

Red Bridge Relocation



Hawkeye Engineering

Structural Analasist:

Alexandre Von Rohrbach

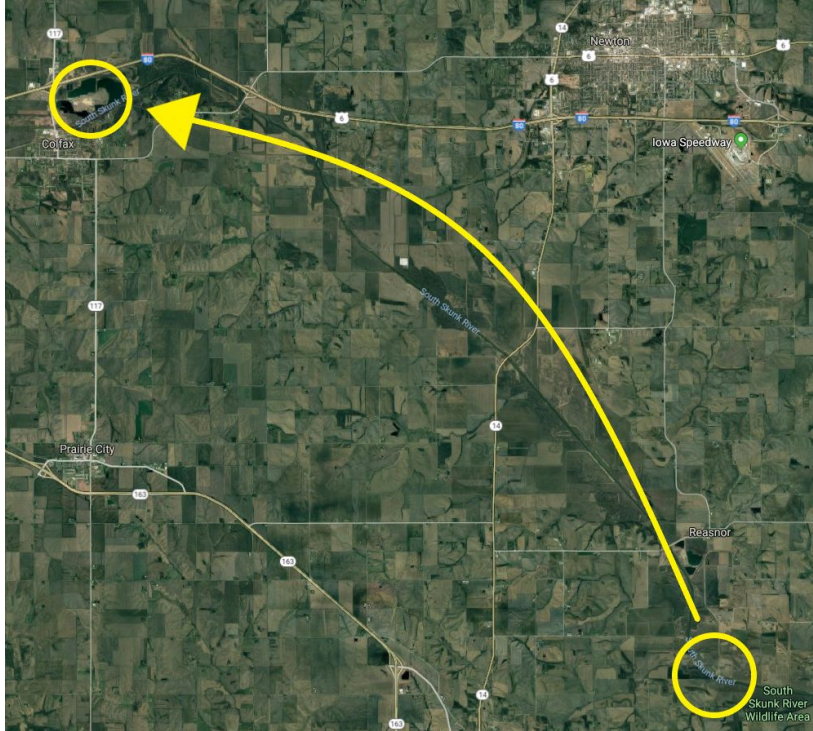
Trail Design & Restoration Specialist:

Adam Tuchscherer

Abutment Analysis & Trail Design Specialist:

Bryton Meyer

Reasnor to Colfax





 **QUARRY SPRINGS PARK**
MASTER PLAN EXECUTIVE SUMMARY

COLFAX, IOWA



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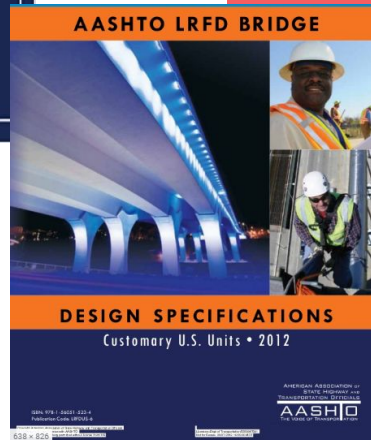
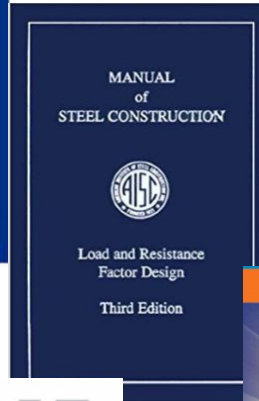
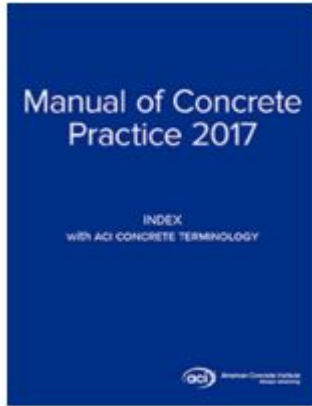


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Design Standards and Software Packages



