



Hurstville Lime Kiln Improvements

Team Members

Site Development



Matthew Brimeyer – Project Manager



Alexis Morales-Foote



Peter Rauch

Structural Rehabilitation



Carson Schuler – Project Manager

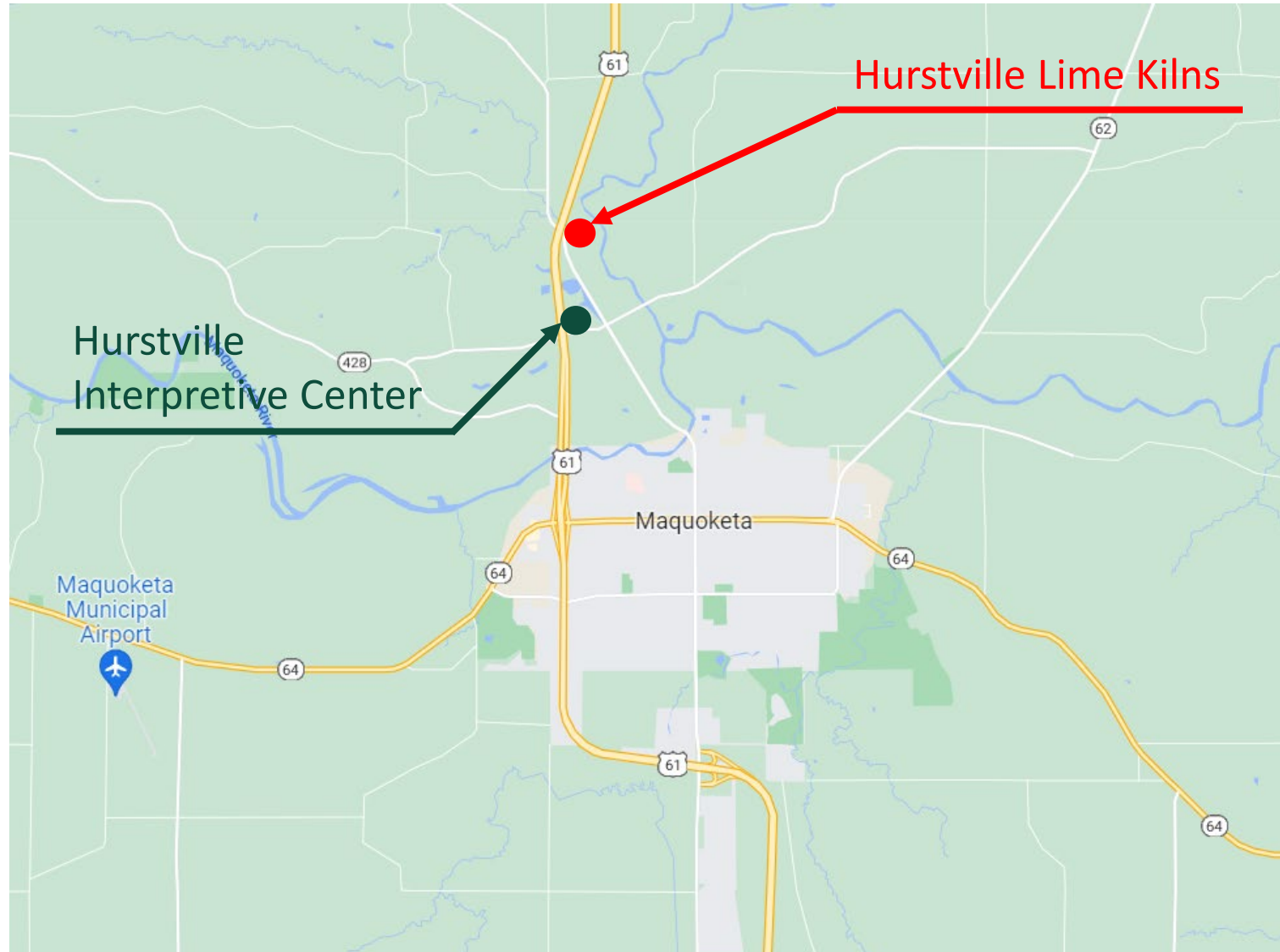


Caden Fedeler



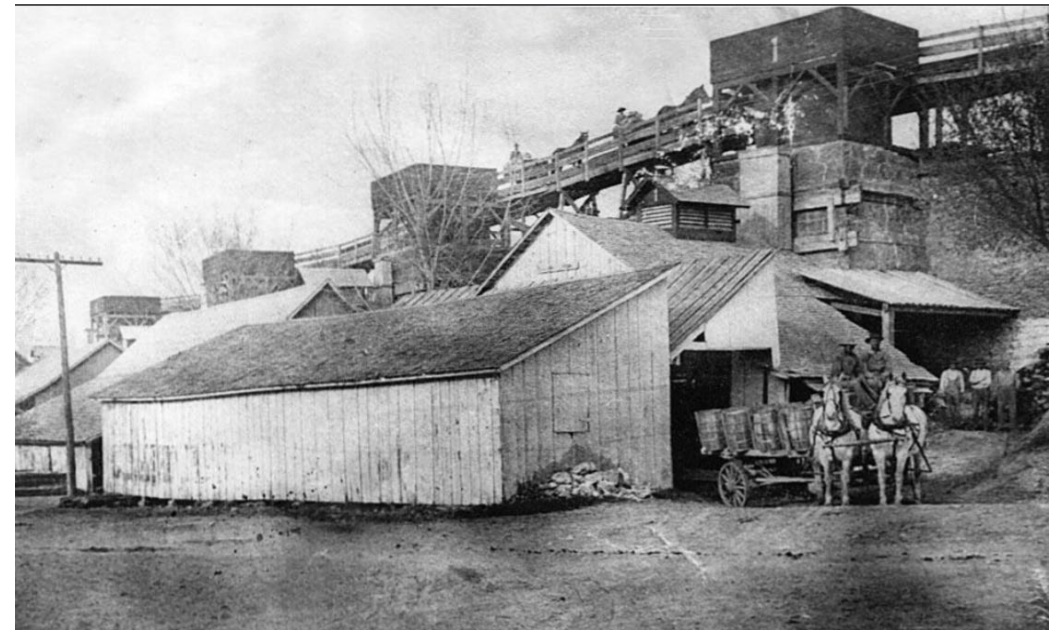
Samantha Olson

Project Location

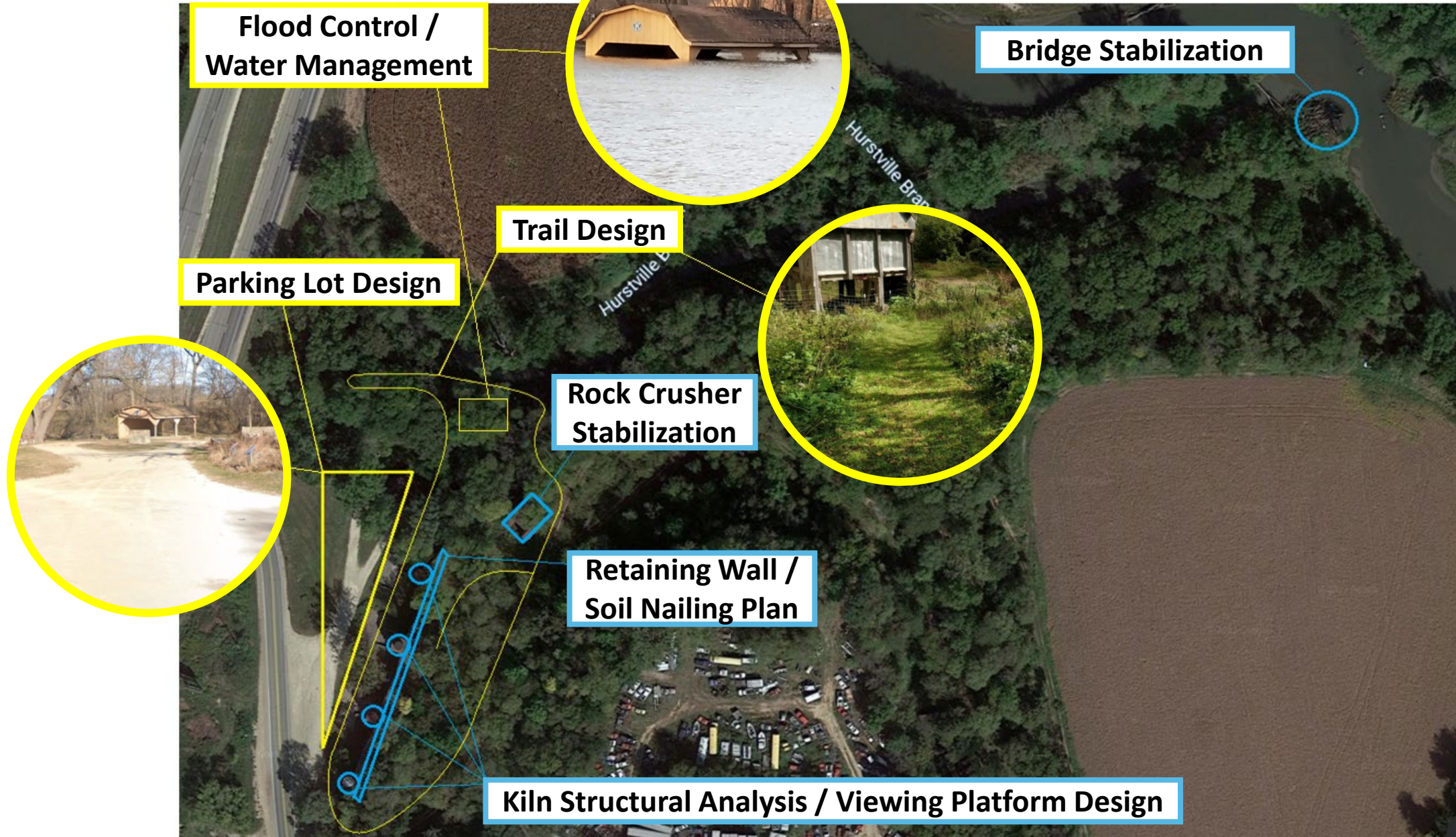


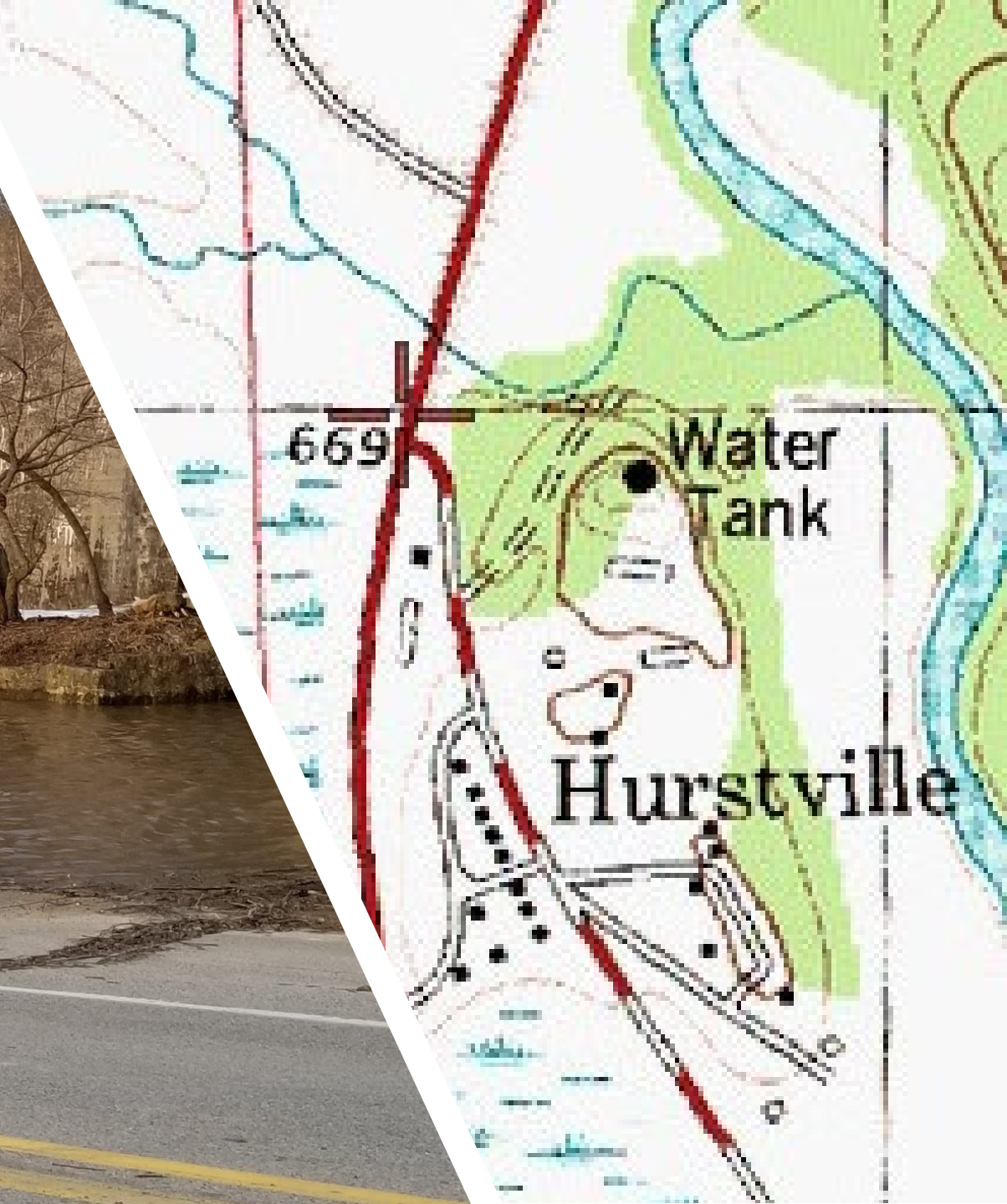
Client Information and Site History

- Bonnie Mitchell
 - Director of the Jackson County Historical Society
- David Heiar
 - Jackson County Economic Alliance

