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### Appendix E. Bridge and Roadway Estimates

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#### Alternative 1A, Option 1 – Cost Estimate

	Project:	MoDOT Rte. 19	Oconcepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Repla	acement	Checked:	DGB	Date:	10/2/2019
FJK	Task:	Concept Cost	Estimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (No	phasing)						
Bridge Length =	612	Ft.			Skew =	0	degrees
New Bridge Width =	40.83	Ft.		New Arc	h Width =	35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Are	a (DGN) =	1060	ft²
Pier 2 Width =	40.5	ft.		New Side V	Vall Thk =	12	in.
Pier 2 Length =	13	ft.	Arc	h End Area (13	0' Span) =	290	ft²
Pier 3&4 Width =	43.5	ft.		Pie	r 2 Area =	165	ft²
Pier 3&4 Length =	14	ft.		Pier 3 8	& 4 Area =	300	ft²
Pier 5 Width =	43.5	ft.		Pie	r 5 Area =	450	ft²
Pier 5 Length =	20	ft.		# Girders (End	d Spans) =	5	
End Span Lengths (NU53) =	102	ft.		Wing	g Length =	15	ft.
ltem	Quantity			Unit Cost		Estimated Co	set
Arch Backfill	quantity						/31
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
( 00.10)	5650	Filled Arch - Ass	ume 33' wi		all area (m		AD)
Class 1 Excavation		incurrent inco			in area (m		
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
(200 10.00)		Excav. Depth =	5	ft.		<i><b><i>q</i>120</b>,<b>500</b></i>	
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
		Excav. Depth =	27	ft.			
Cofferdams		Excut. Depth -	27	10.			
(206-60.02)	1	Lump Sum Assume \$250,00	00 each	\$1,000,000		\$1,000,000	)
Ornamental Pedestrian Fence		. ,					
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		, ,	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
Dynamic Pile Testing		,					
(702-50.01)	2	Ea.		\$2,500		\$5,000	
()				+_/		+-/	
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side wal	ls, 6'x12" p	ilasters and su	pport brac	ckets w/ foun	dations
		Include new floo	orbeam bra	ices (10 per spa	ın - 15"x2	7"x33')	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	)
		Use end areas fi	rom DGN fi	le and multiply	by 35' wi	de arch	
Slab on Filled Arch							
(703-42.14)	1860	Sq. Yd.		\$200		\$372 <i>,</i> 000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	
Slab on Concrete NU-Girder							
(703-42.15)	930	Sq. Yd.		\$315		\$292,950	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Form Liners						
703-46.20)	400	Sq. Yd.	\$100		\$40,000	
		Back of Barrierss and new I	Pilasters at pie	rs (approx	x. 5' wide x 25'	tall)
IU 53, Prestressed Concrete NU-Girder	1010		40.40		40.40.400	
705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
706-10.60)	489,300	Lb.	\$1.40		\$685,020	
		Assume 130# per CY of con	crete for Subst	r. 150# fo	or the Arch con	crete
teel Intermediate Diaphragm (NU Girder)		_	4		4	
712-33.01)	16	Ea.	\$1,000		\$16,000	
lab Drain		Two in each end span per b	bay			
712-36.10)	84	Ea.	\$500		\$42,000	
,		Assume new VC on bridge		je. Spa. @	) 15' across brid	dge
rainage System on Structure						
712-99.01)	1	Lump Sum	\$80,000		\$80,000	
/lisc. Bridge Rail						
712-99.03)	1290	LF.	\$110		\$141,900	
/ertical Drain at End Bent						
715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway w	vidth + 2 wings	i		
aminated Neoprene Bearing (Tapered)		_	4		4	
716-10.03)	10	Ea.	\$375		\$3,750	
aminated Neoprene Bearing Assembly						
716-20.00)	10	Ea.	\$2,000		\$20,000	
trip Seal Expansion Joint System						
717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	<b>έ</b> 7 Ο	27,200 L	Jnit Cost =	¢217	7 / Sq. Ft.	
iotal New Bridge Cost -	9,75	27,200	Jint Cost –	321/	י אין אין אין אין אין אין אין אין אין אי	

Not including approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 100+00 to Sta. 113+47 across Current River. Estimate does not include costs for bridges.