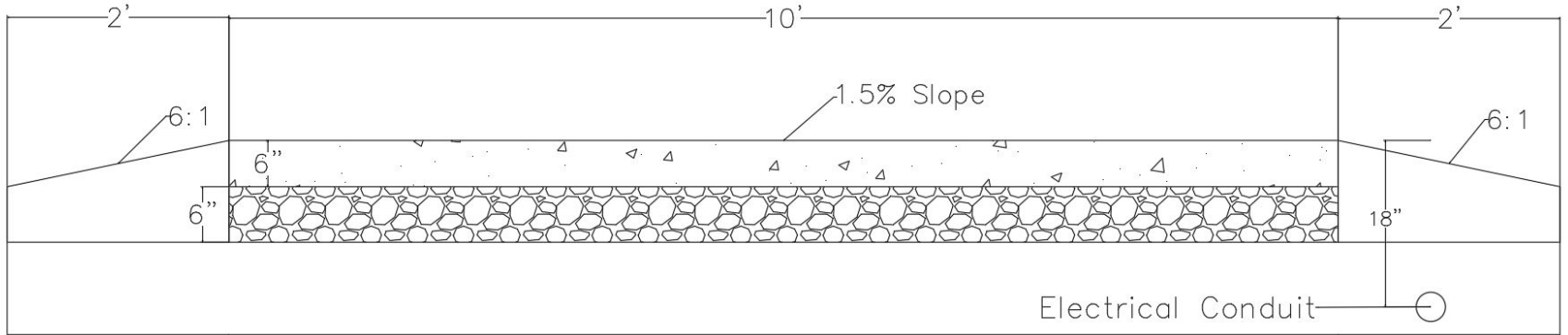
STANDARDS

ACI
AISC
IowaDOT
AASHTO LRFD
SUDAS

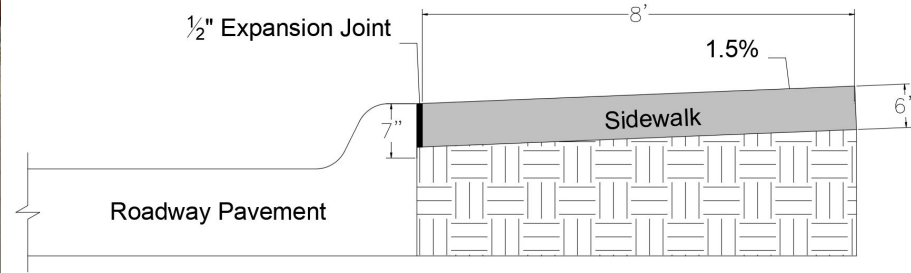
SOFTWARE PACKAGES

AutoCAD
Revit
Civil 3D
INFRAworks
Robot
Ansys

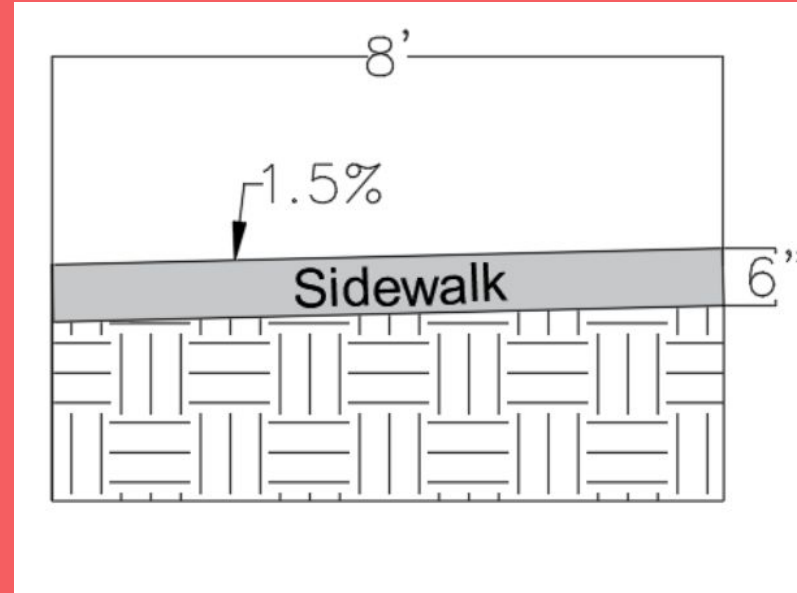
Quarry Springs Trail