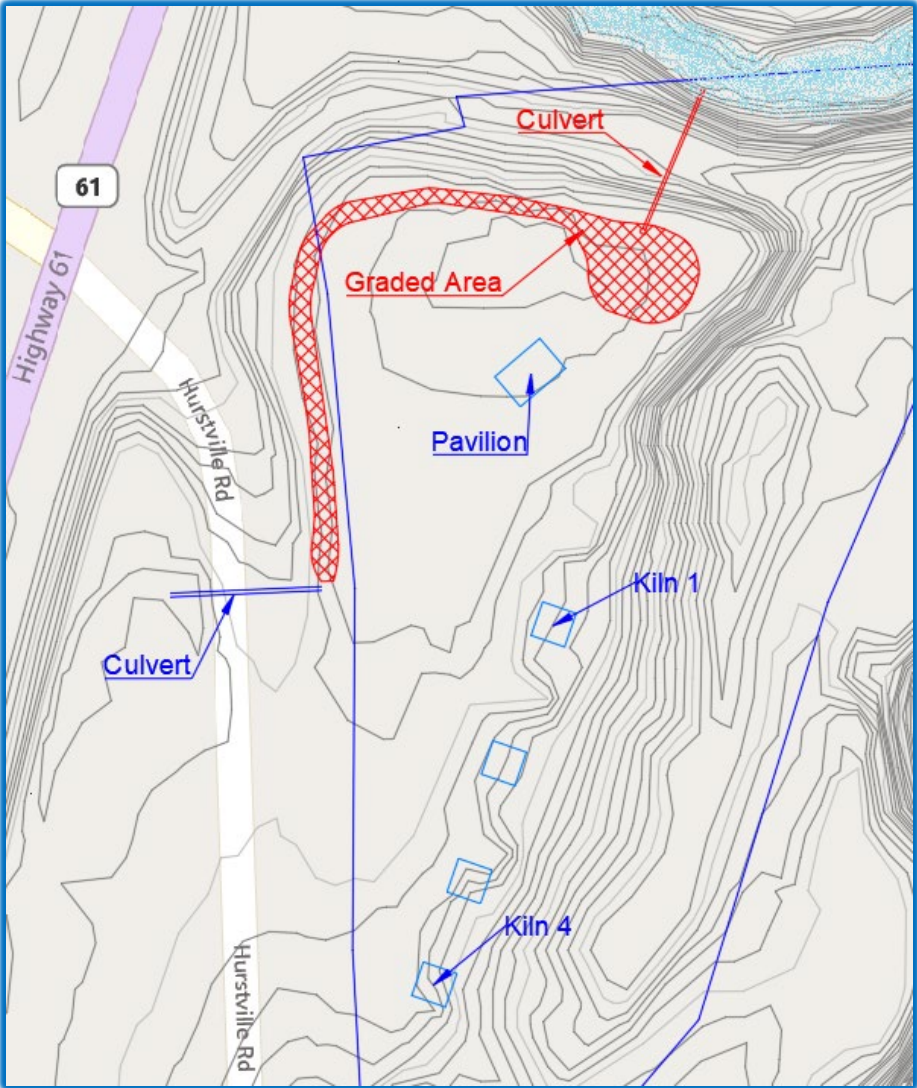


Project Scope

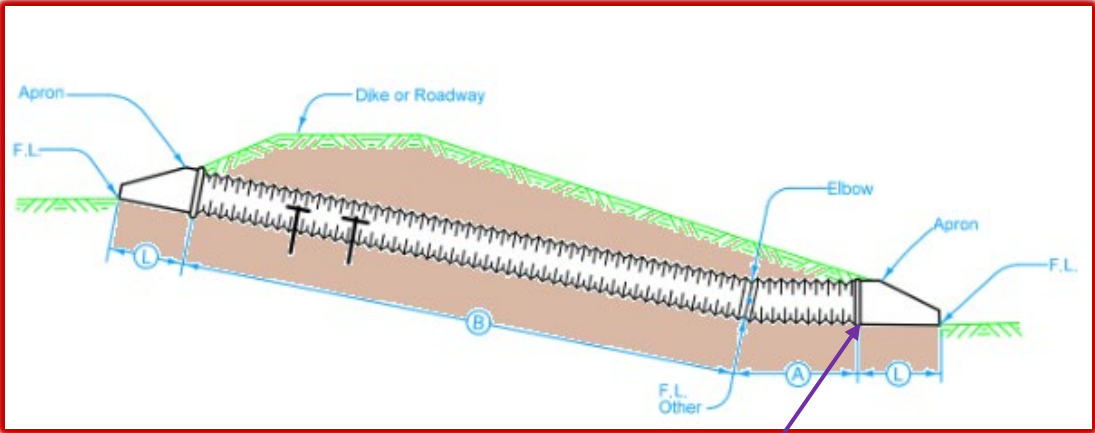




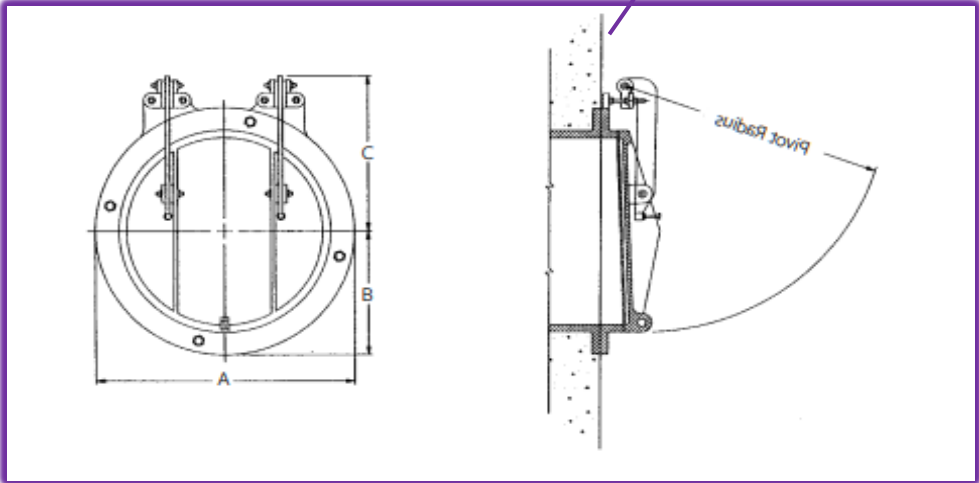
Flood Control Plan



Culvert Detail



Flap Gate Detail



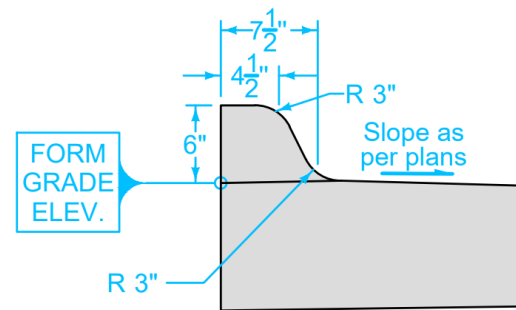
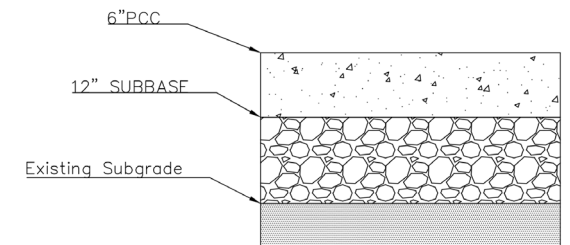
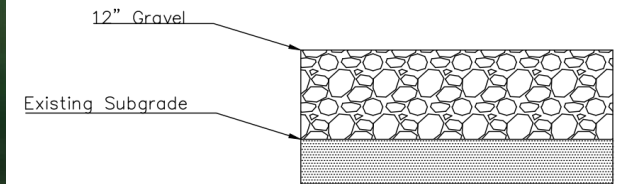
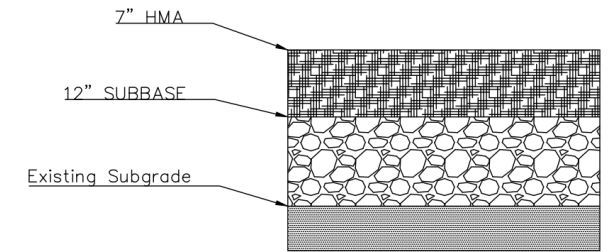
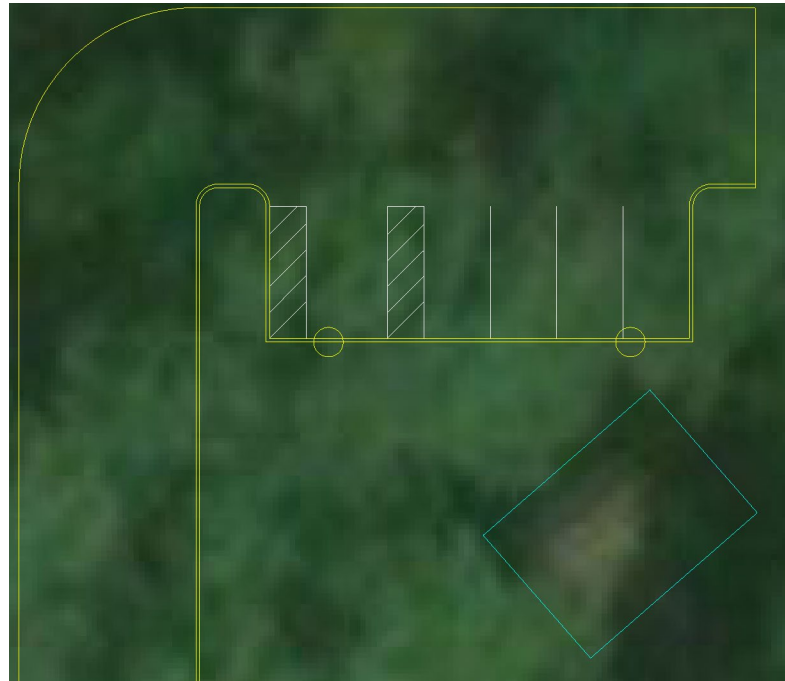
Drainage Cost Details

Culvert Installation Cost				
Item	Unit	Unit Price	Quantity	Cost
Pipe Installed by Trenchless Construction	LF	\$ 750.00	80.0	\$ 60,000.00
Corrugated Pipe Culvert 12 in. Dia	LF	\$ 40.00	80.0	\$ 3,200.00
Apron: Metal, 12 in. Dia.	EACH	\$ 490.00	2	\$ 1,000.00
Gate: Outlet Control, Flap, 12in.	EACH	\$ 800.00	1	\$ 800.00
Culvert Total Cost Est.				\$ 65,000

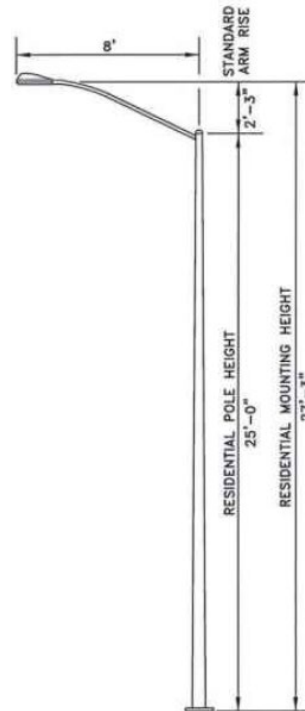
EarthWorks Cost				
Item	Unit	Unit Price	Quantity	Cost
Clearing and Grubbing	ACRE	\$ 2,848.73	0.2	\$ 600.00
Cut/Fill	CY	\$ 22.57	580.0	\$ 13,000.00
Hydraulic Seeding	ACRE	\$ 1,035.39	0.2	\$ 200.00
Landscaping Total Cost Est.				\$ 13,800

