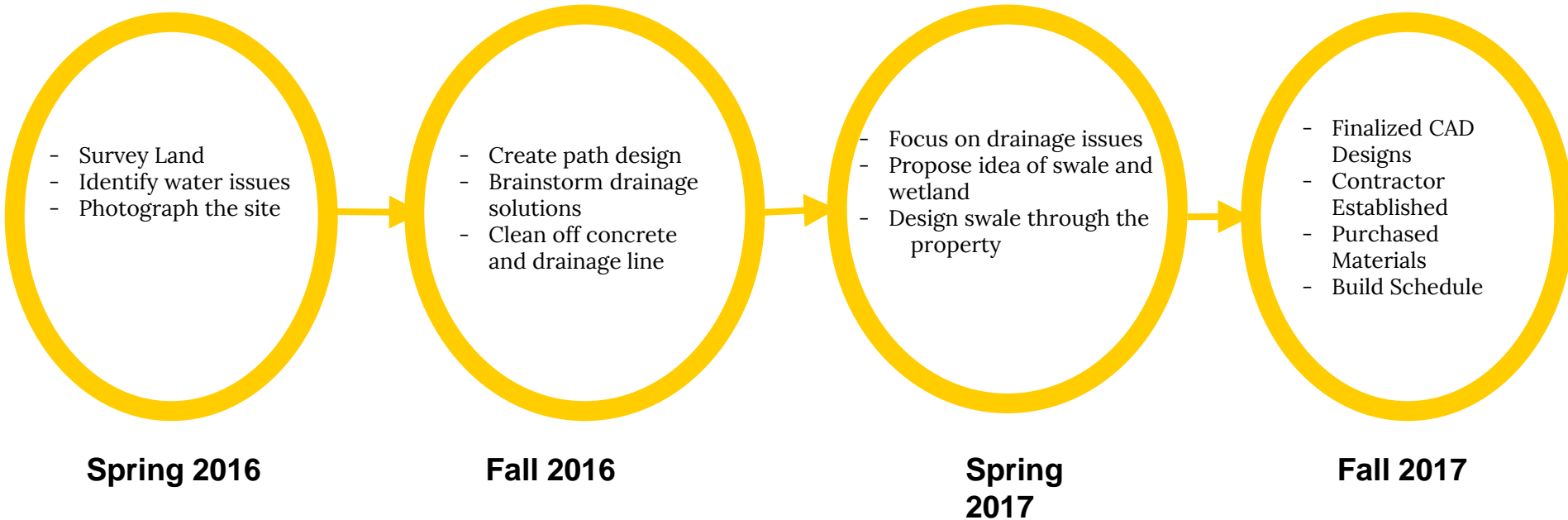


Spring House

- Built 1900
- Spring water cooled the concrete slabs = Refrigeration
- Filtered water



Project Timeline



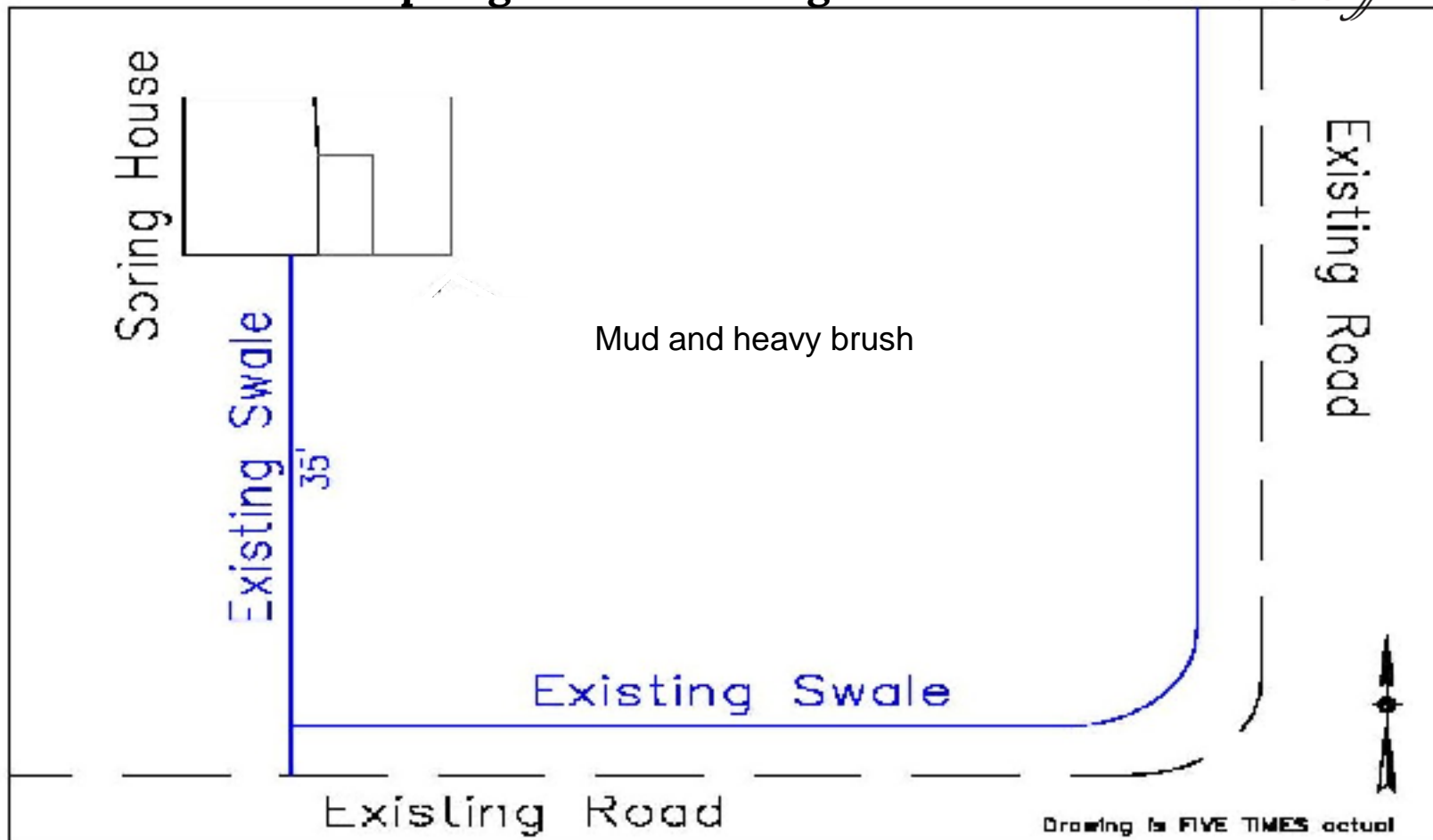
Water Problems on Our Site

- Severe drainage problems on the feature
- Excavator was brought in to alleviate some of the issues with the land
- Excavator got stuck due to the severity of the land
- Spring somewhere underneath the surface level of the land