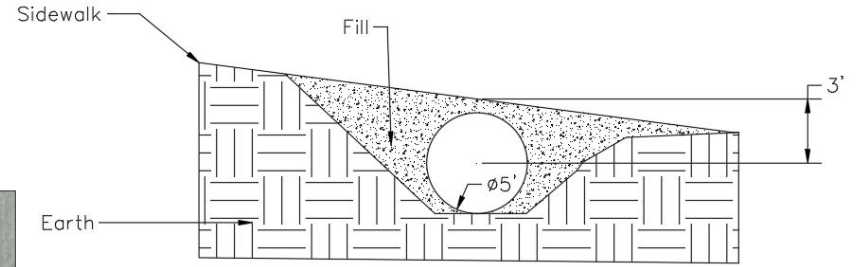
Sidewalk Link to Downtown



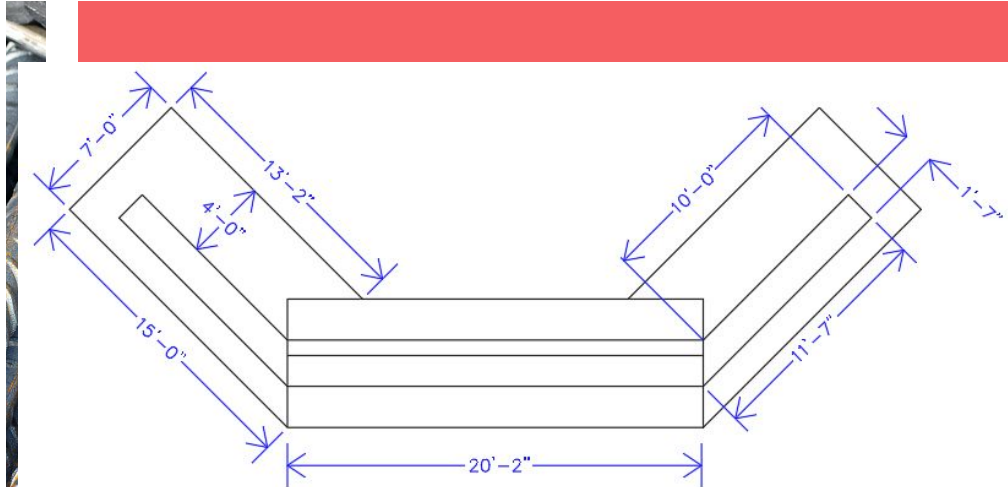
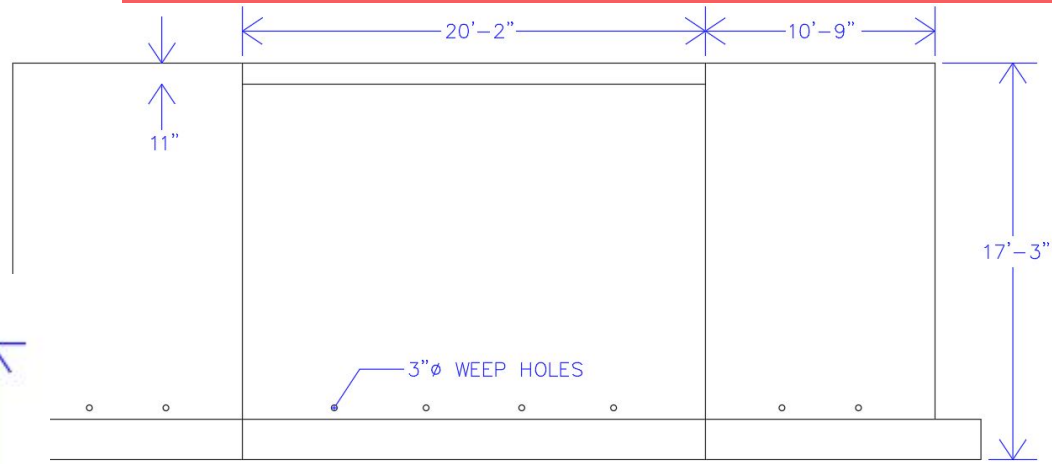
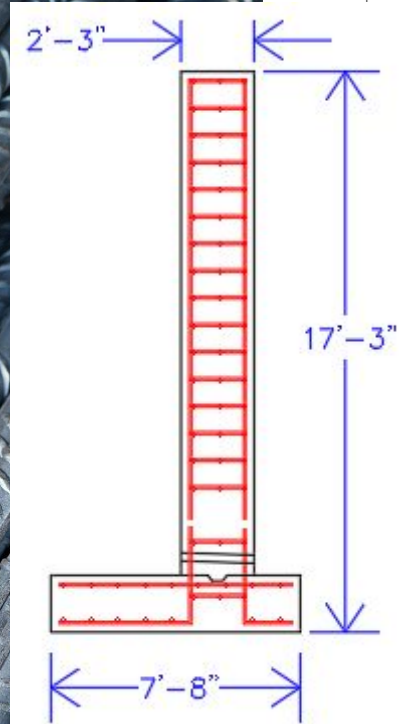
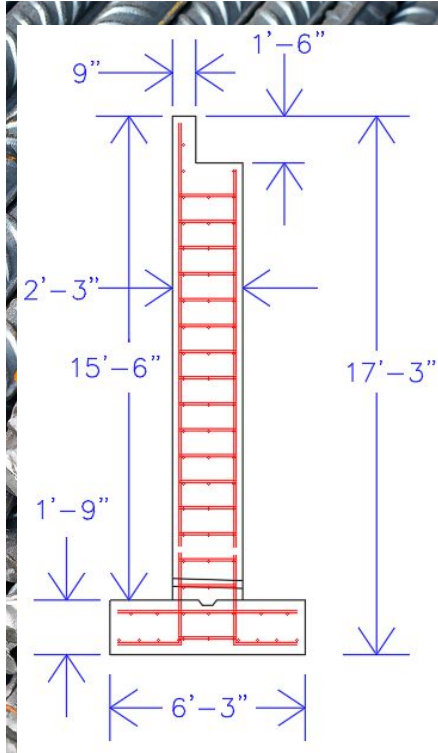
Sidewalk Link to Downtown