**Construction Subtotal
= \$78,800**

Parking Lot

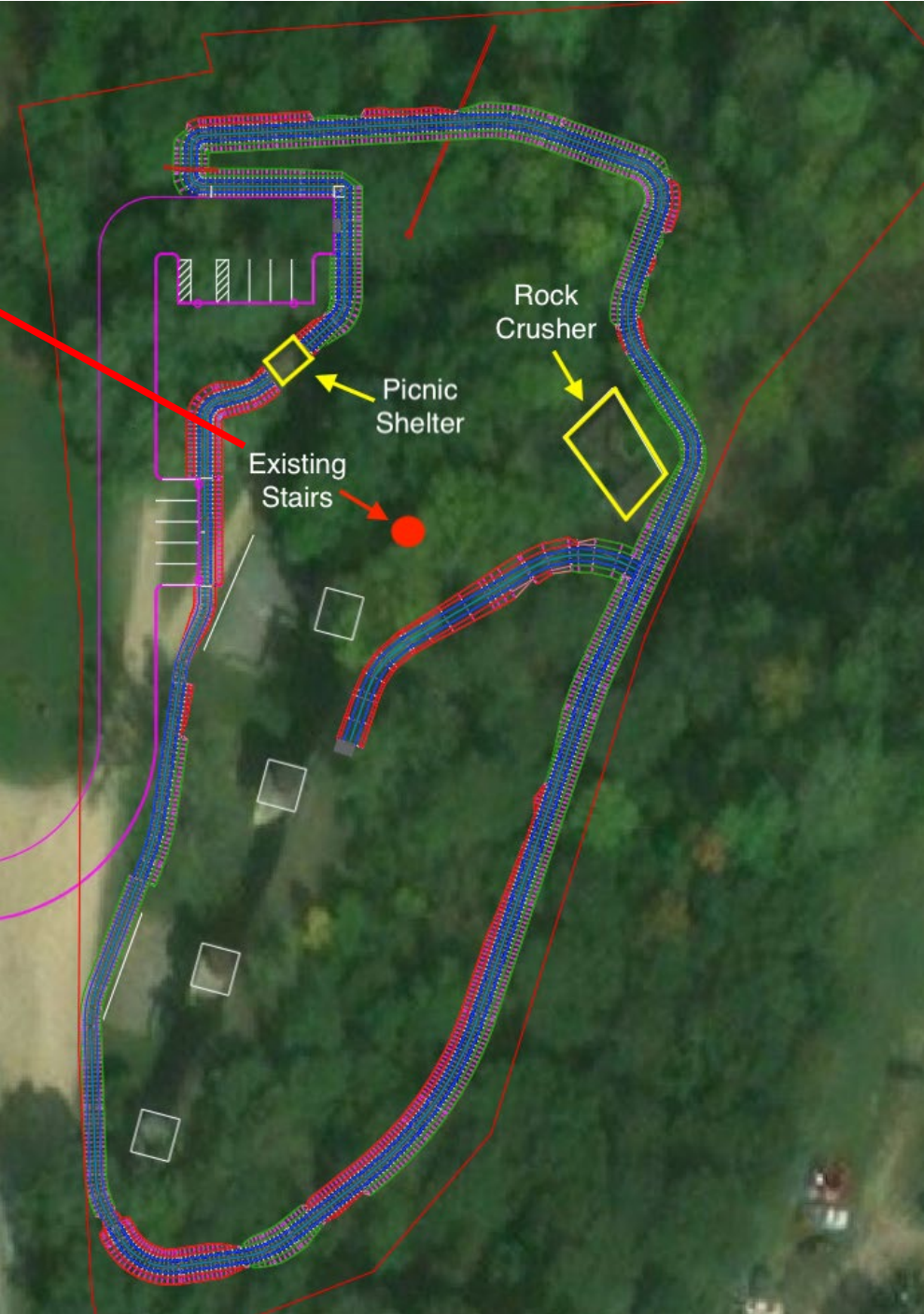
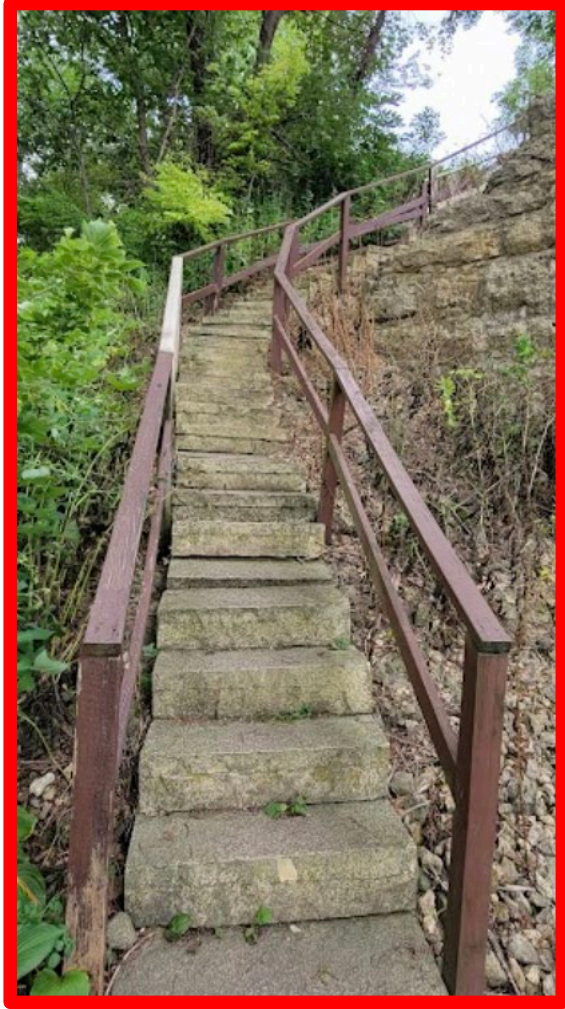


Lighting

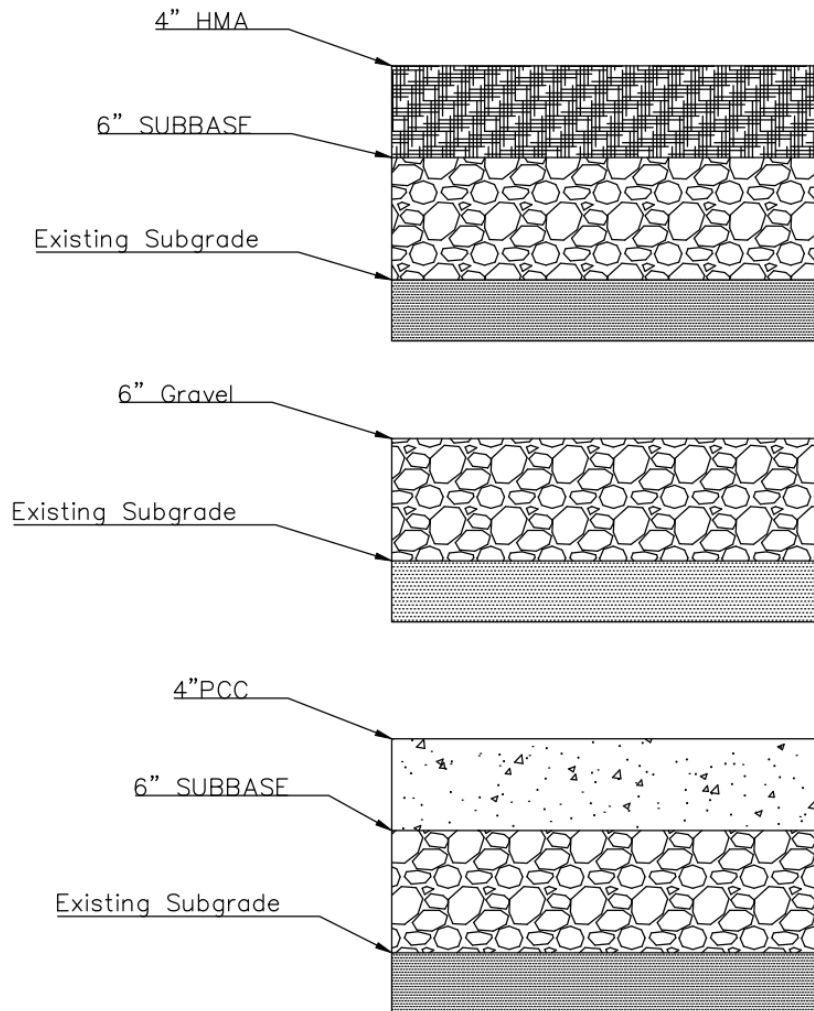


Material Cost Estimate				
Item	Unit	Unit Price	Quantity	Cost
Clearing and Grubbing	ACRE	\$ 2,848.73	0.4821	\$ 1,375.00
Cut/Fill	CY	\$ 22.57	2843	\$ 64,000.00
Soil Compaction	CY	\$ 0.55	1928	\$ 1,050.00
Granular Subbase	SY	\$ 8.06	1334.46	\$ 10,800.00
6" PC	SY	\$ 50.46	1334.46	\$ 67,500.00
7" Asphalt	TON	\$ 51.11	525.50	\$ 26,900.00
Topsoil	CY	\$ 6.22	481.50	\$ 3,000.00
Hydraulic Seeding	ACRE	\$ 1,035.39	0.6	\$ 620.00
Pavement Marking	STA	\$ 14.58	2.6	\$ 38.00
Lighting	EACH	\$ 1,600.00	4.0	\$ 6,400.00
Removal of Lighting	EACH	\$ 700.00	1.0	\$ 700.00
Option 1 PCC				\$ 155,500
Option 2 Asphalt				\$ 115,000
Option 3 Gravel				\$ 88,000

Trail

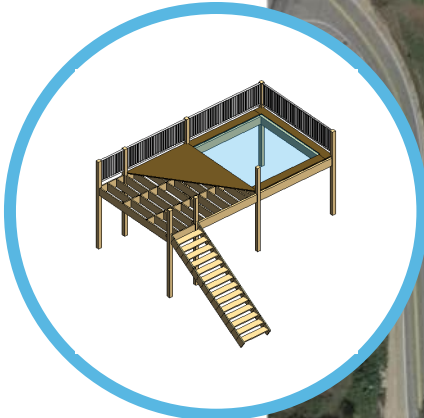
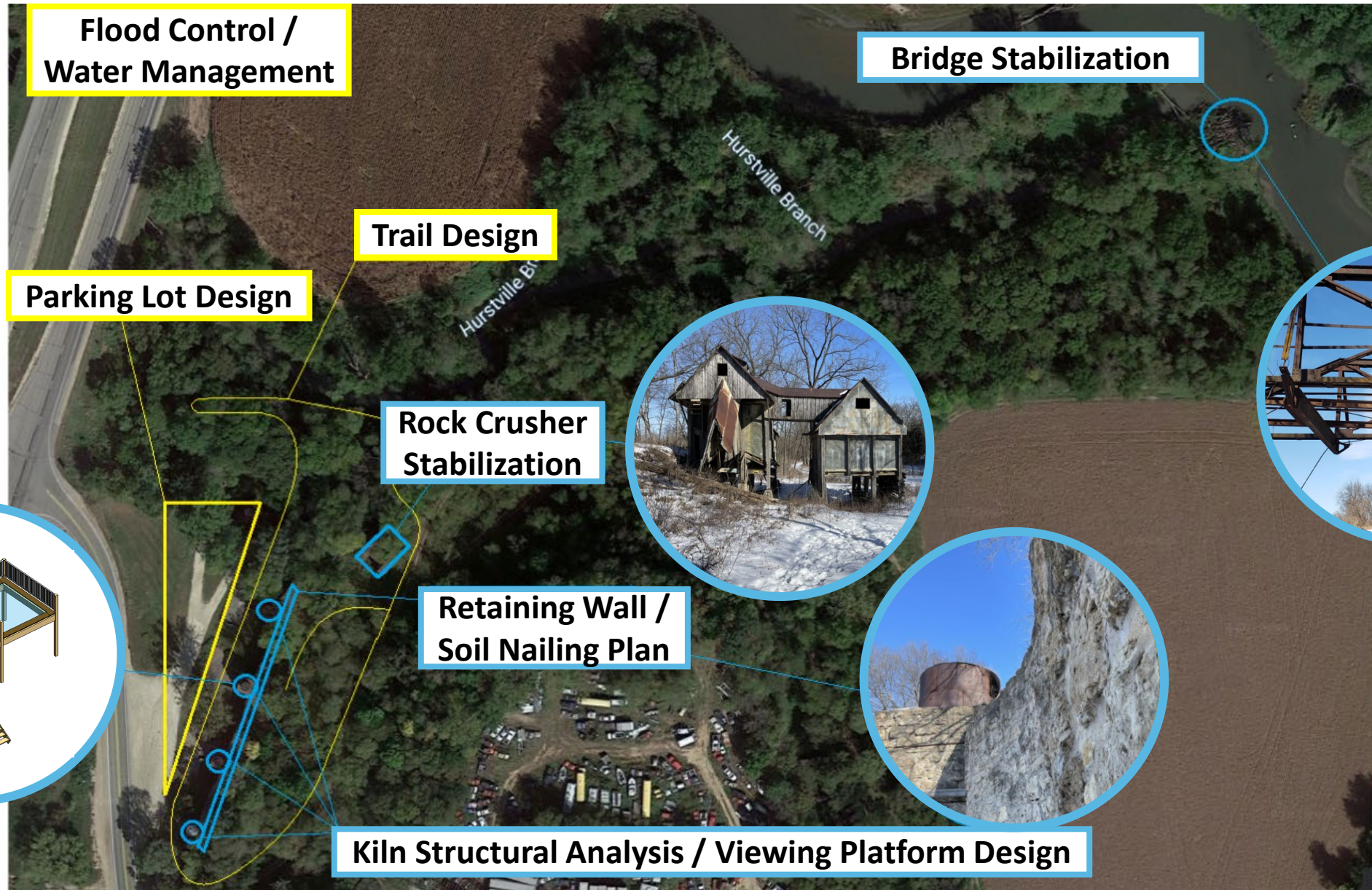