Figure A-1: Alternative 1A,2A, 5B North Option 1 - Temp Shoofly Bridge; Remove Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	_				
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1984	\$55	\$109,141	8" asphalt; 6" aggregate base
EROSION CONTROL					
ROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	8539	\$8	\$64,041	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	4269	\$20	\$85,388	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	3411	\$12	\$40,935	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
AVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
DTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$771,537	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$195,384.20	
FOTAL CONSTRUCTION COST				\$976,921	

	ENG	INEER'S ESTIMATE - CONCEPTU	AL CON	STRUCT	ION COST				
		Client:	MoDOT		Date:	9/16/2019			
		Project:	J9P3305:	Rte 19 Arch E	Bridges Rehab. Stu	dy			
C	SS	Project Number:			By:	GCL			
		Description:							
		These Costs		6'-136'-136'-1	02.5') g, Inspection Costs. Un	it Driess are EV 20			
BID FORM #	MODOT BID ITEM #		QUANTITY	UNIT	UNIT COST	COST			
BRIDGE C		DN BID ITEMS							
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$160,160	\$160,160			
2	7011107	Drilled Shafts (4 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000			
3	7011206	Rock Sockets (4 Ft. 0 In. Dia.)	160.0	Lin. Ft.	\$950	\$152,000			
4	7011300	Video Camera Inspection	8.0	Each	\$225	\$1,800			
5	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800			
6	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000			
7	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200			
8	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250			
9	7032003	Class B Concrete (Substructure)	173.3	Cu. Yd.	\$750	\$129,955			
10	7056024	NU 63 (1600), Prestressed Concrete NU-Girder	2452.0	Lin. Ft.	\$300	\$735,600			
11	7061060	Reinforcing Steel (Bridges)	17516	Lbs	\$1.20	\$21,019			
12	7121160	Steel Grid Floor (Open)	16221.1	Sq. Ft.	\$20	\$324,423			
13	7134000	Bridge Guardrail (Thrie Beam)	1232.0	Lin. Ft.	\$240	\$295,680			
14	7161003	Laminated Neoprene Bearing Pad (Tapered)	30.0	Each	\$400	\$12,000			
					Sub-Total (A) =	\$2,120,890			
				Price/Sq. Ft.	(Bridge Items) =	\$132			

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### Alternative 1A, Option 2 – Cost Estimate

	Project:	MoDOT Rte. 19	Oconcepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Repla	acement	Checked:	DGB	Date:	10/2/2019
FJK	Task:	Concept Cost	Estimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (No	phasing)						
Bridge Length =	612	Ft.			Skew =	0	degrees
New Bridge Width =	40.83	Ft.		New Arc	h Width =	35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Are	a (DGN) =	1060	ft²
Pier 2 Width =	40.5	ft.		New Side V	Vall Thk =	12	in.
Pier 2 Length =	13	ft.	Arc	h End Area (13	0' Span) =	290	ft²
Pier 3&4 Width =	43.5	ft.		Pie	r 2 Area =	165	ft²
Pier 3&4 Length =	14	ft.		Pier 3 8	& 4 Area =	300	ft²
Pier 5 Width =	43.5	ft.		Pie	r 5 Area =	450	ft²
Pier 5 Length =	20	ft.		# Girders (End	d Spans) =	5	
End Span Lengths (NU53) =	102	ft.		Wing	g Length =	15	ft.
ltem	Quantity			Unit Cost		Estimated Co	set
Arch Backfill	quantity						/31
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
( 00.10)	5650	Filled Arch - Ass	ume 33' wi		all area (m		AD)
Class 1 Excavation		incurrent inco			in area (m		
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
(200 10.00)		Excav. Depth =	5	ft.		<i><b><i>q</i>120</b>,<b>500</b></i>	
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
		Excav. Depth =	27	ft.			
Cofferdams		Executi Deptil -	27	10.			
(206-60.02)	1	Lump Sum Assume \$250,00	00 each	\$1,000,000		\$1,000,000	)
Ornamental Pedestrian Fence		. ,					
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		, ,	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
Dynamic Pile Testing		,					
(702-50.01)	2	Ea.		\$2,500		\$5,000	
()				+_/		+-/	
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side wal	ls, 6'x12" p	ilasters and su	pport brac	ckets w/ foun	dations
		Include new floo	orbeam bra	ices (10 per spa	ın - 15"x2	7"x33')	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	)
		Use end areas fi	rom DGN fi	le and multiply	by 35' wi	de arch	
Slab on Filled Arch							
(703-42.14)	1860	Sq. Yd.		\$200		\$372 <i>,</i> 000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	
Slab on Concrete NU-Girder							
(703-42.15)	930	Sq. Yd.		\$315		\$292,950	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Form Liners						
703-46.20)	400	Sq. Yd.	\$100		\$40,000	
		Back of Barrierss and new I	Pilasters at pie	rs (approx	x. 5' wide x 25'	tall)
IU 53, Prestressed Concrete NU-Girder	1010		40.40		40.40 A00	
705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
706-10.60)	489,300	Lb.	\$1.40		\$685,020	
		Assume 130# per CY of con	crete for Subst	tr. 150# fo	or the Arch con	crete
teel Intermediate Diaphragm (NU Girder)		_	4		4	
712-33.01)	16	Ea.	\$1,000		\$16,000	
lab Drain		Two in each end span per b	bay			
712-36.10)	84	Ea.	\$500		\$42,000	
,		Assume new VC on bridge		je. Spa. @	) 15' across brid	dge
rainage System on Structure						
712-99.01)	1	Lump Sum	\$80,000		\$80,000	
/lisc. Bridge Rail						
712-99.03)	1290	LF.	\$110		\$141,900	
/ertical Drain at End Bent						
715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway w	vidth + 2 wings	i		
aminated Neoprene Bearing (Tapered)		_	4		4	
716-10.03)	10	Ea.	\$375		\$3,750	
aminated Neoprene Bearing Assembly						
716-20.00)	10	Ea.	\$2,000		\$20,000	
trip Seal Expansion Joint System						
717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	<b>έ</b> 7 Ο	27,200 L	Jnit Cost =	¢217	7 / Sq. Ft.	
iotal New Bridge Cost -	9,75	27,200	Jint Cost –	321/	י אין אין אין אין אין אין אין אין אין אי	