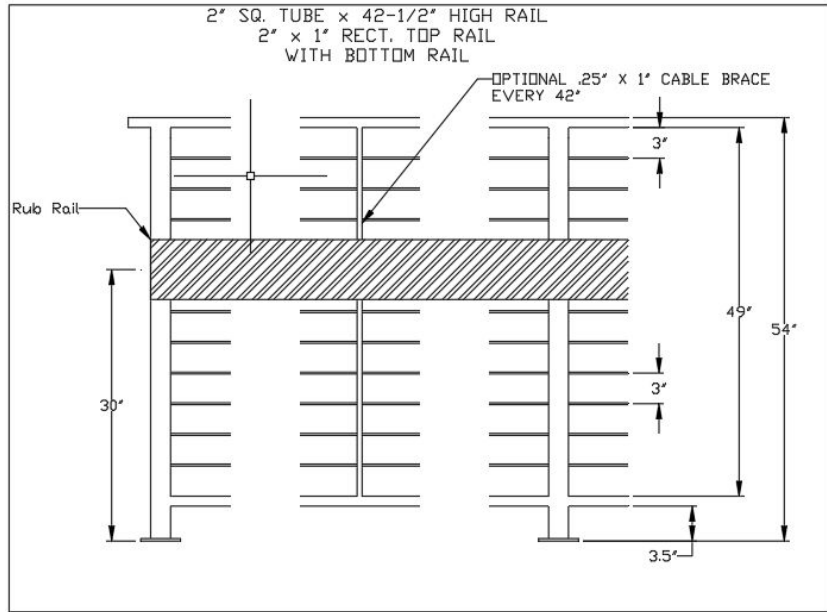
Culvert



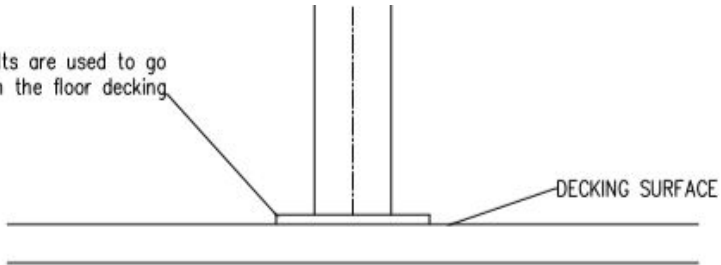
Red Bridge Abutments



Red Bridge Railing



1/2" bolts are used to go through the floor decking



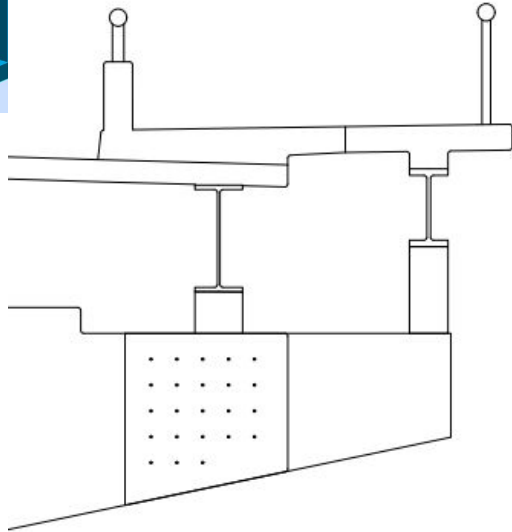
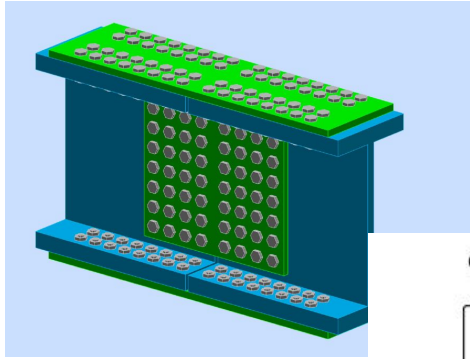
Red Bridge Restoration