Trail

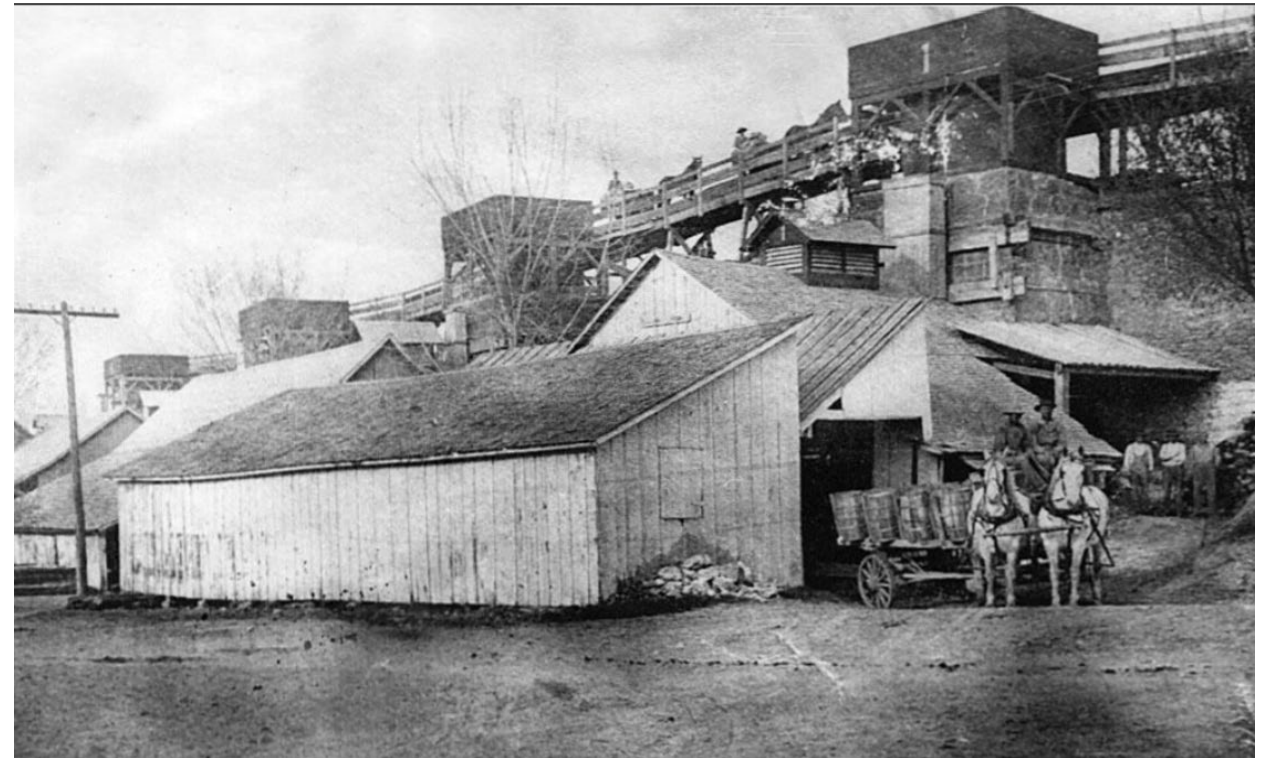
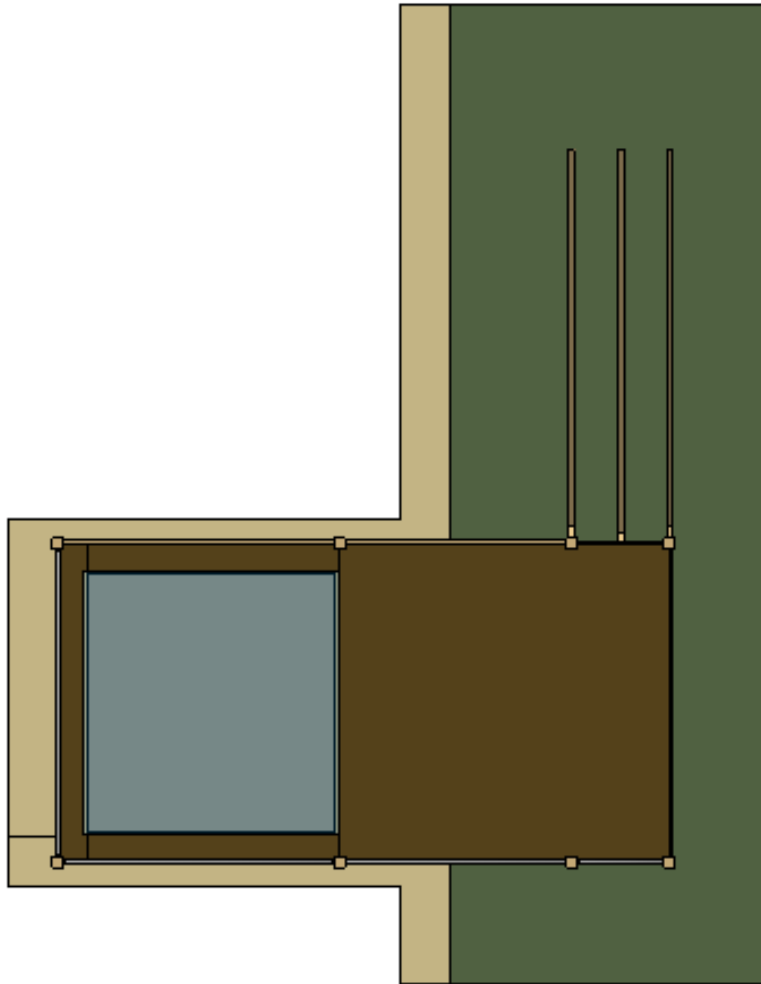


Material Cost Estimate				
Item	Unit	Unit Price	Quantity	Cost
Clearing and Grubbing	ACRE	\$ 2,848.73	0.10	\$ 295.00
Cut/Fill	CY	\$ 22.57	611.89	\$ 13,800.00
Soil Compaction	CY	\$ 0.55	139.41	\$ 77.00
Granular Subbase	SY	\$ 8.06	835.60	\$ 6,725.00
4" PCC	SY	\$ 54.20	836.44	\$ 45,300.00
4" Asphalt	TON	\$ 51.11	186.32	\$ 9,525.00
Topsoil	CY	\$ 6.22	111.53	\$ 695.00
Option 1 PCC				\$ 67,000
Option 2 Asphalt				\$ 31,100
Option 3 Gravel				\$ 21,600

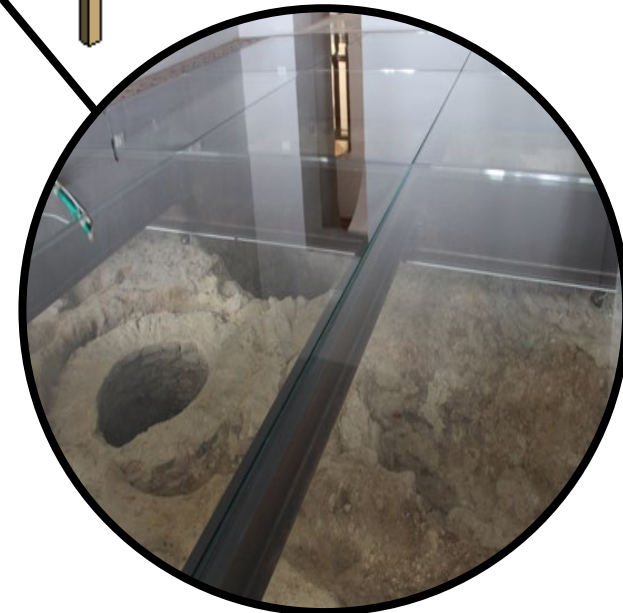
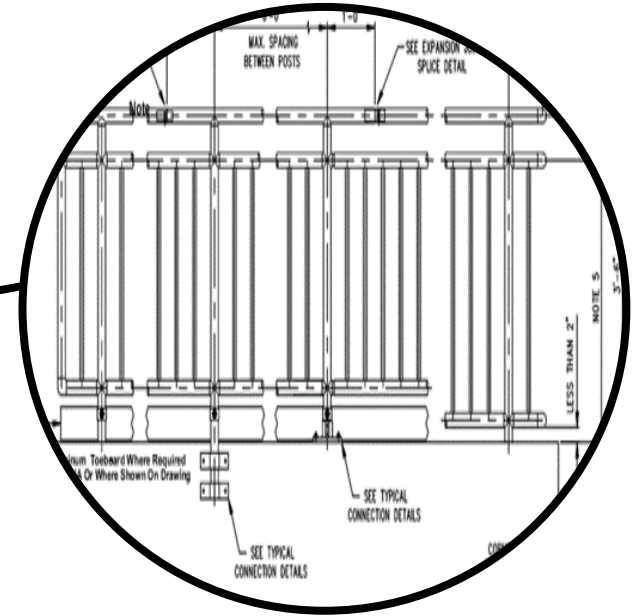
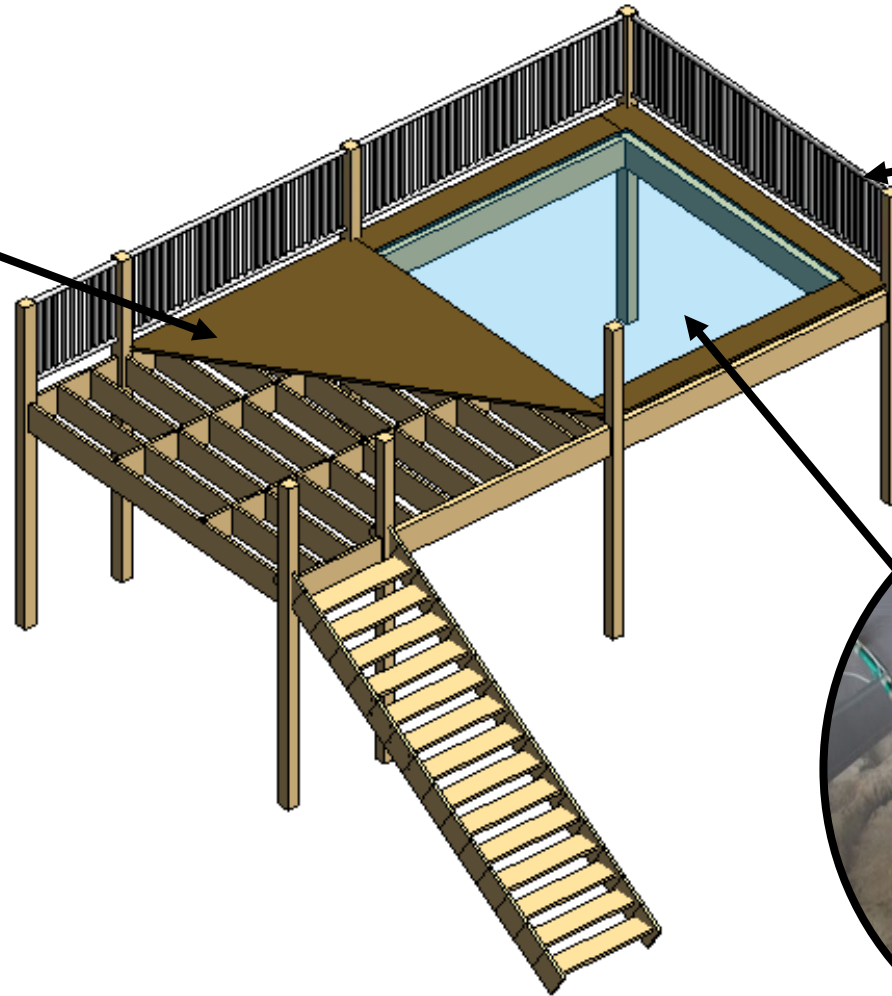
Site Overview