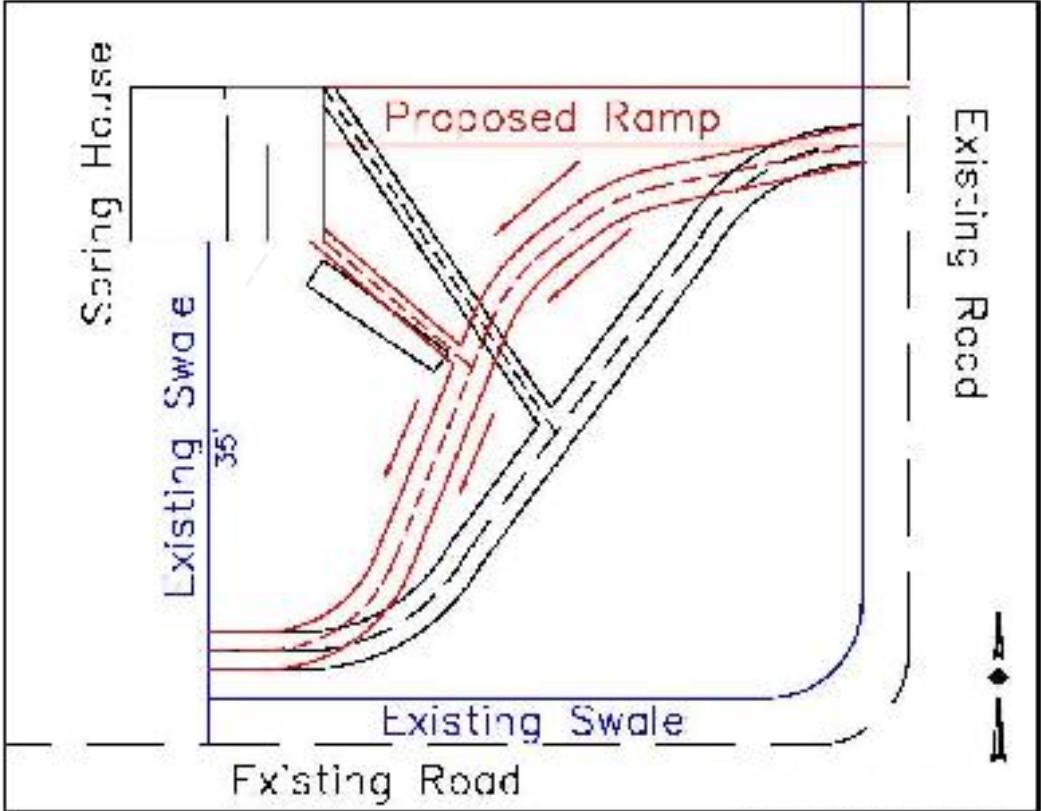


01/21/17

Spring House Existing Conditions



Spring 2017



2

Fall 2017

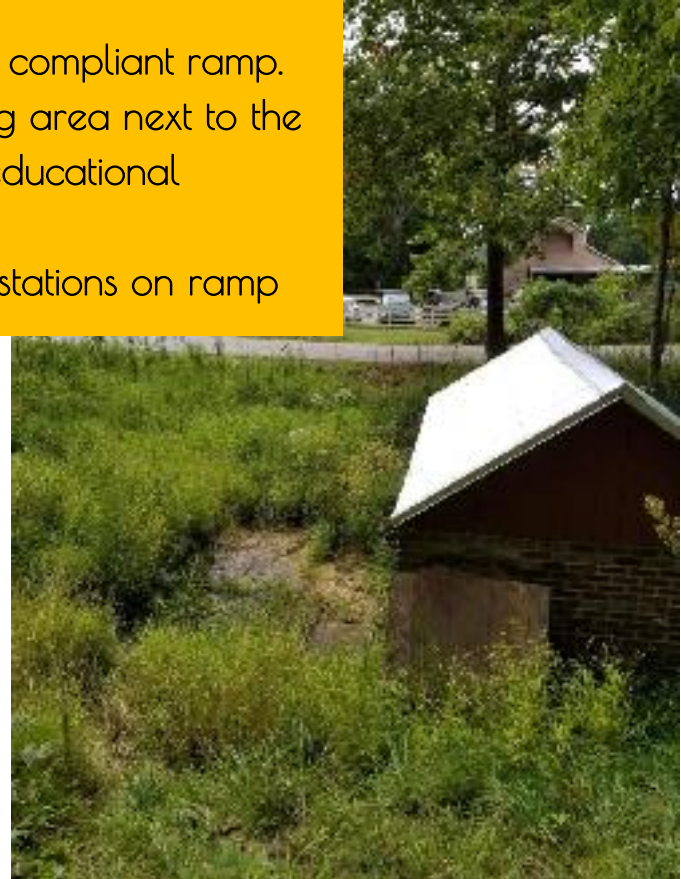
Original Objective: Construct Ramp and Landing

Adjusted Objective: Finalize Ramp Design

Project Goals



- Construct an ADA compliant ramp.
- Construct a landing area next to the Spring House for educational purposes.
- Create interactive stations on ramp