Not including approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 300+00 to Sta. 312+78 across Current River. Estimate does not include costs for bridges.

Figure A-2: Alternative 1A,2A,5B North Option 2 - Temp Shoofly Bridge Downstream of Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1801	\$55	\$99,051	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	2	\$7,000	\$14,000	
EXCAVATION - CLASS A	CY	2961	\$8	\$22,204	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	1480	\$20	\$29,605	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	7332	\$12	\$87,981	
BORROW	CY	2891	\$2	\$5,782	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$709,656	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$179,914.01	
TOTAL CONSTRUCTION COST				\$899,570	

1 of 1

	ENG	INEER'S ESTIMATE - CONCEPTU	AL CON	STRUCT	ION COST				
		Client:	MoDOT		Date:	9/16/2019			
		Project:	J9P3305:	Rte 19 Arch E	Bridges Rehab. Stu	dy			
C	SS	Project Number:			By:	GCL			
		Description:							
		These Costs		6'-136'-136'-1	02.5') g, Inspection Costs. Un	it Driese ere EV 20			
BID FORM #	MODOT BID ITEM #		QUANTITY	UNIT	UNIT COST	COST			
BRIDGE C		DN BID ITEMS							
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$160,160	\$160,160			
2	7011107	Drilled Shafts (4 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000			
3	7011206	Rock Sockets (4 Ft. 0 In. Dia.)	160.0	Lin. Ft.	\$950	\$152,000			
4	7011300	Video Camera Inspection	8.0	Each	\$225	\$1,800			
5	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800			
6	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000			
7	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200			
8	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250			
9	7032003	Class B Concrete (Substructure)	173.3	Cu. Yd.	\$750	\$129,955			
10	7056024	NU 63 (1600), Prestressed Concrete NU-Girder	2452.0	Lin. Ft.	\$300	\$735,600			
11	7061060	Reinforcing Steel (Bridges)	17516	Lbs	\$1.20	\$21,019			
12	7121160	Steel Grid Floor (Open)	16221.1	Sq. Ft.	\$20	\$324,423			
13	7134000	Bridge Guardrail (Thrie Beam)	1232.0	Lin. Ft.	\$240	\$295,680			
14	7161003	Laminated Neoprene Bearing Pad (Tapered)	30.0	Each	\$400	\$12,000			
					Sub-Total (A) =	\$2,120,890			
				Price/Sq. Ft.	(Bridge Items) =	\$132			