Kiln Platform - Layout

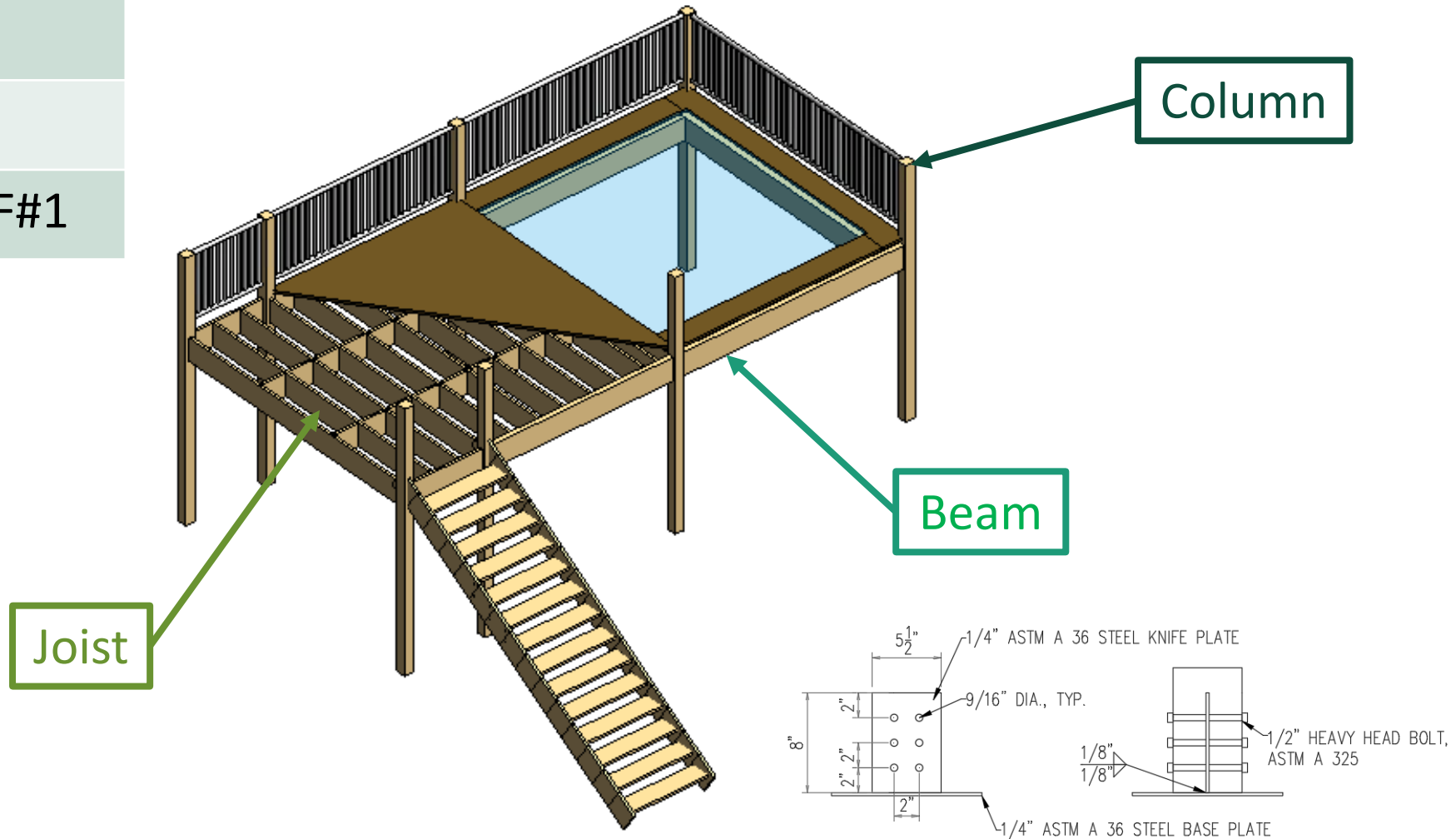


Kiln Platform – Design and Materials

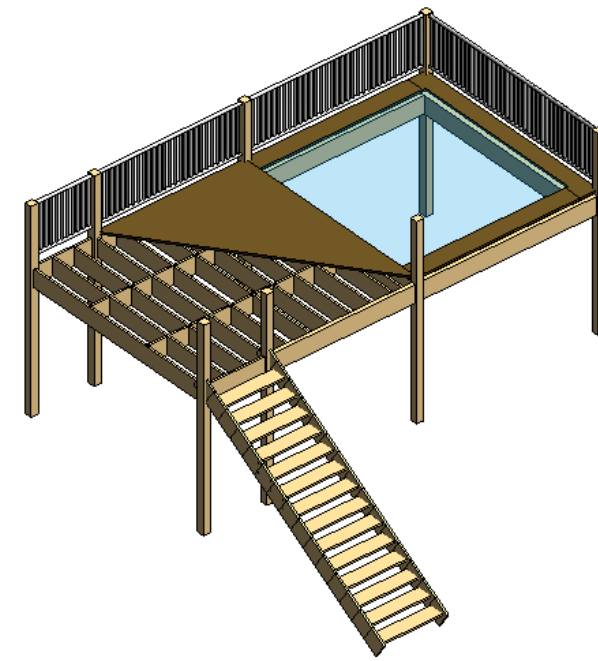


Kiln Platform – Design and Materials

Member	Size
Columns	6x6 DF#1
Joists	2x14 DF#1
Beams	(#) 2x14 DF#1



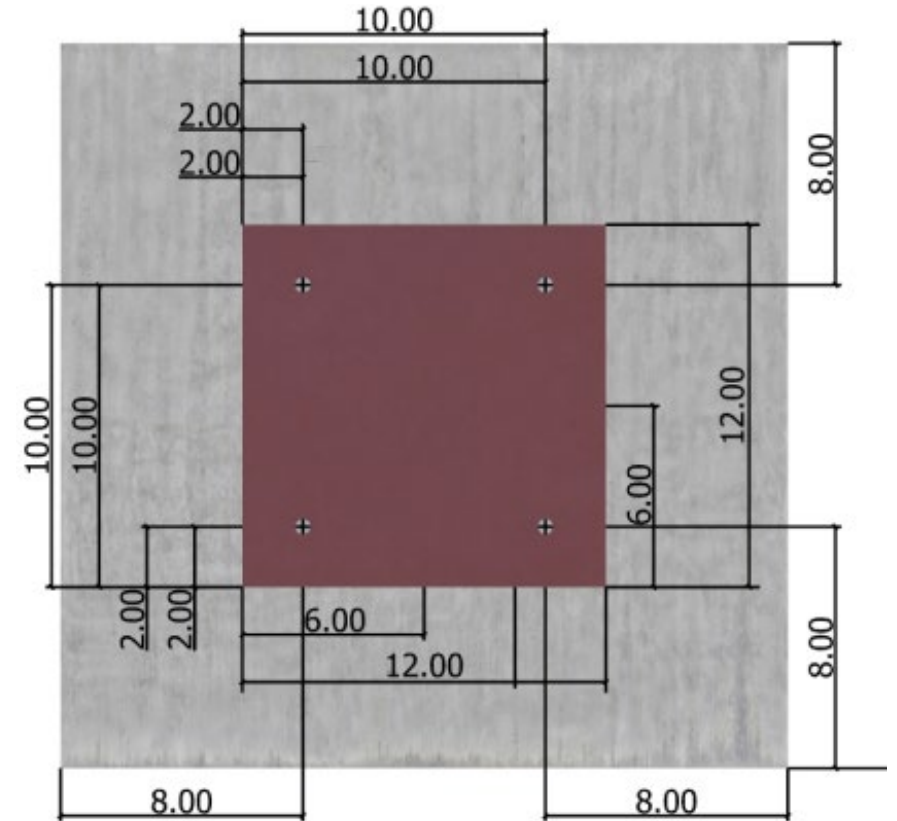
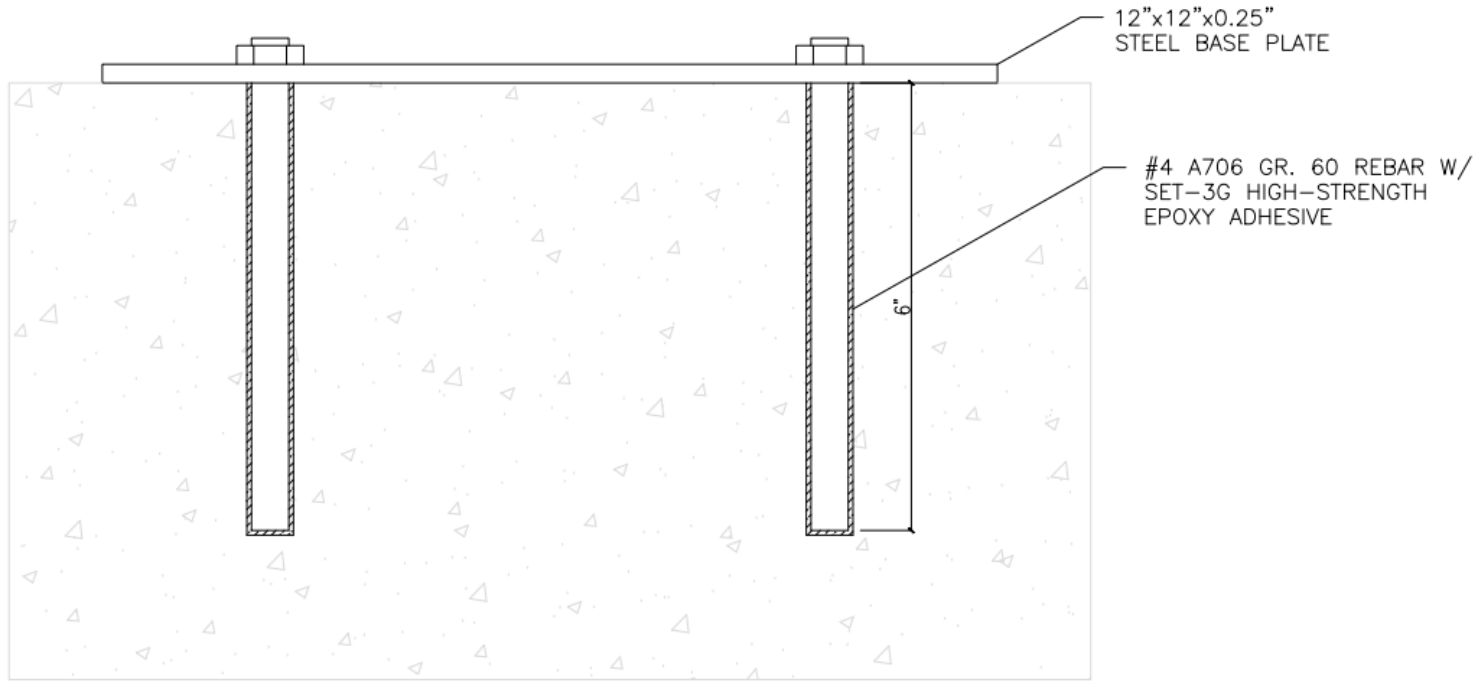
Kiln Platform - Cost



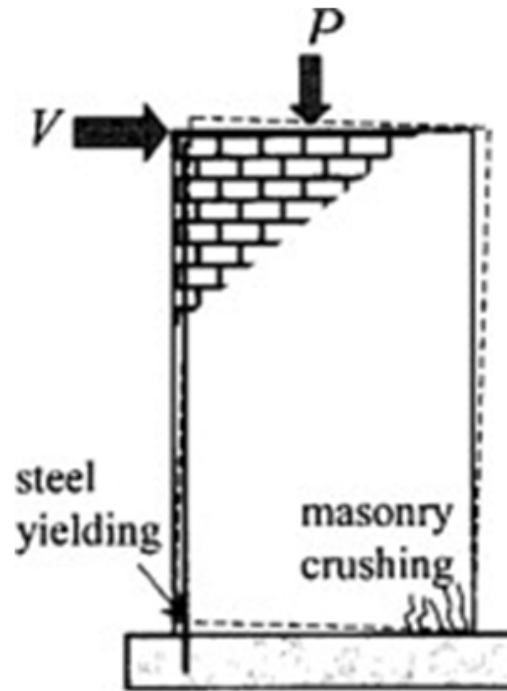
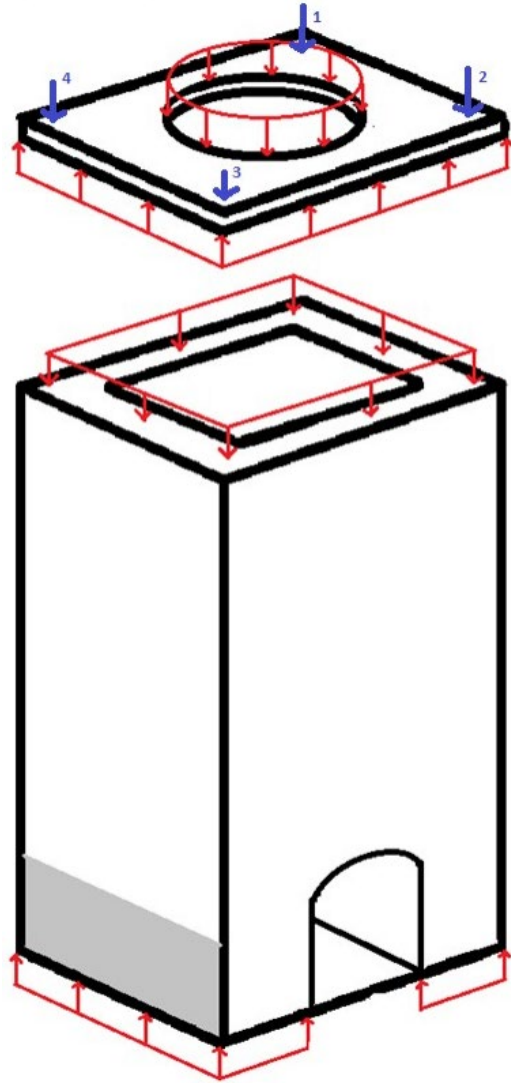
Kiln Platforms				
Item	Unit	Unit Price	Quantity	Cost
6x6 DF#1	BF	\$ 12.00	384	\$ 4,608.00
2x14 DF#1	BF	\$ 12.00	1100	\$ 13,200.00
Decking	SF	\$ 5,347.00	303.75	\$ 5,320.47
Glass Panel (10-6"x10-6")	CT	\$ 4,540.00	1	\$ 4,540.00
Glass Framing	LF		49	
3.5'x3.5'x24"	CY	\$ 125.00	0.908	\$ 113.50
#5 Rebar	LF	\$ 22.48	210	\$ 236.04
Handrails	LF	\$ 80.00	104.5	\$ 8,360.00
2x14 hangers (LUS210)	CT	\$ 1.84	64	\$ 117.76
(2) 2x14 hangers (HUCQ210-2-SDS)	CT	\$ 42.21	12	\$ 506.52
(3) 2x14 hangers (HUCQ210-3-SDS)	CT	\$ 46.60	4	\$ 186.40
Stair hangers (LSSR210-2Z)	CT	\$ 27.39	3	\$ 82.17
Anchor rebar (4 at each)	LF	\$ 0.63	25	\$ 15.85
Set 3G epoxy (sold in 8.5 OZ)	OZ	\$ 24.62	33.28	\$ 98.48
A36 Base Plates (1/2x12x12)	CT	\$ 85.00	10	\$ 850.00
A36 Knife Plate (1/2x8x5.5)	CT	\$ 44.57	10	\$ 445.70
A307 1/2"x7" Hex Bolt	CT	\$ 2.12	60	\$ 127.20
A307 1/2" Hex Nut and Washer	CT	\$ 0.67	60	\$ 40.20
Welds	LF	\$ 70.00	10	\$ 700.00
Miscellaneous Construction	-	-	-	\$ 9,280.50
TOTAL				\$ 48,900.00