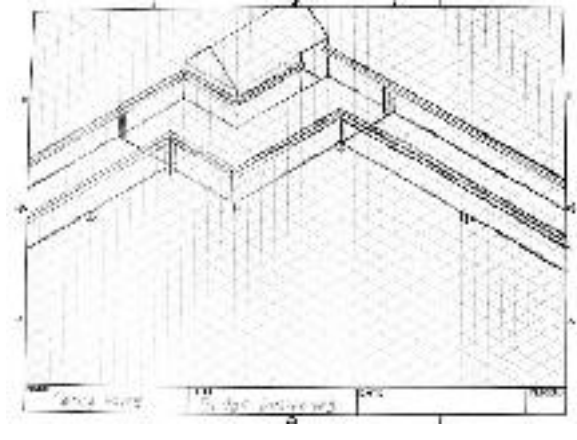
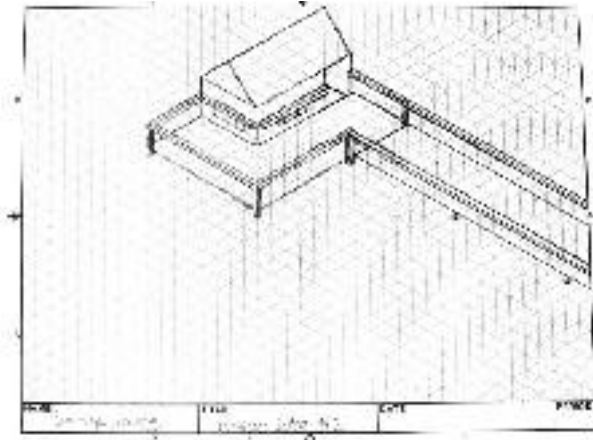
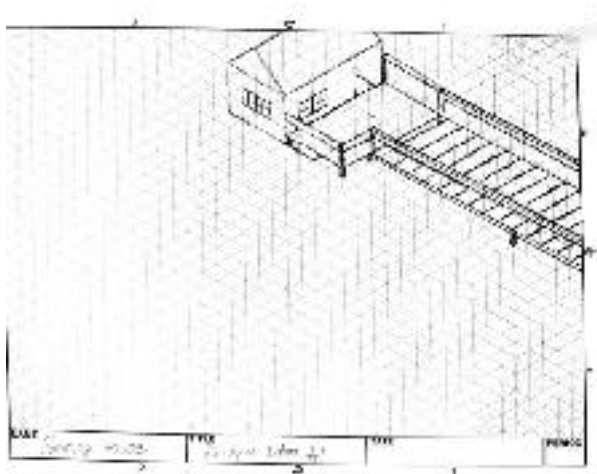


ADA REQUIREMENTS

- 1:12 ramp slope ratio (8.3%)
- Minimum width of 36 inches
- Maximum run of 30 feet of wheelchair ramp before a rest or turn platform.
- Minimum Turn Platform size of 5' x 5'

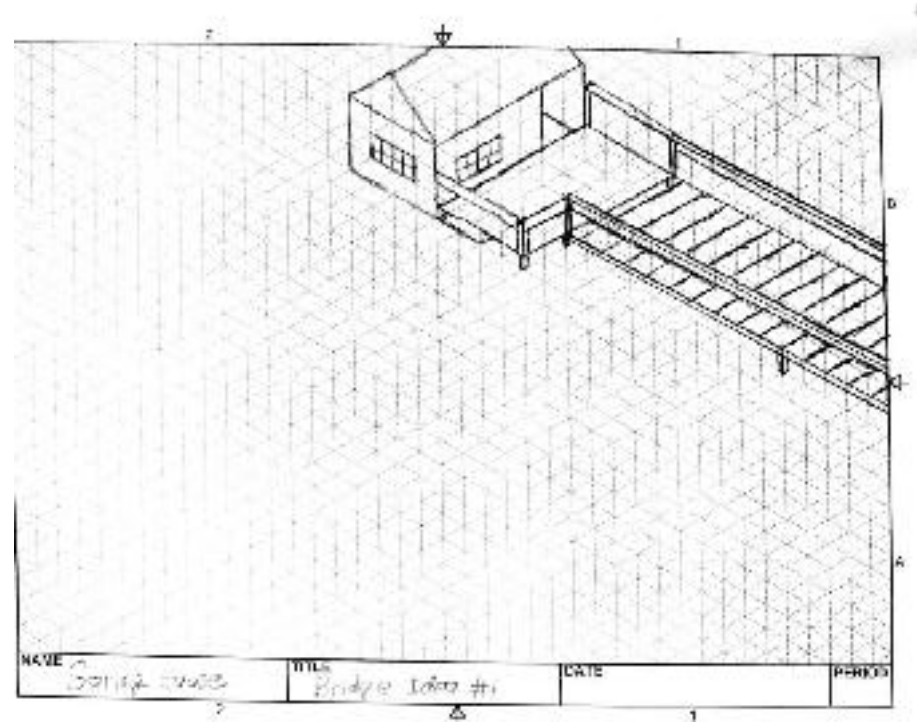
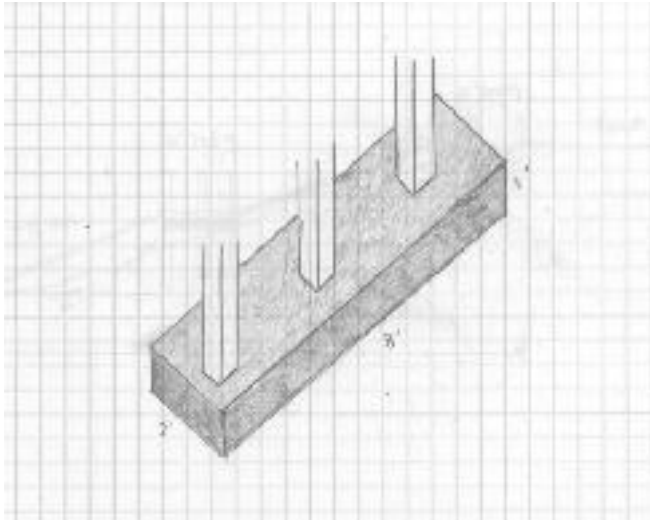
Fall 2017 Schedule Before L-Design and Lower Ramp

- Revise Ramp Design to add Landing
- Three possible solutions



Progressing With Ramp Design

- Chosen Solution
- Land Survey
- Stabilization Problems
 - Contractor



GREYSTONE CONCRETE

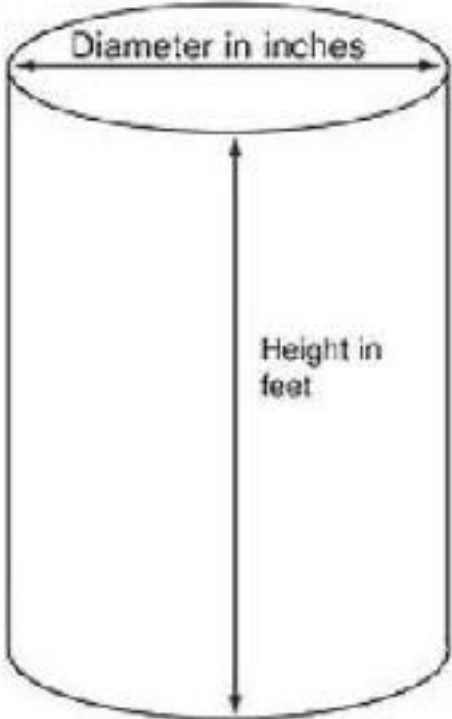
- Needed contractor
- Martinsville area
- Concrete footers
- Vendor approval