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### Alternative 1B – Cost Estimate

	Project:	MoDOT Rte. 19	Oconcepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Repla	acement	Checked:	DGB	Date:	10/2/2019
E J K	Task:	Concept Cost	Estimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (No	phasing)						
Bridge Length =	612	Ft.			Skew =	0	degrees
New Bridge Width =	40.83	Ft.		New Arc	h Width =	35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Are	a (DGN) =	1060	ft²
Pier 2 Width =	40.5	ft.		New Side V	Vall Thk =	12	in.
Pier 2 Length =	13	ft.	Arc	h End Area (13	0' Span) =	290	ft²
Pier 3&4 Width =	43.5	ft.		Pie	r 2 Area =	165	ft²
Pier 3&4 Length =	14	ft.		Pier 3 8	& 4 Area =	300	ft²
Pier 5 Width =	43.5	ft.		Pie	r 5 Area =	450	ft²
Pier 5 Length =	20	ft.		# Girders (End	d Spans) =	5	
End Span Lengths (NU53) =	102	ft.		Wing	g Length =	15	ft.
ltem	Quantity			Unit Cost		Estimated Co	set
Arch Backfill	quantity						/31
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
( 00.10)	5650	Filled Arch - Ass	ume 33' wi		all area (m		AD)
Class 1 Excavation		incurrent inco			in area (m		
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
(200 10.00)		Excav. Depth =	5	ft.		<i><b><i>q</i>120</b>,<b>500</b></i>	
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
		Excav. Depth =	27	ft.			
Cofferdams		Executi Deptil -	27	10.			
(206-60.02)	1	Lump Sum Assume \$250,00	00 each	\$1,000,000		\$1,000,000	)
Ornamental Pedestrian Fence		. ,					
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		, ,	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
Dynamic Pile Testing		,					
(702-50.01)	2	Ea.		\$2,500		\$5,000	
()				+_/		+-/	
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side wal	ls, 6'x12" p	ilasters and su	pport brac	ckets w/ foun	dations
		Include new floo	orbeam bra	ices (10 per spa	ın - 15"x2	7"x33')	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	)
		Use end areas fi	rom DGN fi	le and multiply	by 35' wi	de arch	
Slab on Filled Arch							
(703-42.14)	1860	Sq. Yd.		\$200		\$372 <i>,</i> 000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	
Slab on Concrete NU-Girder							
(703-42.15)	930	Sq. Yd.		\$315		\$292,950	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Form Liners						
703-46.20)	400	Sq. Yd.	\$100		\$40,000	
		Back of Barrierss and new I	Pilasters at pie	rs (approx	x. 5' wide x 25'	tall)
IU 53, Prestressed Concrete NU-Girder	1010		40.40		40.40.400	
705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
706-10.60)	489,300	Lb.	\$1.40		\$685,020	
		Assume 130# per CY of con	crete for Subst	tr. 150# fo	or the Arch con	crete
teel Intermediate Diaphragm (NU Girder)		_	4		4	
712-33.01)	16	Ea.	\$1,000		\$16,000	
lab Drain		Two in each end span per b	bay			
712-36.10)	84	Ea.	\$500		\$42,000	
,		Assume new VC on bridge		je. Spa. @	) 15' across brid	dge
rainage System on Structure						
712-99.01)	1	Lump Sum	\$80,000		\$80,000	
/lisc. Bridge Rail						
712-99.03)	1290	LF.	\$110		\$141,900	
/ertical Drain at End Bent						
715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway w	vidth + 2 wings	i		
aminated Neoprene Bearing (Tapered)		_	4		4	
716-10.03)	10	Ea.	\$375		\$3,750	
aminated Neoprene Bearing Assembly						
716-20.00)	10	Ea.	\$2,000		\$20,000	
trip Seal Expansion Joint System						
717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	<b>έ</b> 7 Ο	27,200 L	Jnit Cost =	¢217	7 / Sq. Ft.	
iotal New Bridge Cost -	9,75	27,200	Jint Cost –	321/	י אין אין אין אין אין אין אין אין אין אי	

Not including approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 200+00 to Sta. 212+66 across Current River. Estimate does not include costs for bridges.

