

Evan Bourne ASM, Joel Hawbaker ASM, Luke Schnur ASM

Background

- ADM is looking to get into the farmer direct fertilizer business
- All fertilizer business is done with 550 other wholesalers
- ADM is interested in building a farmer direct fertilizer facility that cuts out the middle man and has blending capabilities

Statement of Problem

There are no current designs for farmer direct fertilizer facilities throughout the company. ADM is losing out on millions of dollars per year, because they don't have the blending capabilities to sell directly to farmers.

Our Solution

- Design an efficient facility with blending capabilities
- 4-Bays @ 5,000 ton Legacy style storage building.
- Use an inside Yargus batch blending system for convenience
- 2 Covered load outs (1 for truck and 1 for railcar)
- Office and shop combination building with 2 truck scales and 1 rail scale
- Stainless steel or galvanized equipment
- Efficient truck traffic flow
- Keep future expansion possibilities in mind

Given

- \$10 Million budget
- Barge, truck, and railcar unloading capabilities
- Truck and Railcar loading abilities
- Inbound and outbound conditioning capabilities
- Blending Capabilities
- 20,000 Ton storage with 4 bays minimum
- Dock system and Rail already exist on the property

Batch Blender



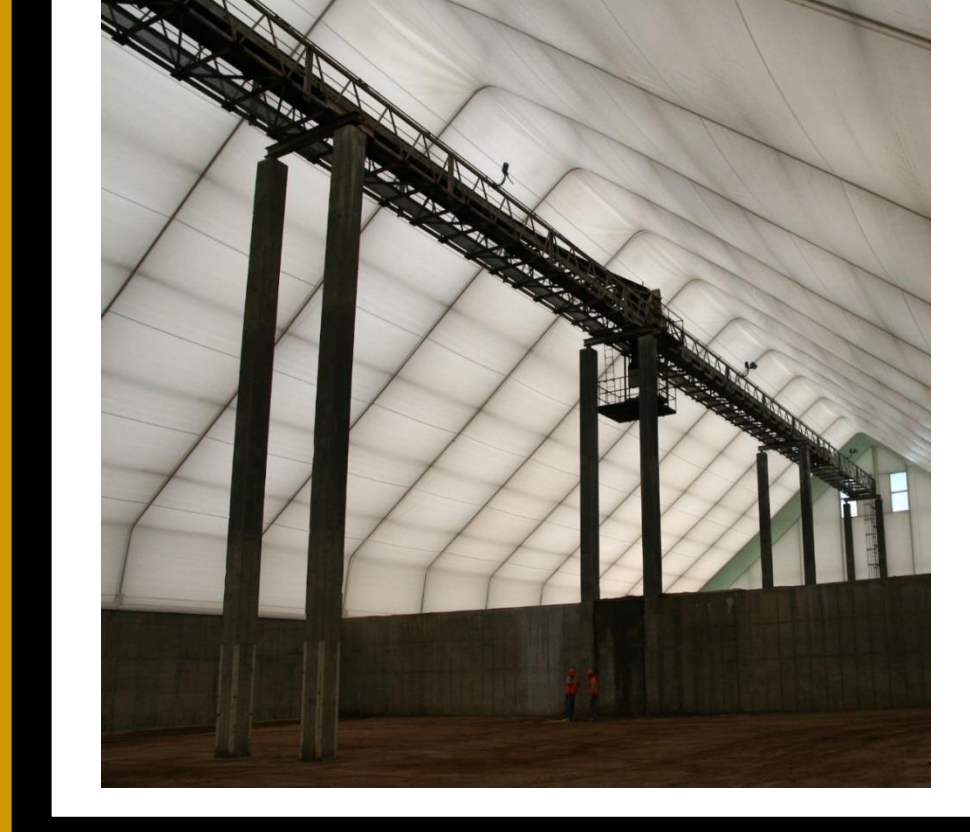
Impact/Sustainability

- Increased building life
- Lighting cost reduced
- Corrosion resistant material
- Low maintenance structure
- Quick construction time
- Efficient traffic flow
- Allows ADM to break into new market