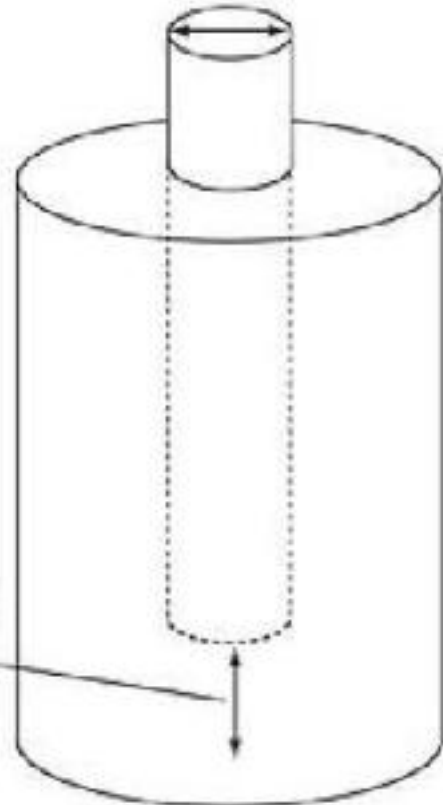
Greg Iacobucci

GM/Estimator

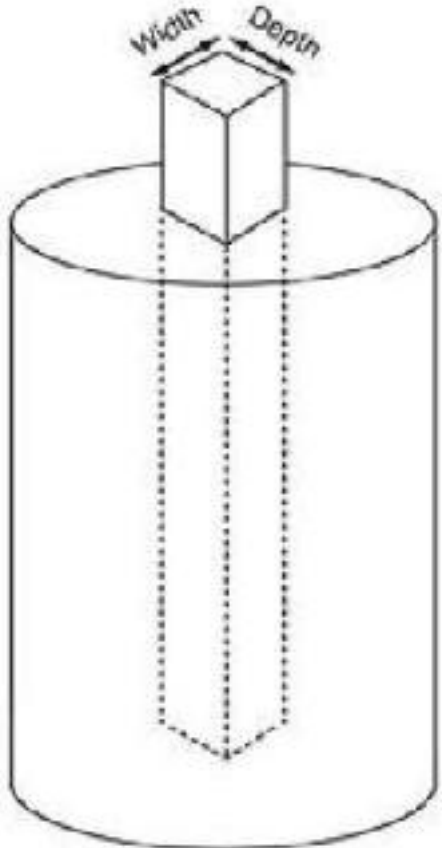
greg@greystoneconcrete.com



Round Post
Diameter in inches



Square Post



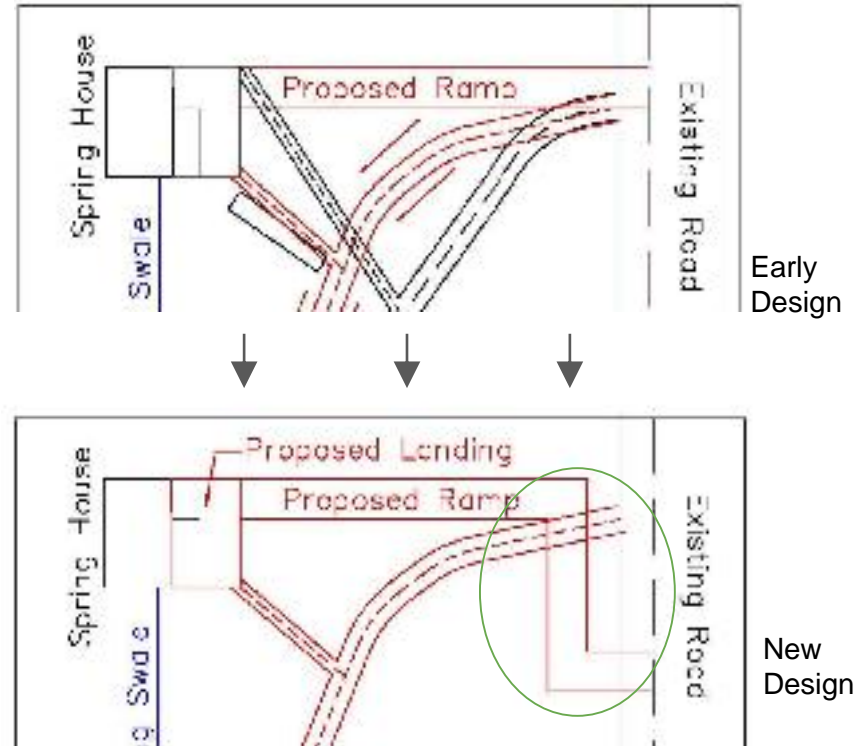
Landing Redesign Discussion

- Existing design placed the landing at 2½ ft high
- Addressed problem with Project Partner (Tim)
- PP decided that the landing was too high
- Infeasible to have straight ramp within ADA regulations



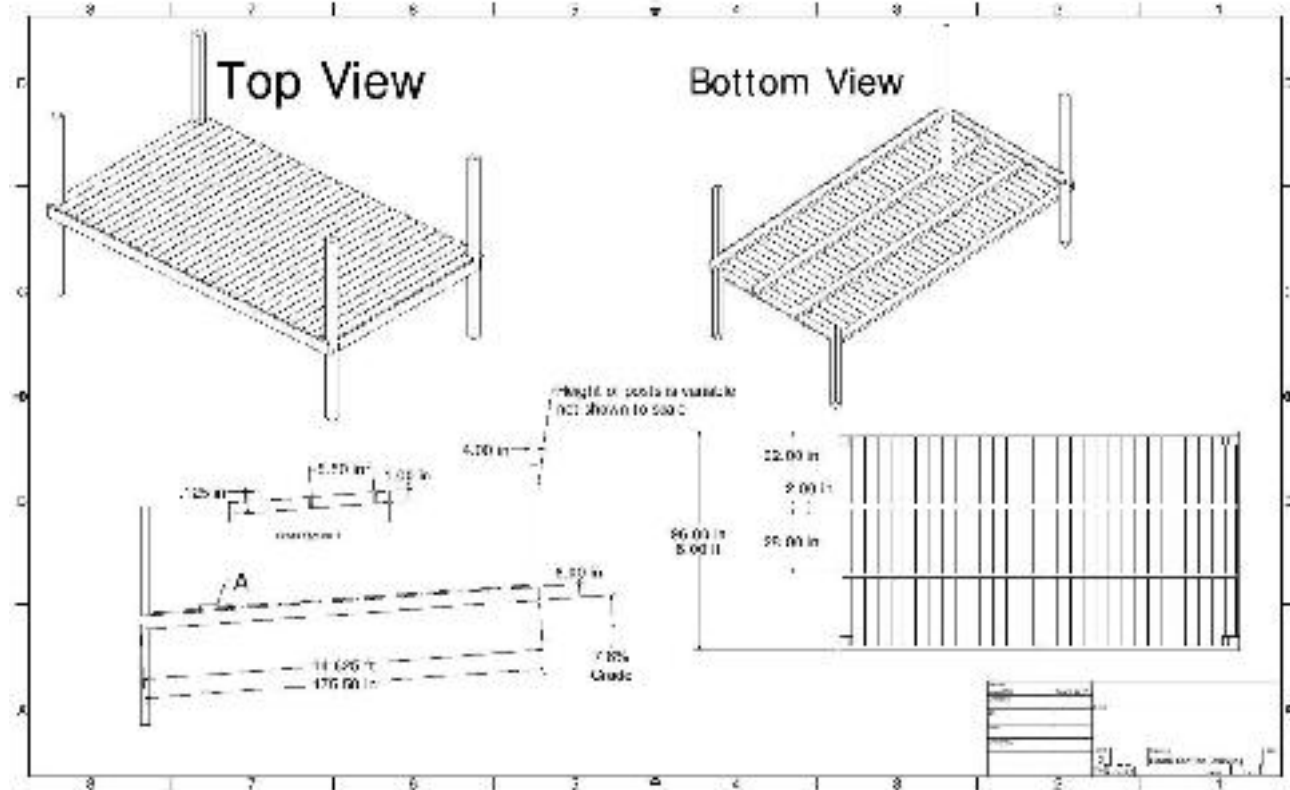
Ramp Addition aka “The Dog Leg”