Kiln Platform	
Item	Cost
Glass	\$4,540.00
Decking	\$5,320.48
Handrails	\$8,360.00
Footing	\$349.54
Framing	\$20,978.28
Construction	\$9,280.50
Total Construction	\$48,900.00

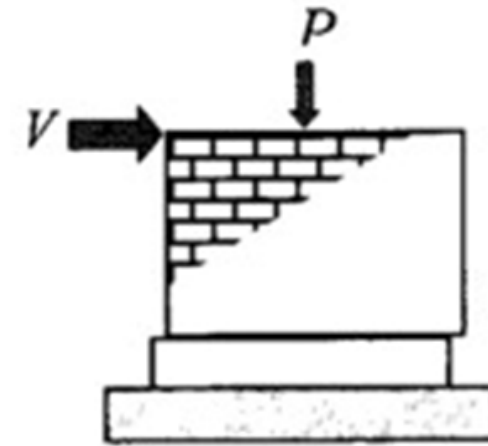
Kilns - Anchor Bolt Connection



Kilns – Additional Loading Effects

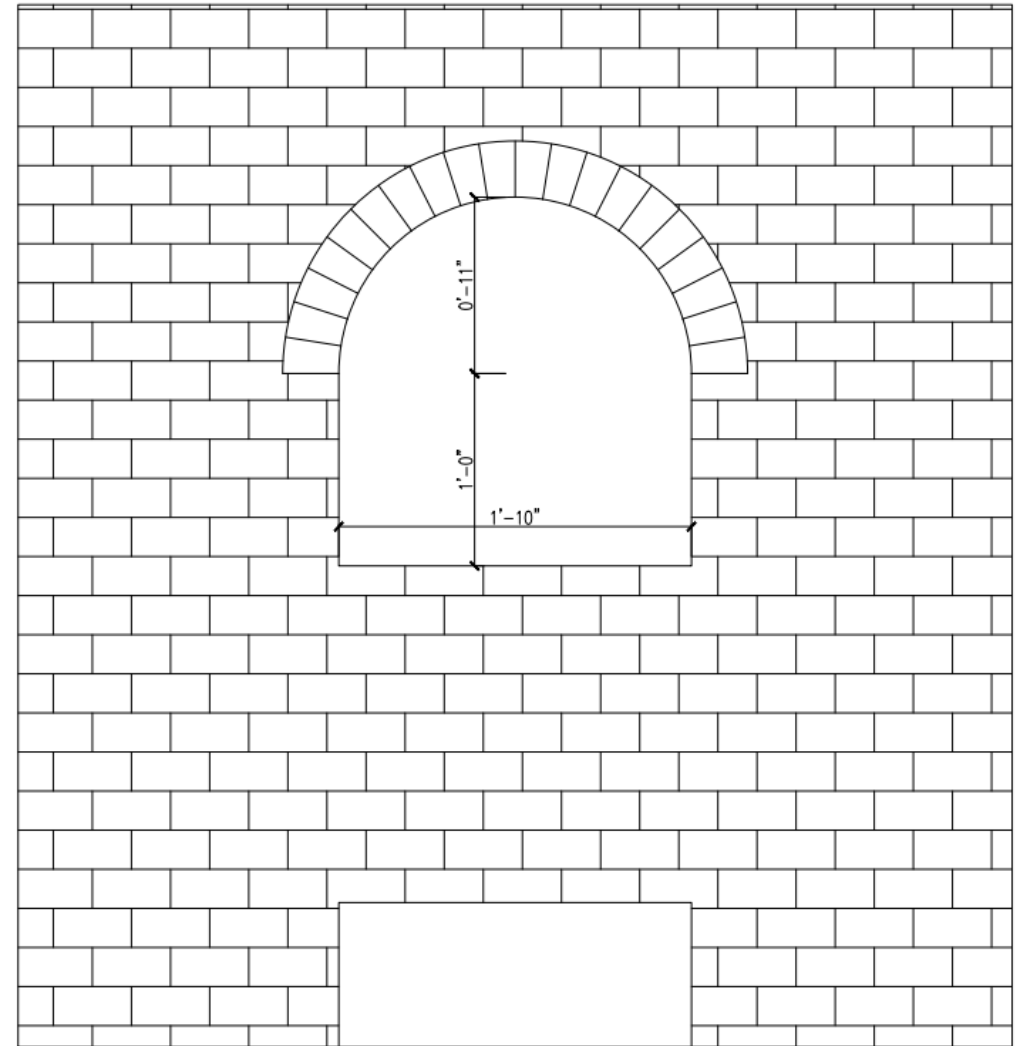


Flexural



Sliding

Kilns – Side Grates

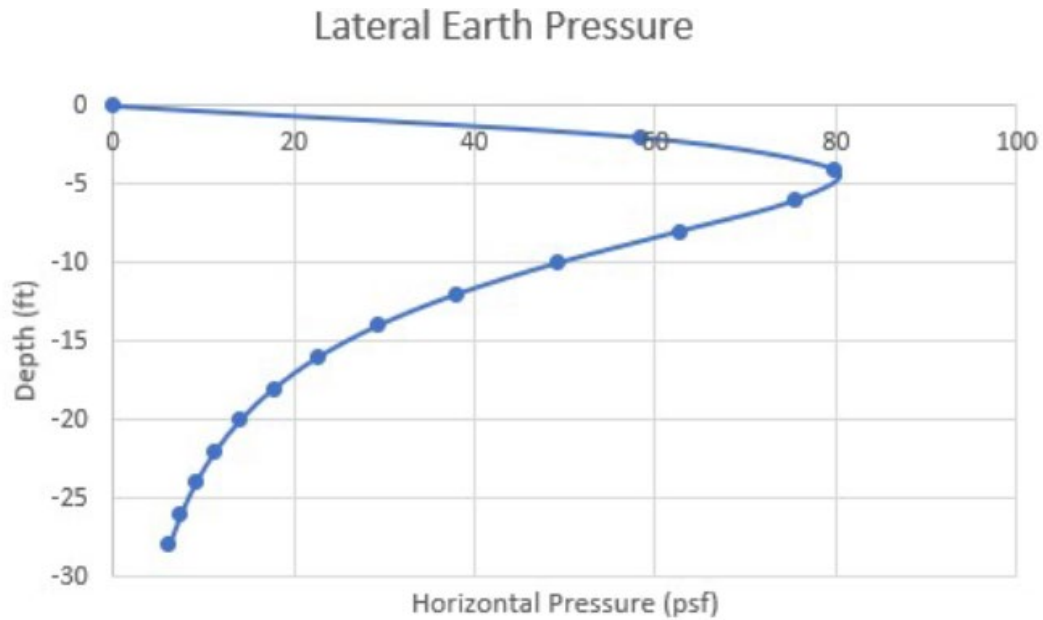


Grates / Side Openings				
Item	Unit	Unit Price	Quantity	Cost
Clay Brick Masonry	SF	\$ 25.00	50	\$ 1,250.00
Welded Wire 2" Mesh (bundle)	EA	\$ 150.00	1	\$ 150.00
TOTAL				\$ 1,400.00