Figure A-3: Alternative 1B and 2B North - New Bridge; Remove Ped Bridge; Single-lane temp shoo-fly bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	GAIT	<b>WOANTIT</b>	0111 0001	112010031	COMMENT
MOBILIZATION AND TRAFFIC CONTROL				-	
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
WORK ZONE TRAFFIC SIGNAL SYSTEM	EACH	1	\$12,000	\$12,000	alternating traffic across bridge
TEMPORARY PAVING	SY	1758	\$55	\$96,685	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	2	\$7,000	\$14,000	
EXCAVATION - CLASS A	CY	5876	\$8	\$44,072	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2938	\$20	\$58,762	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	2991	\$12	\$35,892	
BORROW	CY		\$2		
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$712,445	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$180,611.13	
TOTAL CONSTRUCTION COST				\$903,056	

1 of 1

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS	<b>FRUCTI</b>	DN COST			
		Client: Project:		Rte 19 Arch E	<b>Date:</b> Bridges Rehab. Stu	9/12/2019 dy		
C	SS	On Project Number: Description:	019-2126 By: GCL					
	MODOT BID		do not include P QUANTITY	E, RW, Permitting	g, Inspection Costs. Un	it Prices are FY 202		
#	ITEM #				COST			
BRIDGE CO	ONSTRUCTIO	ON BID ITEMS	I	L				
1	2061000	Class I Excavation	1128	Cu. Yd.	\$50	\$56,408		
2	6079903	(72 In.) Pedestrian Fence (Structures)	1300.0	Lin. Ft.	\$160	\$208,000		
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	142.0	Lin. Ft.	\$1,200	\$170,400		
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000		
5	7011300	Video Camera Inspection	8.0	Each	\$650	\$5,200		
6	7011400	Foundation Inspection Holes	240.0	Lin. Ft.	\$130	\$31,200		
7	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000		
8	7021212	Galvanized Structural Steel Piles (12 In.)	420.0	Lin. Ft.	\$80	\$33,600		
9	7027000	Pile Point Reinforcement	6.0	Each	\$125	\$750		
10	7026000	Pre-Bore for Piling	270.0	Lin. Ft.	\$150	\$40,500		
11	7032003	Class B Concrete (Substructure)	272.4	Cu. Yd.	\$850	\$231,553		
12	7034212	Slab on Steel	1088.0	Sq. Yd.	\$275	\$299,200		
13	7034620	Form Liners	604.4	Sq. Yd.	\$100	\$60,444		
14	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800		
15	7061060	Reinforcing Steel (Bridges)	64020	Lbs	\$1.40	\$89,628		
16	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	408349	Lbs	\$1.75	\$714,611		
17	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000		
18	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800		
19	7151001	Vertical Drain at End Bents	2.0	Each	\$1,000	\$2,000		
20	7162000	Laminated Neoprene Bearing Pad Assembly	12.0	Each	\$2,100	\$25,200		
21	7172001	Strip Seal Expansion Joint System	32	Lin. Ft.	\$425	\$13,600		
					Sub-Total (A) =	\$2,521,893		
				Price/Sq. Ft.	(Bridge Items) =	\$258		

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#### Alternative 2A, Option 1 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS1	<b>RUCTI</b>	DN COST	
C	SS	Client: Project: On Project Number: Description:	J9P3305: F 019-2126		Date: Bridges Rehab. Stu By: Replace on Existing	GCL
					6'-136'-102') PI. Gi	
		These Costs	do not include Pl	E, RW, Permitting	g, Inspection Costs. Un	it Prices are FY 202
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS				
1	2061000	Class I Excavation	1266	Cu. Yd.	\$50	\$63,282
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074
3	6079903	(72 In.) Pedestrian Fence (Structures)	650.0	Lin. Ft.	\$160	\$104,000
4	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	213.0	Lin. Ft.	\$1,200	\$255,600
5	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	240.0	Lin. Ft.	\$900	\$216,000
6	7011300	Video Camera Inspection	12.0	Each	\$650	\$7,800
7	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800
8	7011600	Sonic Logging Testing	12.0	Each	\$2,000	\$24,000
9	7021212	Galvanized Structural Steel Piles (12 In.)	980.0	Lin. Ft.	\$80	\$78,400
10	7027000	Pile Point Reinforcement	14.0	Each	\$125	\$1,750
11	7026000	Pre-Bore for Piling	630.0	Lin. Ft.	\$150	\$94,500
12	7032003	Class B Concrete (Substructure)	514.1	Cu. Yd.	\$850	\$437,022
13	7034212	Slab on Steel	2776.7	Sq. Yd.	\$275	\$763,583
14	7034620	Form Liners	1137.8	Sq. Yd.	\$100	\$113,778
15	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800
16	7061060	Reinforcing Steel (Bridges)	107202	Lbs	\$1.40	\$150,083
17	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	1045000	Lbs	\$1.75	\$1,828,750
18	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000
19	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800
20	7151001	Vertical Drain at End Bents	2.0	Each	\$3,500	\$7,000
21	7162000	Laminated Neoprene Bearing Pad Assembly	30.0	Each	\$2,100	\$63,000
22	7172001	Strip Seal Expansion Joint System	89	Lin. Ft.	\$425	\$37,970
					Sub-Total (A) =	\$4,706,991
				Price/Sq. Ft.	(Bridge Items) =	\$188