- Too much elevation drop, not enough length
- New section was designed to preserve placement of existing ramp
- Increases # of posts from 17 to 23
- No additional footers needed for dogleg



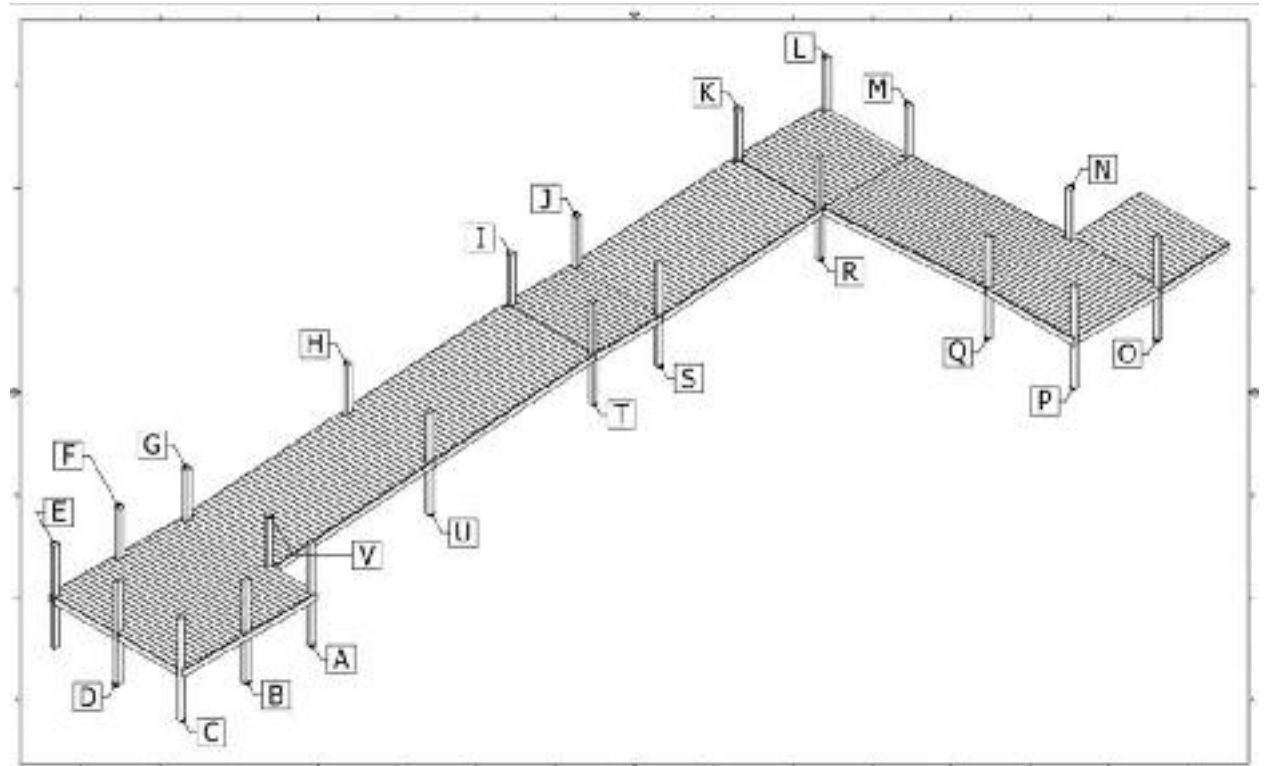
Ramp Section

- Drawing of what a section of the ramp will look like

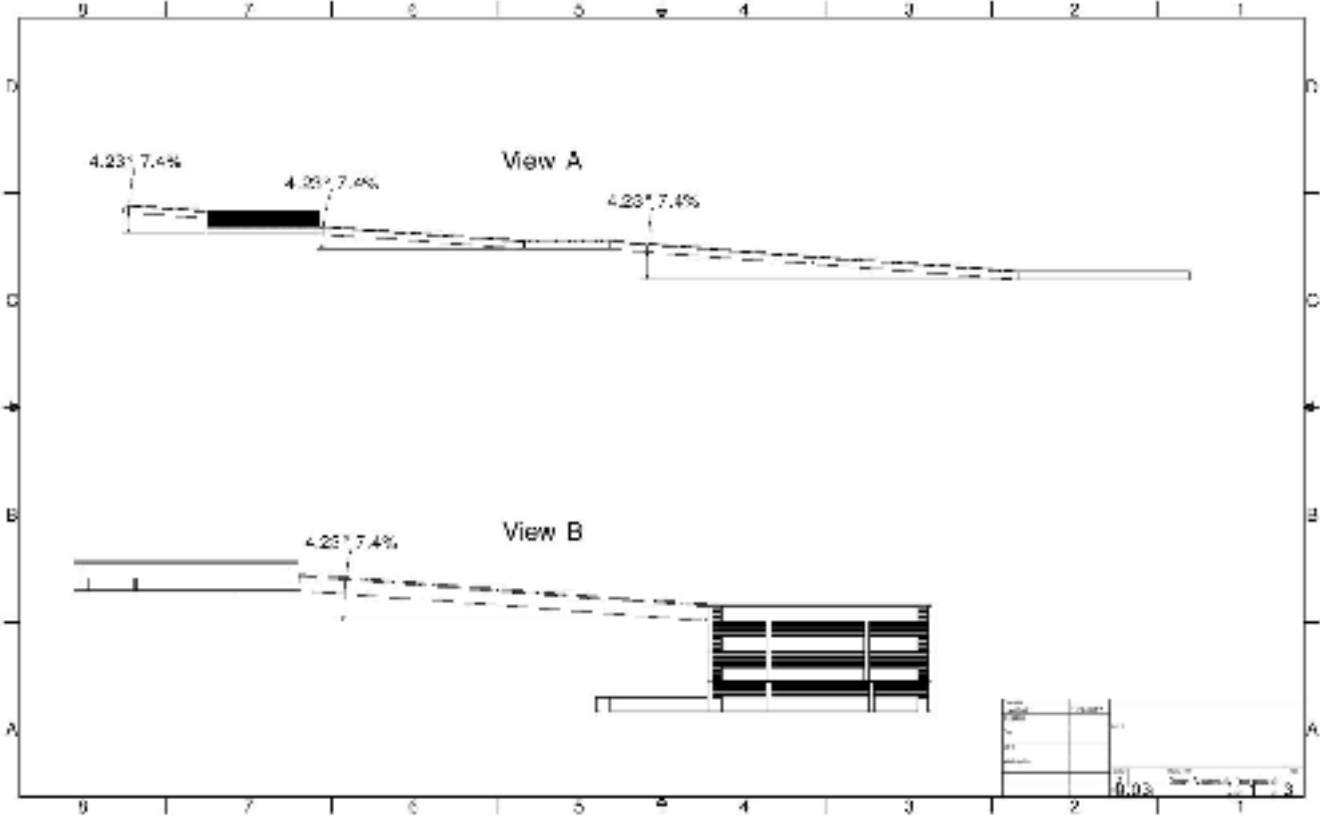


Post Identifier and Isometric View

- Because each post will have different holes drilled in it, they needed to be distinguished in some way