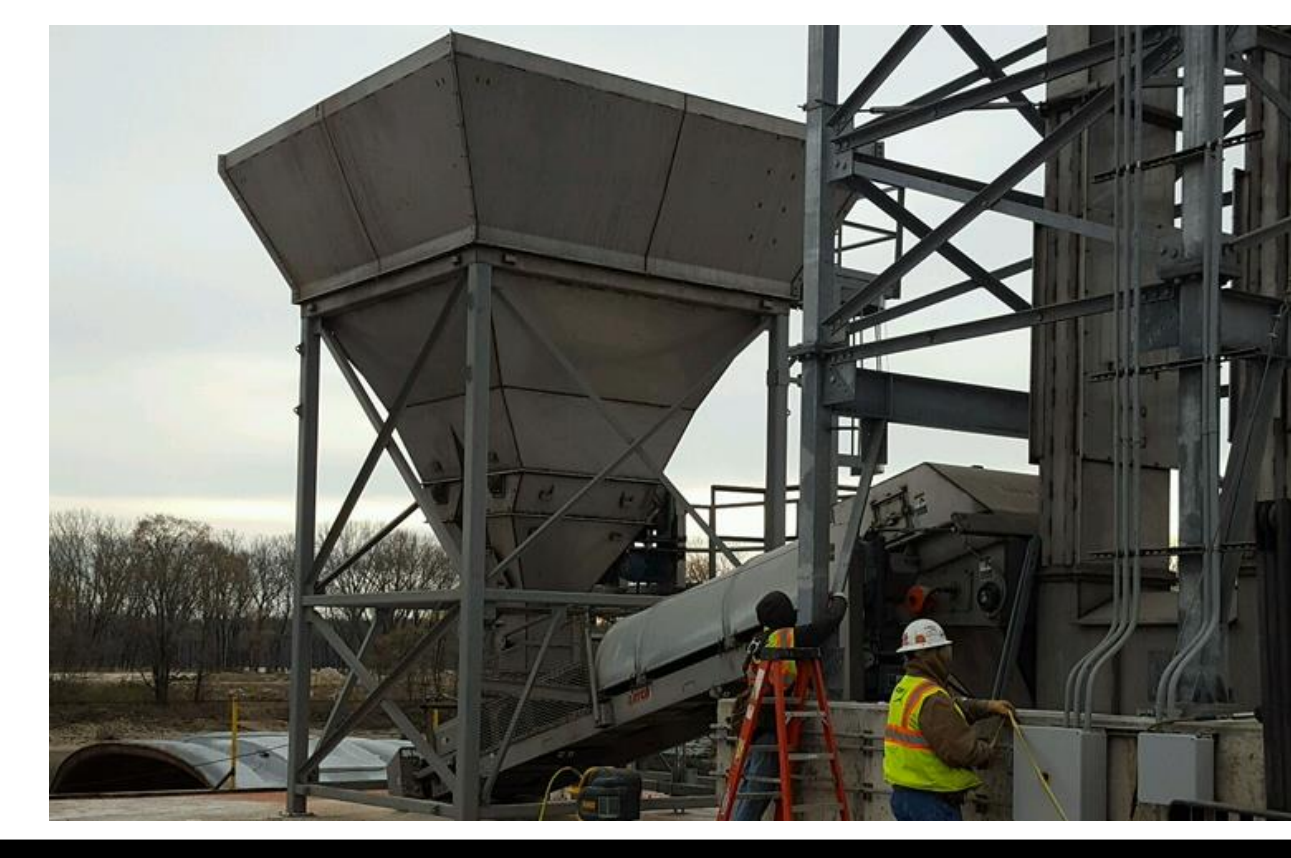
Fertilizer Facility Estimated Cost

Civil Work and Roads.....	\$600,000
Rail fall protection	\$40,000
Truck Scales.....	\$200,000
Rail Scale.....	\$170,000
Fertilizer Building.....	\$2,730,000
Office/Shop Building.....	\$250,000
Fertilizer Blending Syst.....	\$1,000,000
Dock Eqmt.....	\$200,000
Fertilizer Conveying Eqmt..	\$1,500,000
Fertilizer Conveying Eqmt. Installation.....	\$400,000
Front End Loader	\$300,000
Bobcat Skid Steer	\$100,000
Excavator.....	\$500,000
Track mobile.....	\$400,000
Electrical Installation	\$500,000
Concrete Installation.....	\$150,000
Engineering/Geotechnical Services.....	\$45,000
Misc. Cost (permits, safety items).....	\$50,000