Alternative Red Bridge Lighting



Bridge Sidewalk Expansion



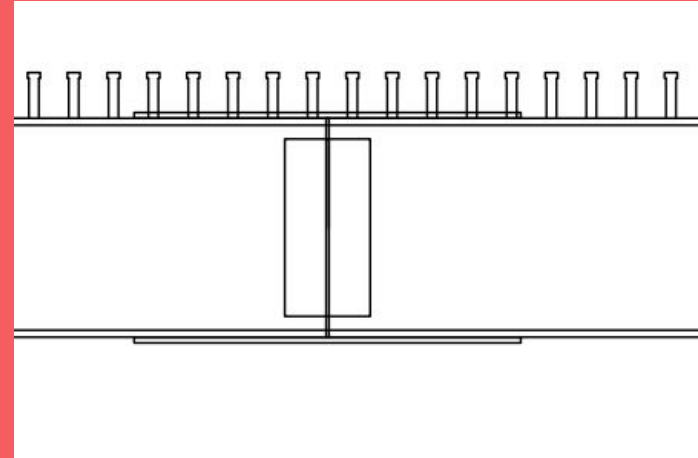
Expanded from 5ft to 10ft

Required pier expansion

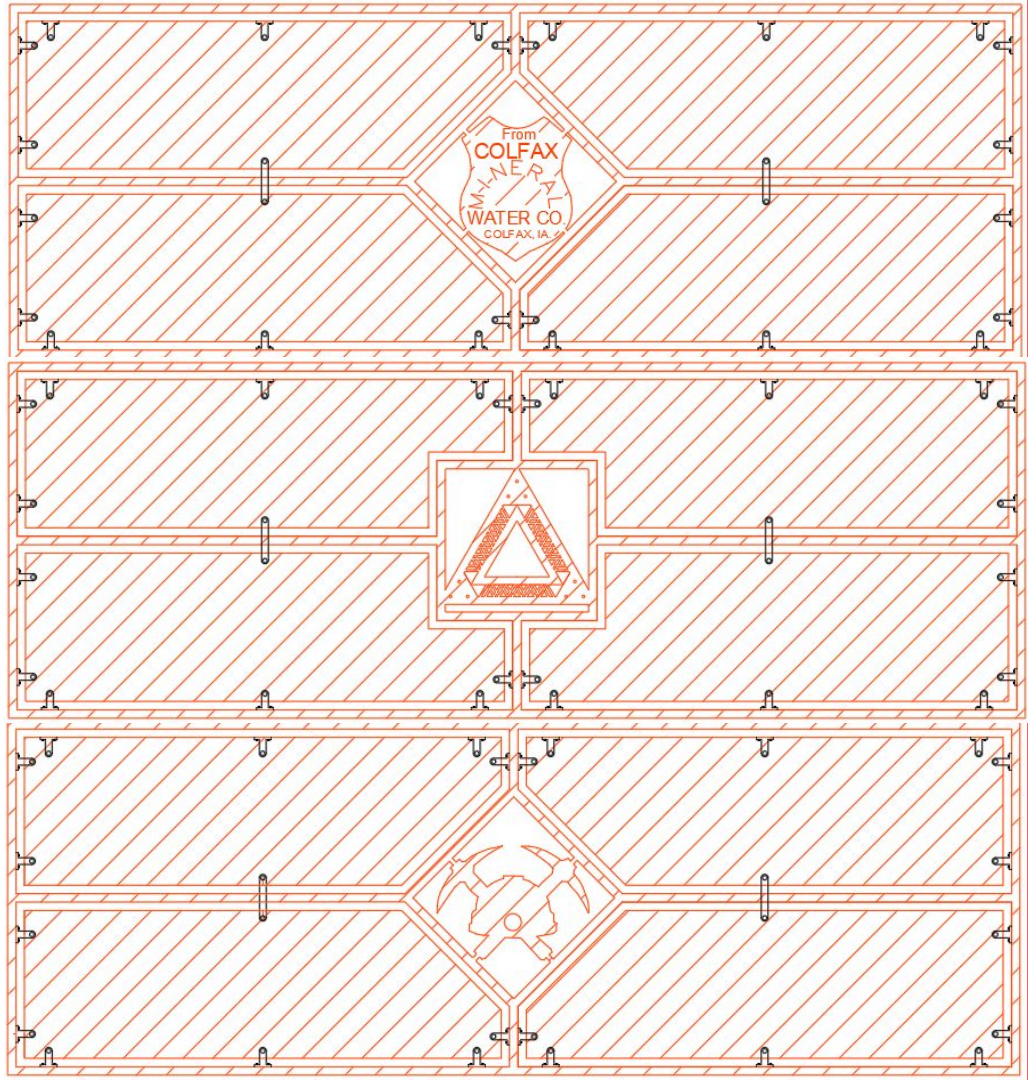
Add a new W24X306 Girder

Moment splice connections

Pier Expansion Bracket



Railing Design



Transportation of Red Bridge Cost Estimate

Red Bridge Abutment Construction Cost Estimate			
Item Description	Quantity	Unit Price	Total Amount
Cut & Chip Medium Trees	1 (Acre)	6875	\$4,125
Grub Stumps & Remove	1 (Acre)	4300	\$2,600
Plastic Netting, Stapled	5640 (S.Y.)	2.39	\$13,500
Excavation & Fill	42520 (B.C.Y.)	7.6	\$323,500
Steel Reinforcement	18 (Ton)	505	\$9,100
Structural Concrete	138 (C.Y.)	515	\$71,100
		Total	\$423,925

Sidewalk Construction Cost Estimate

Downtown Sidewalk Construction Cost Estimate			
Item description	Quantity	Unit Price	Total Amount
Excavation & Fill	338 (CY)	7.6	\$2,575
Concrete Pavement	1490 (SY)	20.5	\$30,600
Removal of Pavment	1490 (SY)	6.5	\$9,700
Traffic Control	lump	lump	\$9,000
Mobilization	lump	lump	\$60,000
Temp Barrier	559 (LY)	6.55	\$3,925
Flaggers	2 (per peson)	315	\$630
Removable Tape Markings	1676 (LF)	100	\$168,000