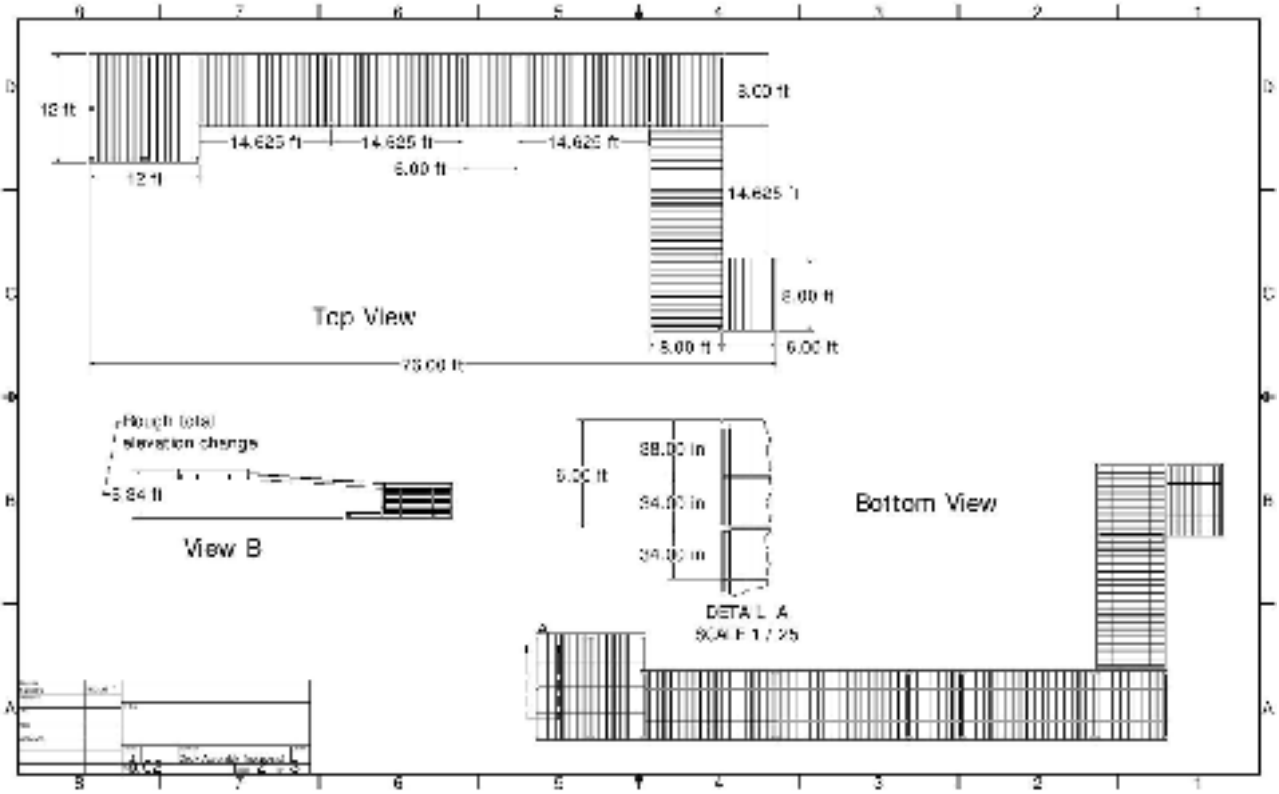


Ramp Grade



Ramp Dimensions

- Fully dimensioned view of the entire ramp without posts

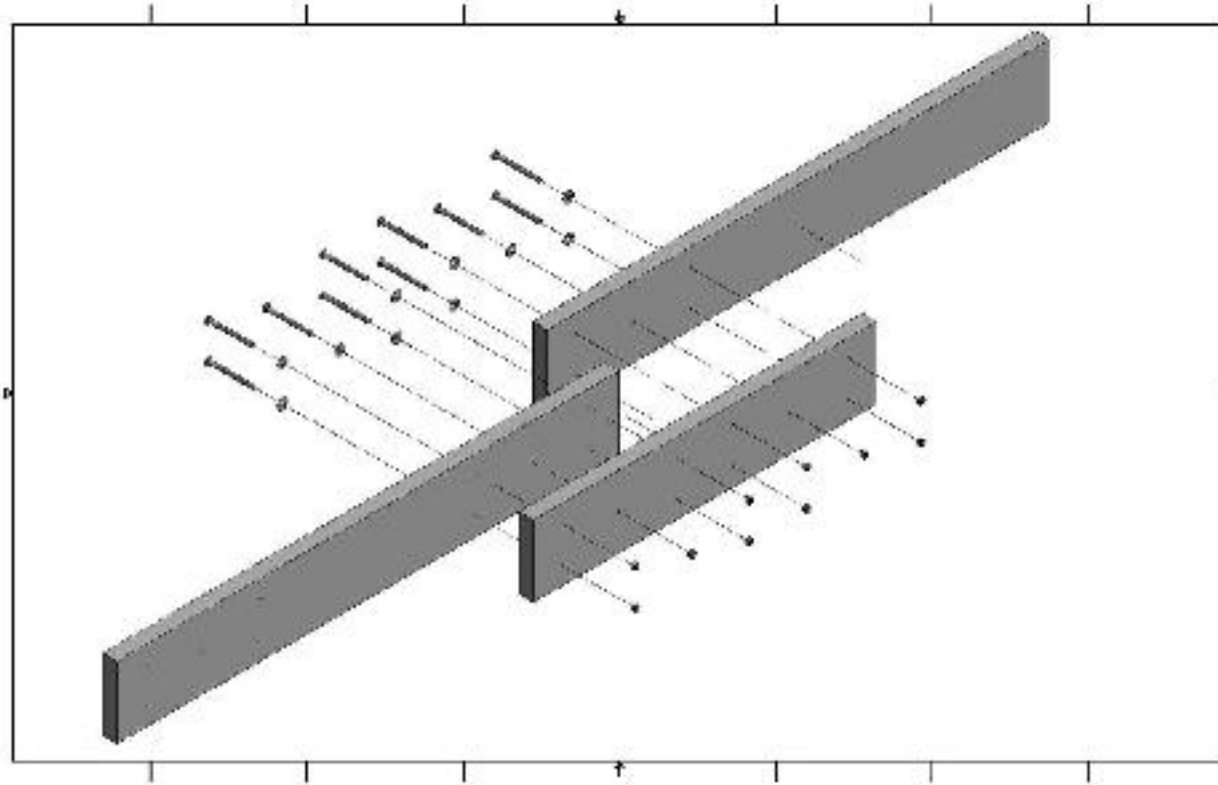


Project Partner Progress

- Finalized design plans
- Purchase orders finished
- Greystone vendor approved
- Footers put in frozen ground



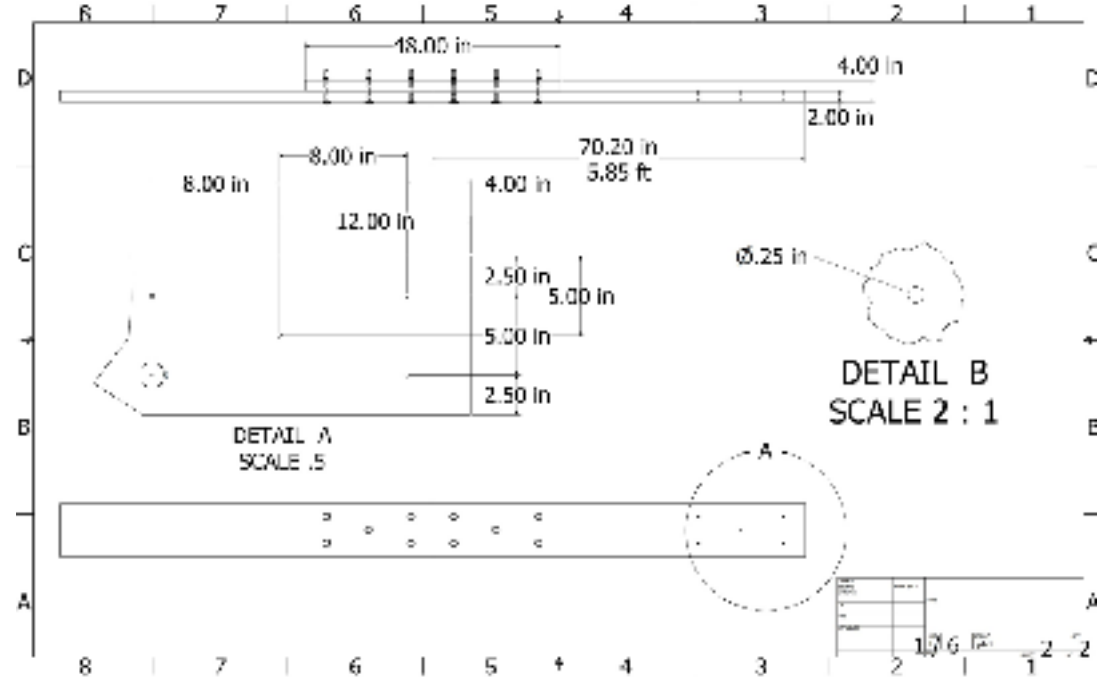