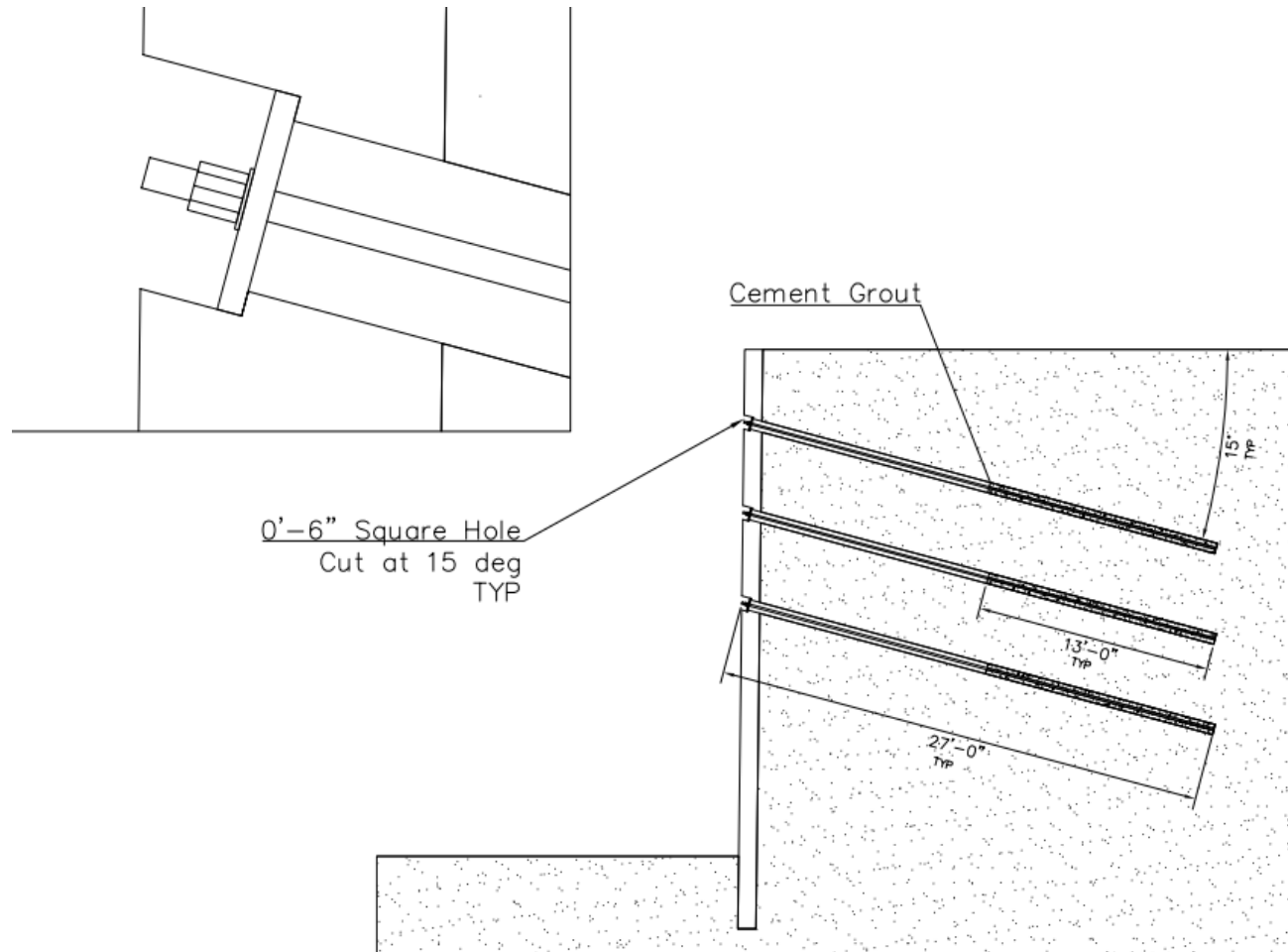
Retaining Wall – Existing Conditions



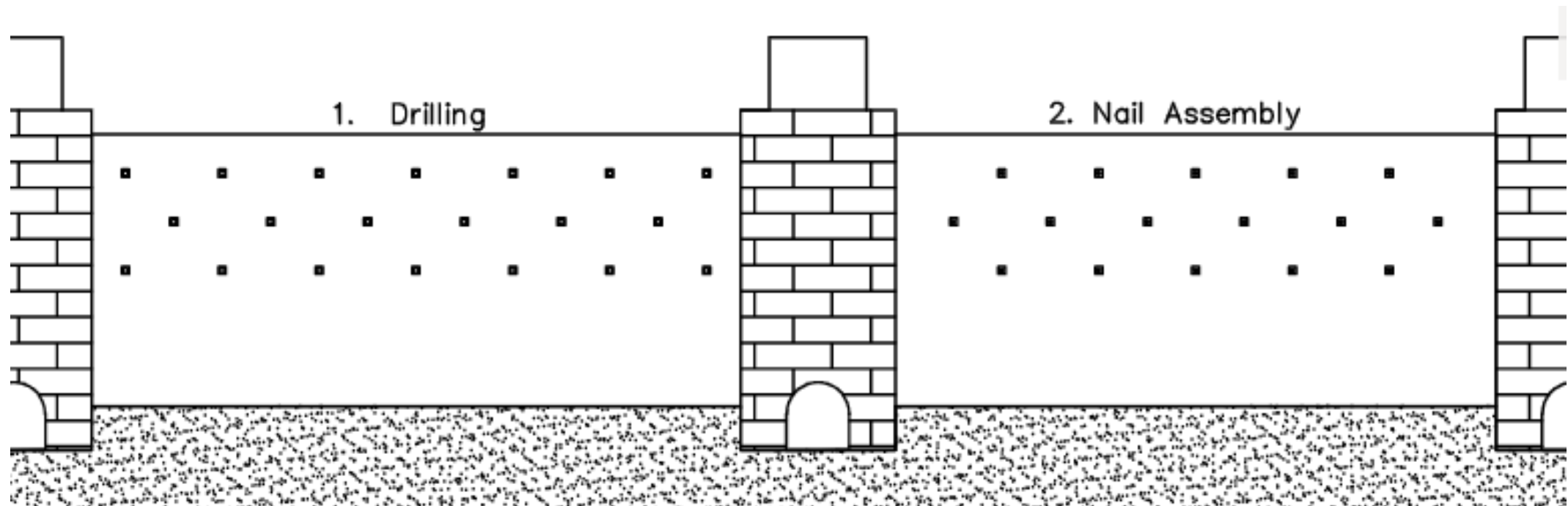
Retaining Wall – Soil Nail Installation



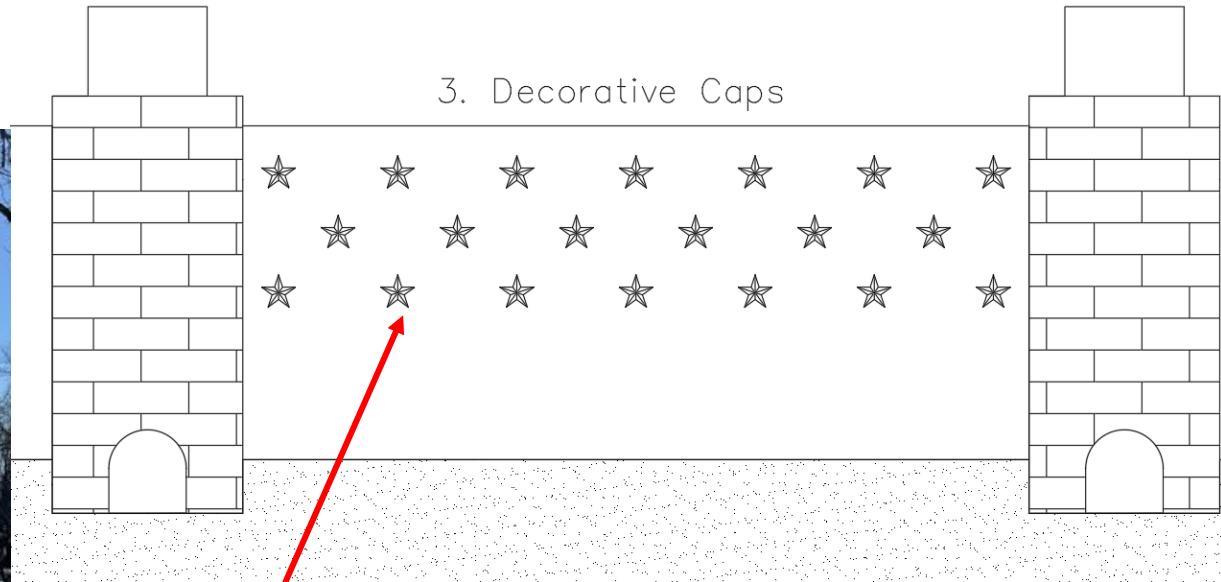
Retaining Wall – Soil Nail Installation



Retaining Wall – Soil Nail Installation



Retaining Wall – Reinforcement

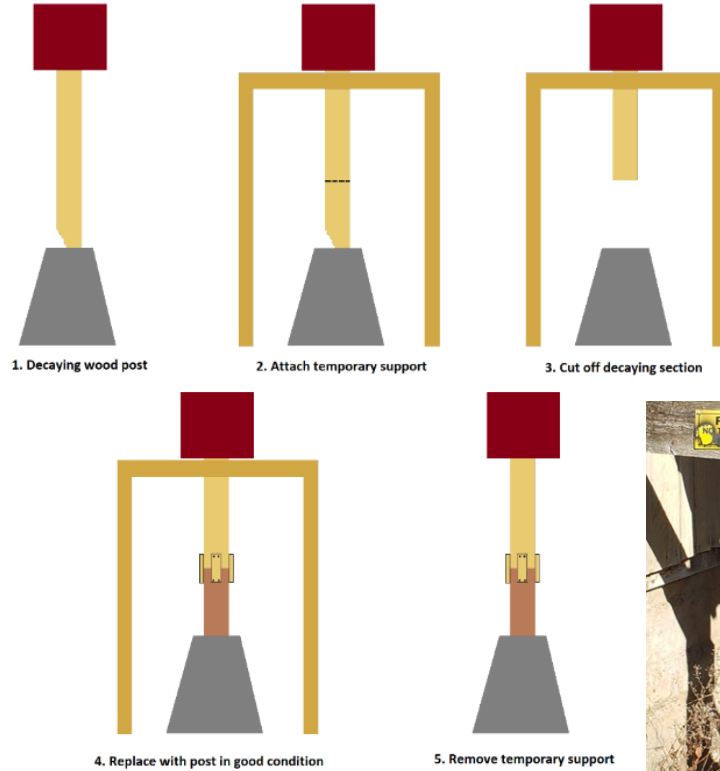
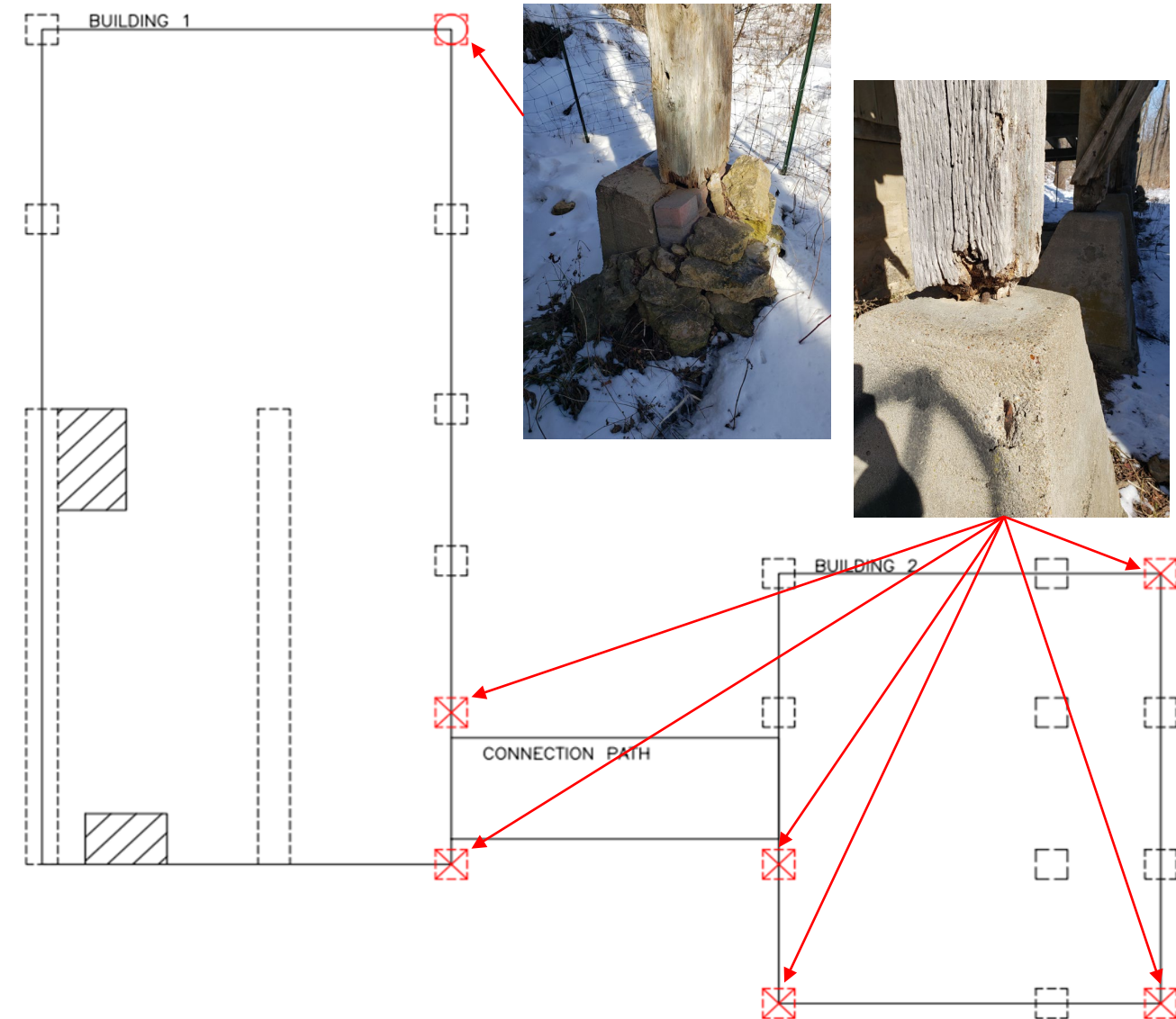


Soil Nailing				
Item	Unit	Unit Price	Quantity	Cost
Grade 75 #10 Nail @ 27 ft	EA	\$400.00	56	\$22,400.00
Star Anchor Plates	EA	\$15.00	56	\$840.00
TOTAL				\$23,300.00

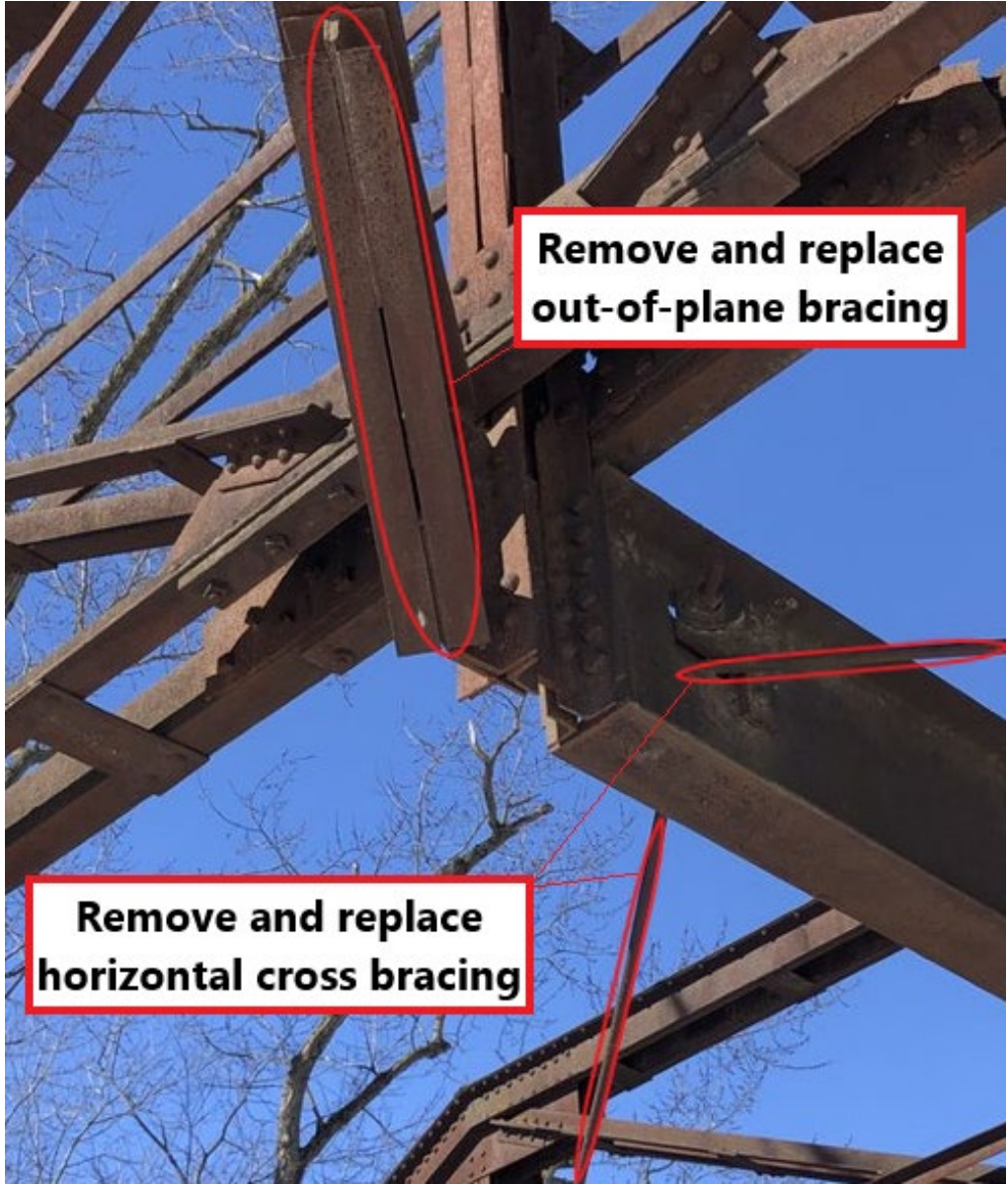
Rock Crusher Stabilization – Identifying Critical Members