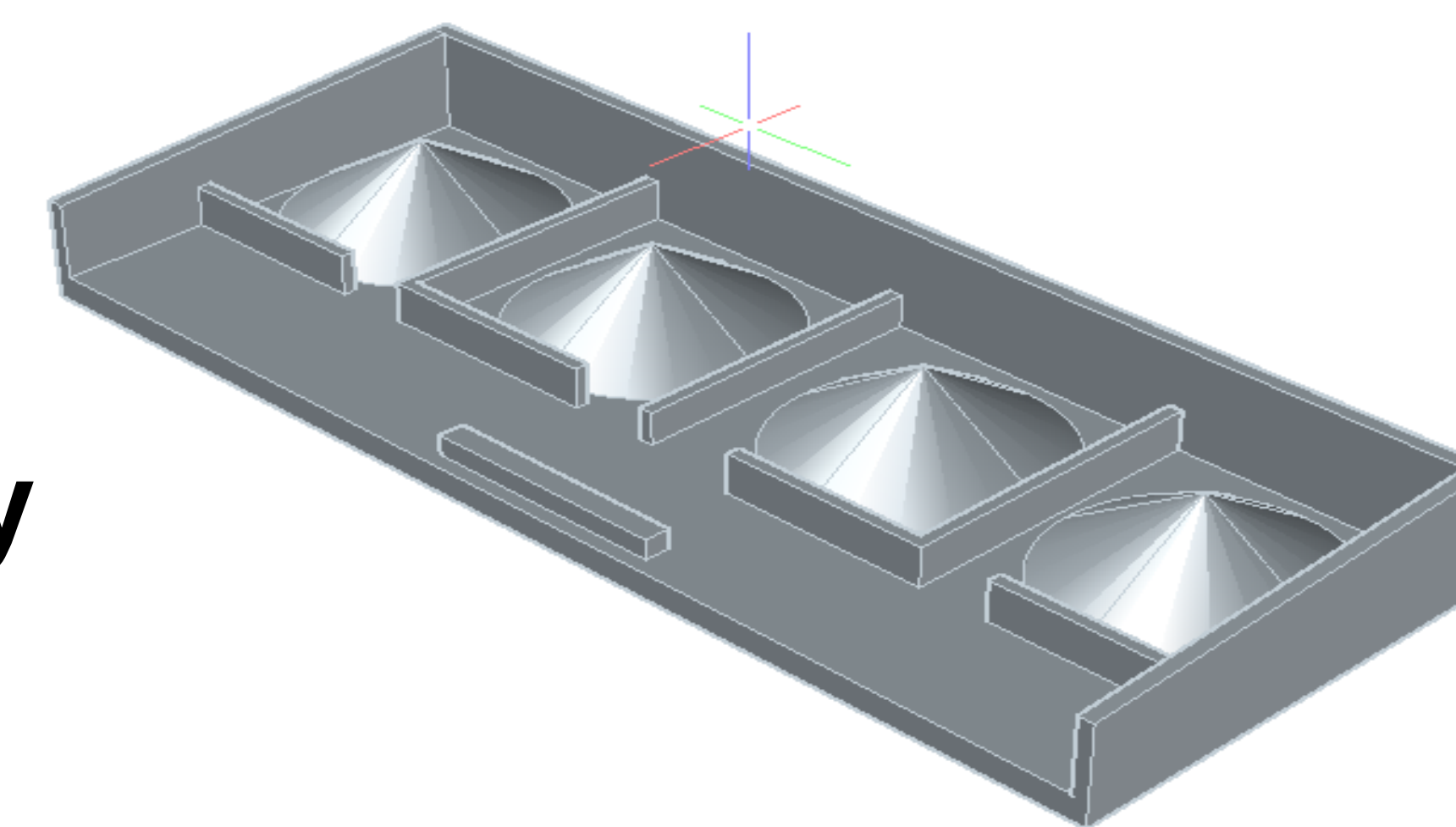
Legacy Building



Fertilizer Conditioner



Building Inside Cut-Away

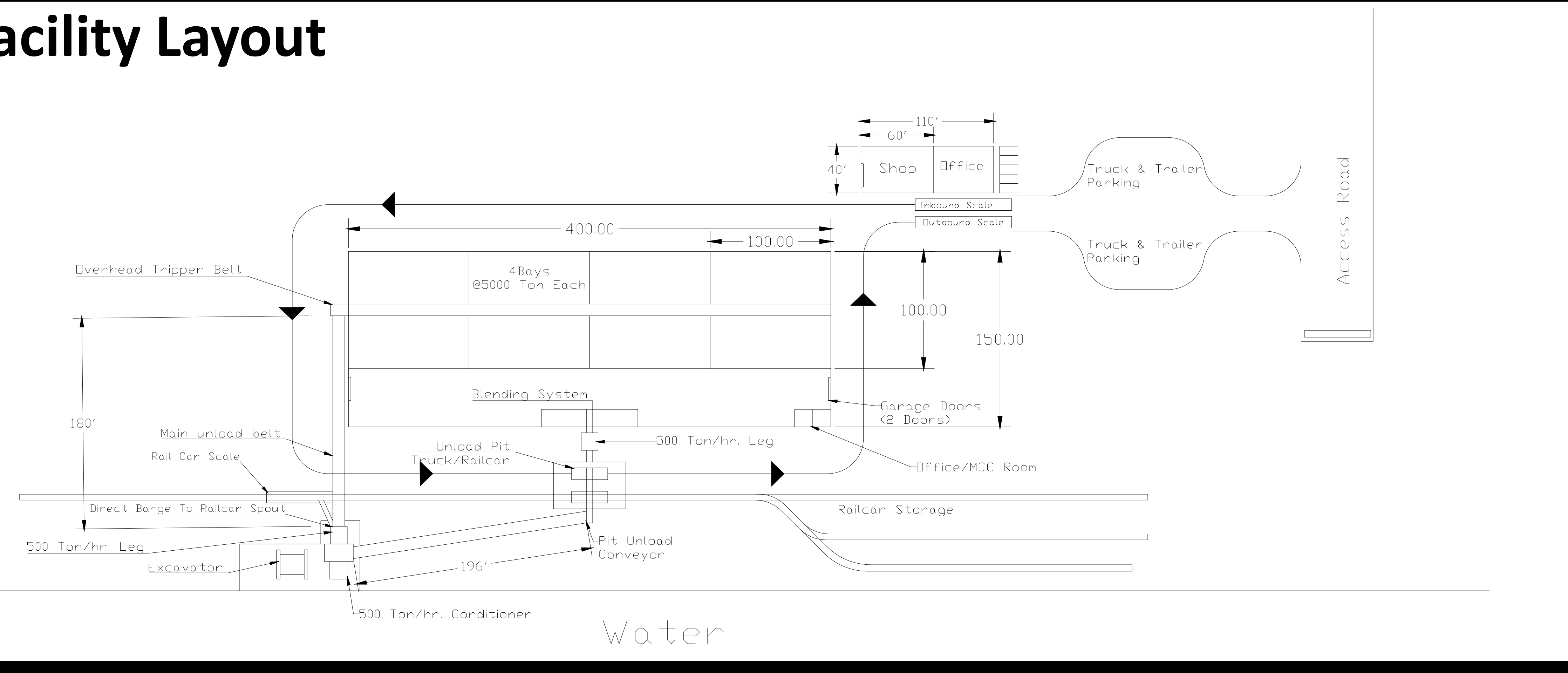


Alternative Solutions

- Number of Scales
- Bucket elevator selections
- Alternative blending systems
- No rail scale
- No direct load out from dock
- New or used equipment
- Alternate Office Location