Spliced Stringer Section



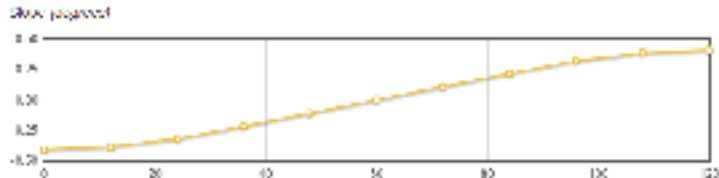
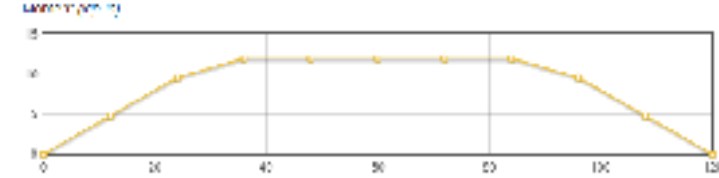
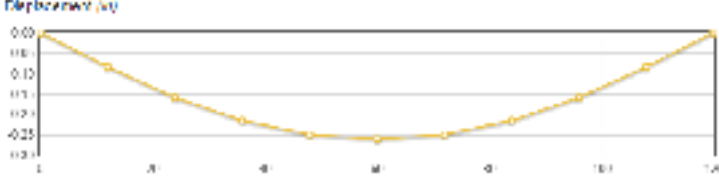
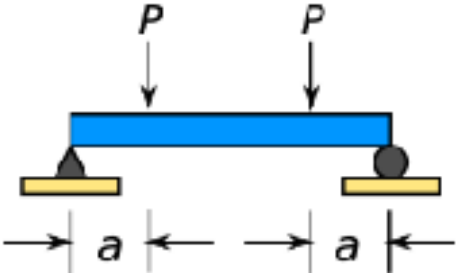
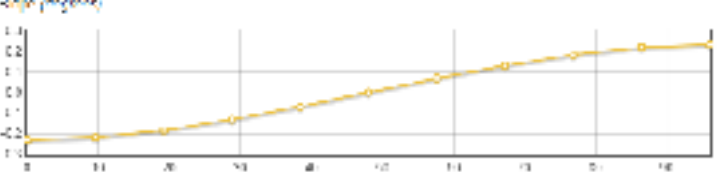
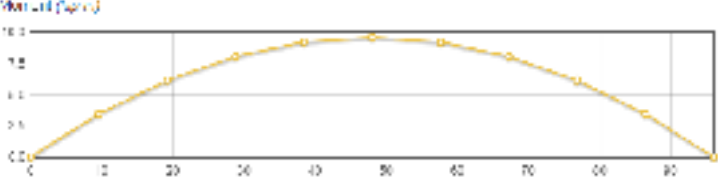
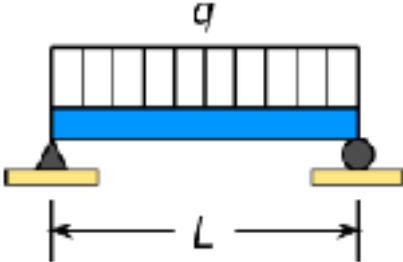
- 10 bolts
 - ½ diameter
- 4' splicing board