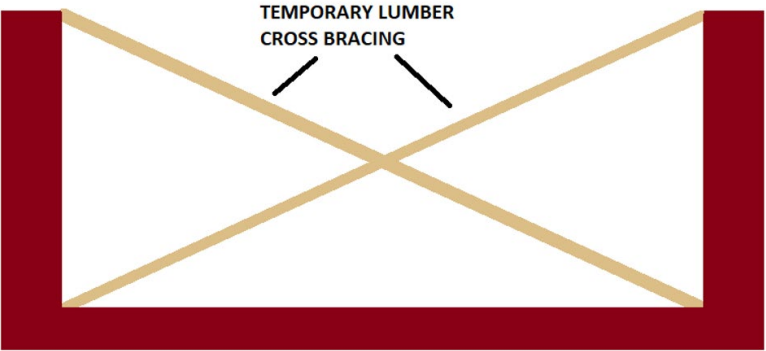
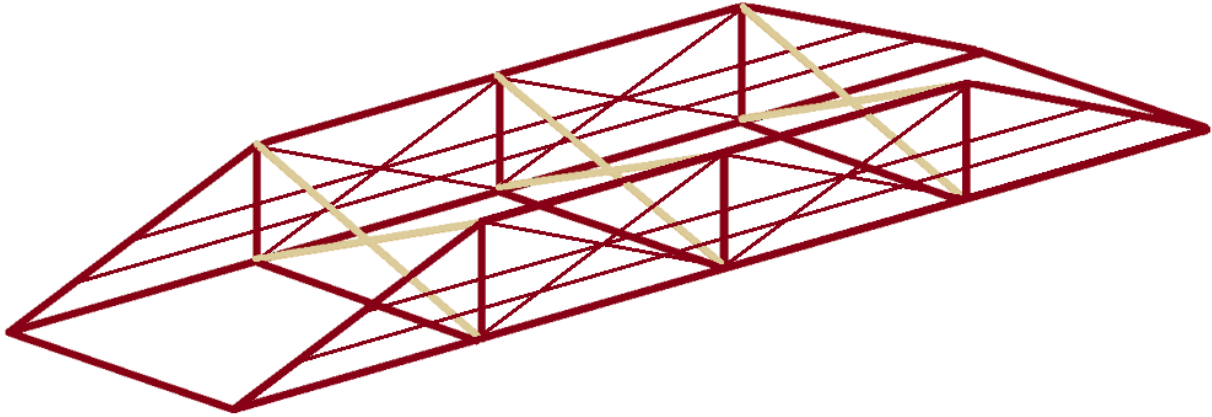
Rock Crusher Stabilization – Replacing Posts and Footings



Bridge Stabilization

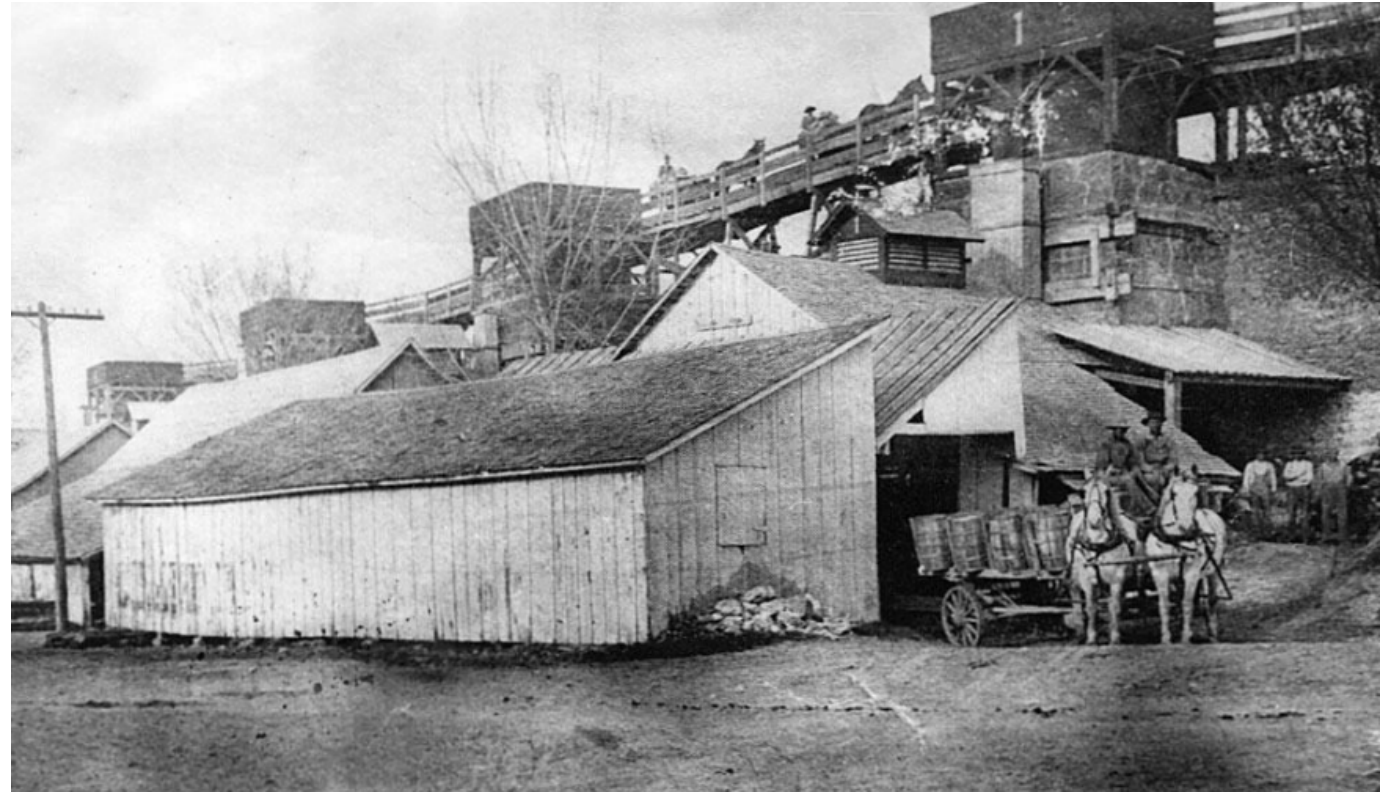


Bridge Stabilization

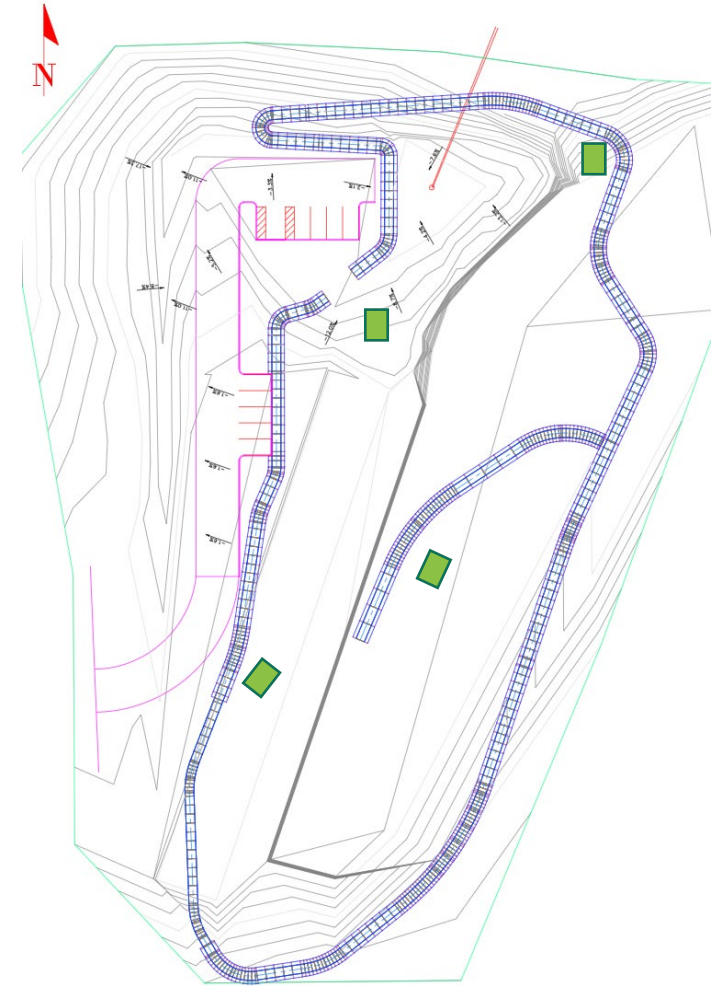


Rock Crusher and Bridge Stabilization					
Item	Unit	Unit Price	Quantity	Cost	
Concrete	CY	\$ 150.00	3.5	\$	525.00
Concrete removal	SY	\$ 40.00	4	\$	160.00
# 4 Rebar	LF	\$ 2.55	200	\$	510.00
8x8 DF#1	BF	\$ 12.00	110	\$	1,320.00
2x10 DF#1	BF	\$ 12.00	60	\$	720.00
4x4 DF#1	BF	\$ 12.00	60	\$	720.00
2x12 Pine	BF	\$ 8.00	12	\$	96.00
2x4 Pine	BF	\$ 8.00	80	\$	640.00
Structural Steel	CWT	\$ 360.00	30	\$	10,800.00
TOTAL				\$	15,500.00

Viewing Platform Inspiration



Viewing Platforms Location and Design



Viewing Platforms Location and Design



Glass Etching Platforms				
Item	Unit	Unit Price	Quantity	Cost
4x4 Douglas Fir posts @ 12ft	CT	\$31.00	8	\$248.00
2x4 Framing Lumber @ 4ft	CT	\$5.09	4	\$20.36
3-1/2" 16D Box Nail - 5 lb. Box	CT	\$19.38	1	\$19.38
3/4 x 4 x 8 Plywood Sheathing	CT	\$56.38	1	\$56.38
1/2" Clear Acrylic Plexiglass Sheet	CT	\$600.00	4	\$2,400.00
5/16" -18 x 2" Zinc Grade 2 Hex Bolt	CT	\$1.09	24	\$26.16
5/16" -18 Blue Zinc Grade 2 Hex Nut	CT	\$2.99	24	\$71.76
			TOTAL	\$2,900.00

Construction Cost Estimate

Site Development				
Component	Material	Construction Subtotal	Contingencies	TOTAL COST¹
Drainage	–	\$ 78,800.00	\$ 7,875.00	\$ 87,000.00
Parking Lot	PCC	\$ 155,500.00	\$ 15,600.00	\$ 171,500.00
	Asphalt	\$ 115,000.00	\$ 11,500.00	\$ 127,000.00
	Gravel	\$ 88,000.00	\$ 8,800.00	\$ 97,500.00
Trail	PCC	\$ 67,000.00	\$ 6,700.00	\$ 74,000.00
	Asphalt	\$ 31,100.00	\$ 3,100.00	\$ 34,700.00
	Gravel	\$ 21,600.00	\$ 2,150.00	\$ 24,300.00

1. Total project cost is the sum of the construction subtotal, 10% contingencies, and \$500 in engineering administration for each component.

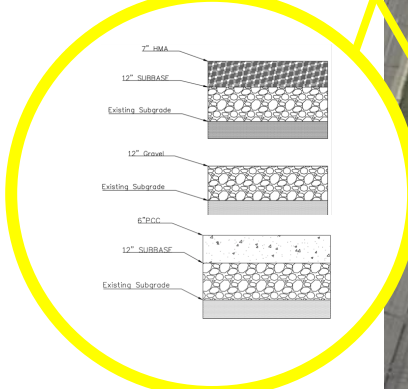
Structural Rehabilitation				
Component	Construction Subtotal	Contingencies	Administration	TOTAL COST
Rock Crusher and Bridge Stabilization	\$ 15,500.00	\$ 1,600.00	\$ 3,100.00	\$ 20,200.00
Grates / Side Openings	\$ 1,400.00	\$ 200.00	\$ 300.00	\$ 1,900.00
Kiln Platforms	\$ 48,900.00	\$ 4,900.00	\$ 9,800.00	\$ 63,600.00
Soil Nailing	\$ 23,300.00	\$ 2,400.00	\$ 4,700.00	\$ 30,400.00
Glass Etching Platforms	\$ 2,900.00	\$ 300.00	\$ 600.00	\$ 3,800.00



**Flood Control /
Water Management**

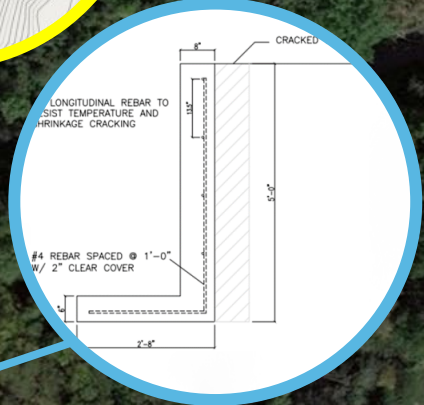


Bridge Stabilization

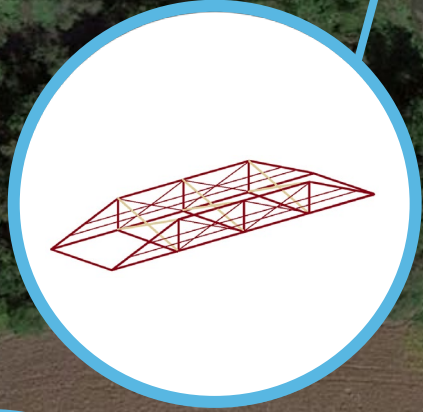


Parking Lot Design

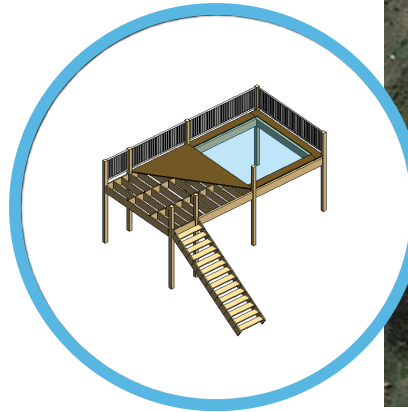
Trail Design



**Rock Crusher
Stabilization**



**Retaining Wall /
Soil Nailing Plan**



Kiln Structural Analysis / Viewing Platform Design