Total: \$9,135,000

Facility Layout

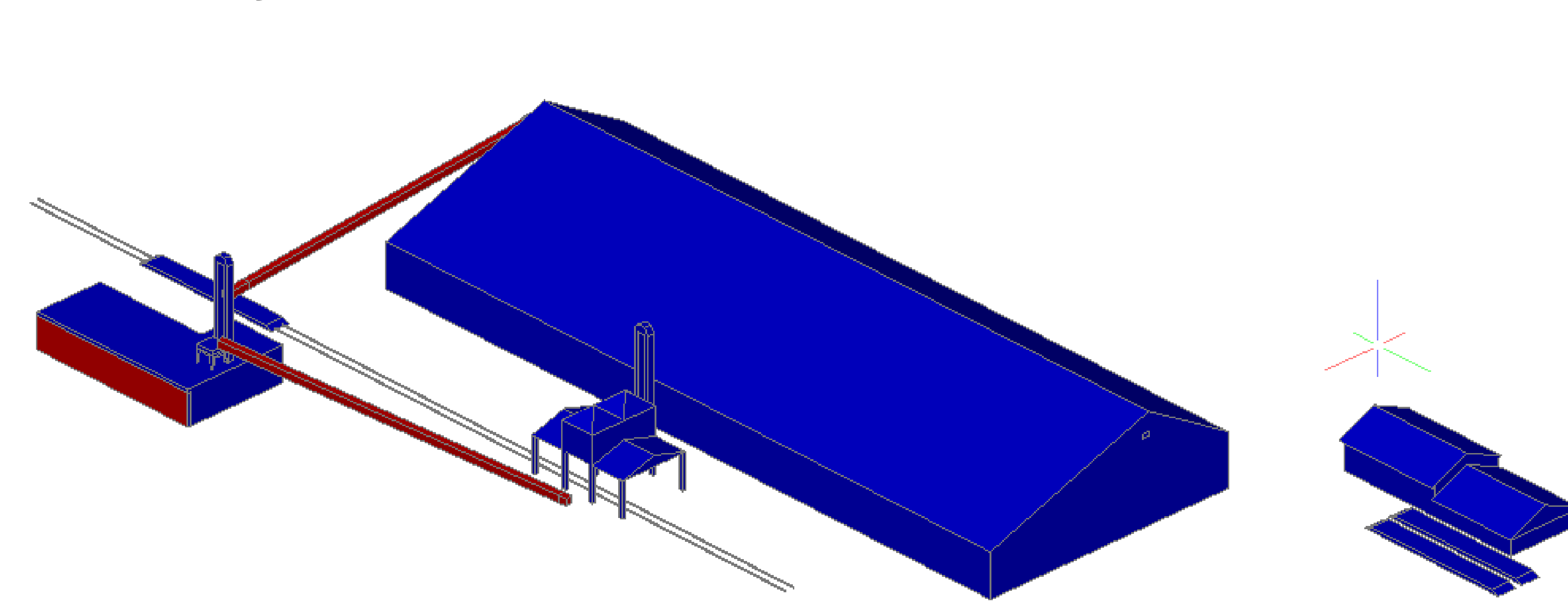


Estimated Monthly Operational Costs

Electricity	\$3,000
Maintenance	\$4,000
Fuel	\$6,500
Managers(X2)	\$11,000
Employees(X5)	\$14,000
Misc.	\$2,500

Total: \$41,000/Month

3D Layout



Sponsor:
Archer Daniels Midland
Ag Services

Technical Advisor:
Dr. Kingsly Ambrose
Purdue University ABE

Instructors:
Dr. Robert Stwalley
Dr. Bernie Engel
Purdue University ABE

Acknowledgements:
Andrew Marchese
Rebecca Crowl
Archer Daniels Midland