Spliced Stringer Section

- Detailed placement of each bolt



Structural Mechanics



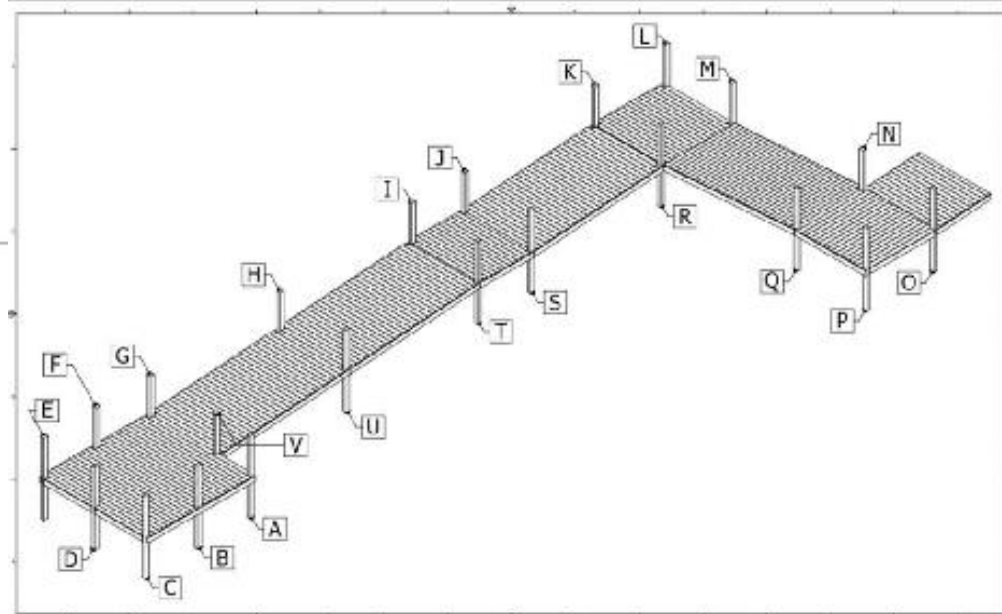
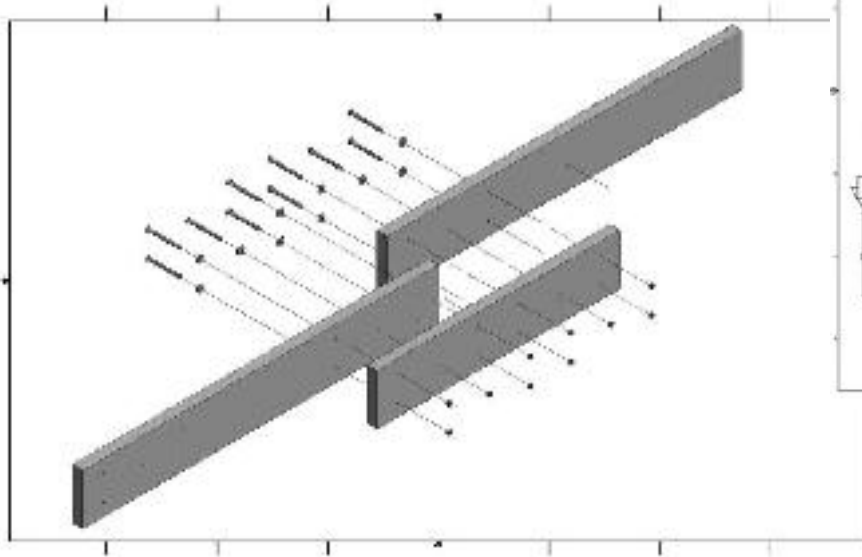
Finalized Purchase Orders/Budget

- Purchased Stringers, Posts, and Joist Hangers
- To be delivered to Bradford Woods
 - Stored in barn for next semester

| Spring House- Fall 2017 Purchasing Budget #1 | | | |
|---|----|---------|-------------------|
| 2 x 10 x 16' Ground Contact AC2® Green Pressure Treated Lumber | 8 | \$22.49 | \$179.92 |
| 2 x 10 x 12' Ground Contact AC2® Green Pressure Treated Lumber | 16 | \$19.27 | \$308.32 |
| 2 x 10 x 8' Ground Contact AC2® Green Pressure Treated Lumber | 31 | \$11.47 | \$355.57 |
| 2 x 10 x 4' Ground Contact AC2® Green Pressure Treated Lumber | 1 | \$7.29 | \$7.29 |
| USP Structural Connectors 2" x 8-10" Triple Zinc Slant Nail Joist Hanger | 41 | \$1.11 | \$45.51 |
| USP Structural Connectors 10D x 1-1/2" Hot Dipped Galvanized Nail - 5 lb. Box | 1 | \$19.28 | \$19.28 |
| 4 x 6 x 10' #2 Ground Contact AC2® Green Pressure Treated Timber | 14 | \$17.97 | \$251.58 |
| 4 x 6 x 12' #2 Critical Structural AC2® Green Pressure Treated Timber | 8 | \$25.27 | \$202.16 |
| Total | | | \$1,369.63 |

Make build plan for next semester

- Full ramp assembly and presentation build on Inventor for next semester



Next Semester Timeline

January

- Transition in new team
- Contractor should install footers
- Validate design

February

- Complete construction plans
 - Railing design
- Finalize build day schedules
- Brainstorm interactive station ideas

March

- Build days, weather permitting
- 3/5/18 - Recruit help
- 3/30/18 - Stringers completed

April

- Build days, finish walkway/attach handrails
- 4/16/18 - Ramp Completed

May - Phase 6



Thanks!

Any questions ?