Painted Markings	1676 (LF)	35	\$58,700
Galvanized Corrugated Metal Culverts	15 (LF)	1025	\$15,400
		Total	\$358,530

Hwy 117 Bridge Construction Cost Estimate

Highway 117 Sidewalk Expansion Construction Cost Estimate			
Item description	Quantity	Unit Price	Bid Amount
Engineered backfill (CY)	25	44.2	\$1,125
Shoulder Finish (LF)	8	84	\$675
Removal of Fense (LF)	320	3	\$965
Brdige Approach (LF)	50	191.5	\$9,575
Concrete Pavement (SY)	171.8519	60	\$10,500
Structural Steel (lb)	97920	2.1	\$206,000
Performed Neoprene Joint (LF)	20	354	\$7,100
Neoprene Gland Installation (LF)	20	58.85	\$1,175
Railing (LF)	320	124	\$40,000
Ornamental Railing (LF)	320	55	\$17,600
Concrete Grinding (CY)	53.33333	15	\$800
Survey	lump	lump	\$5,000
Temp Barrier (LY)	500	6.55	\$3,275
Traffic Control	lump	lump	\$9,000
Flaggers (per peson)	8	315	\$2,525
Mobilization	lump	lump	\$60,000
Removable Tape Markings (LF)	500	100	\$50,000
Painted Markings (LF)	500	35	\$17,500
Seeding and Fertilizing (acre)	0.15	3500	\$525
Abutment Steel (lb)	35000	2.07	\$72,500
Structural Concrete (CY)	75	974.3	\$73,000
Structural Steel Brackets (lb)	15000	2.1	\$31,500
Structural Steel Solums (lb)	436.5833	2.1	\$915
		Total	\$621,255



 **QUARRY SPRINGS PARK**
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Phase 1 Quarry Springs Trail

Construction Cost Estimate

Phase One: Quarry Springs Park Trail Construction Cost Estimate			
Item Description	Quantity	Unit Price	Total Amount
Cut & Chip Medium Trees	6.89 (Acre)	5250	\$36,000
Grub Stumps & Remove	6.89 (Acre)	3225	\$22,300
Excavation & Fill	43212 (B.C.Y.)	7.00	\$302,500
Plastic Netting	3360 (S.Y.)	2.39	\$8,050
Subbase 6" Thick	4762 (S.Y.)	6.70	\$32,000
Concrete Paving - 6" Thick	4762 (S.Y.)	24.50	\$117,000
		Total	\$517,850

Abutment Construction Cost Estimate

Red Bridge Abutment Construction Cost Estimate			
Item Description	Quantity	Unit Price	Total Amount
Cut & Chip Medium Trees	1 (Acre)	6875	\$4,125
Grub Stumps & Remove	1 (Acre)	4300	\$2,600
Plastic Netting, Stapled	5640 (S.Y.)	2.39	\$13,500
Excavation & Fill	42520 (B.C.Y.)	7.6	\$323,500
Steel Reinforcement	18 (Ton)	505	\$9,100
Structural Concrete	138 (C.Y.)	515	\$71,100
		Total	\$423,925

Refurbishing Cost Estimate

Red Bridge Refurbishing Cost Estimate			
Item Description	Quantity	Unit Price	Total Amount
Sandblasting & Painting	3646 (S.F.)	9.44	\$34,500
Deck Replacement	189 (Ea.)	70	\$13,300
Railing System	120 (L.F.)	65	\$7,800
Lighting	4 (Ea.)	320	\$1,300
Rub Rail	30 (Ea.)	5	\$150
Spot Repair Contingency	Lump	Lump	\$70,000
		Total	\$127,050

Total Construction Cost Estimate

Total Construction Cost Estimate w/ Phase 1 Trail System	
Element of Project	Total Cost
Quarry Springs Park Trail	\$517,850
Sidewalk Design	\$358,530
Red Bridge Abutments	\$423,925
Bridge Expansion	\$621,255
Red Bridge Refurbishing	\$127,050
Transportation of Red Bridge	\$296,000
Total	\$2,344,610



QUARRY SPRINGS PARK

MASTER PLAN EXECUTIVE SUMMARY

COLFAX, IOWA

Remaining Quarry Springs Trail

Construction Cost Estimate

Remaining Quarry Springs Park Trail Construction Cost Estimate			
Item Description	Quantity	Unit Price	Total Amount
Cut & Chip Medium Trees	17.2 (Acre)	5250	\$90,500
Grub Stumps & Remove	17.2 (Acre)	3225	\$55,500
Excavation & Fill	278720 (B.C.Y.)	7.00	\$1,951,000
Plastic Netting	10000 (S.Y.)	2.39	\$24,000
Subbase 6" Thick	53550 (S.Y.)	6.70	\$359,000
Concrete Paving - 6" Thick	53550 (S.Y.)	24.50	\$1,312,000
		Total	\$3,792,000

Total Construction Cost Estimate

Total Construction Cost Estimate w/ Remaining Trail System	
Element of Project	Total Cost
Quarry Springs Park Trail	\$4,309,850
Sidewalk Design	\$358,530
Red Bridge Abutments	\$423,925
Bridge Expansion	\$621,255
Red Bridge Refurbishing	\$127,050
Transportation of Red Bridge	\$296,000
Total	\$6,136,610

Thank You