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 100+00 to Sta. 113+47 across Current River. Estimate does not include costs for bridges.

Figure A-1: Alternative 1A,2A, 5B North Option 1 - Temp Shoofly Bridge; Remove Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	_				
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1984	\$55	\$109,141	8" asphalt; 6" aggregate base
EROSION CONTROL					
ROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	8539	\$8	\$64,041	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	4269	\$20	\$85,388	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	3411	\$12	\$40,935	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
AVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
DTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$771,537	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$195,384.20	
FOTAL CONSTRUCTION COST				\$976,921	

	ENG	INEER'S ESTIMATE - CONCEPTU	AL CON	STRUCT	ION COST		
		Client:	MoDOT		Date:	9/16/2019	
		Project:	J9P3305:	Rte 19 Arch E	Bridges Rehab. Stu	dy	
C	SS	Project Number:			By:	GCL	
		Description:		-	emporary Bridge (2	24' Rdwy)	
		These Costs	(102.5'-136'-136'-102.5') s do not include PE, RW, Permitting, Inspection Costs. Unit Prices are FY 20				
BID FORM #	MODOT BID ITEM #		QUANTITY	UNIT	UNIT COST	COST	
BRIDGE C		DN BID ITEMS					
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$160,160	\$160,160	
2	7011107	Drilled Shafts (4 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000	
3	7011206	Rock Sockets (4 Ft. 0 In. Dia.)	160.0	Lin. Ft.	\$950	\$152,000	
4	7011300	Video Camera Inspection	8.0	Each	\$225	\$1,800	
5	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800	
6	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000	
7	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200	
8	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250	
9	7032003	Class B Concrete (Substructure)	173.3	Cu. Yd.	\$750	\$129,955	
10	7056024	NU 63 (1600), Prestressed Concrete NU-Girder	2452.0	Lin. Ft.	\$300	\$735,600	
11	7061060	Reinforcing Steel (Bridges)	17516	Lbs	\$1.20	\$21,019	
12	7121160	Steel Grid Floor (Open)	16221.1	Sq. Ft.	\$20	\$324,423	
13	7134000	Bridge Guardrail (Thrie Beam)	1232.0	Lin. Ft.	\$240	\$295,680	
14	7161003	Laminated Neoprene Bearing Pad (Tapered)	30.0	Each	\$400	\$12,000	
					Sub-Total (A) =	\$2,120,890	
				Price/Sq. Ft.	(Bridge Items) =	\$132	

### Alternative 2A, Option 2 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONST	RUCTI	ON COST					
C					J9P3305: Rte 19 Arch Bridges Rehab. Study           019-2126         By:         GCL					
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST				
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS								
1	2061000	Class I Excavation	1204	Cu. Yd.	\$50	\$60,200				
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074				
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	142.0	Lin. Ft.	\$1,200	\$170,400				
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000				
5	7011300	Video Camera Inspection	8.0	Each	\$650	\$5,200				
6	7011400	Foundation Inspection Holes	240.0	Lin. Ft.	\$130	\$31,200				
7	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000				
8	7021212	Galvanized Structural Steel Piles (12 In.)	700.0	Lin. Ft.	\$80	\$56,000				
9	7027000	Pile Point Reinforcement	10.0	Each	\$125	\$1,250				
10	7026000	Pre-Bore for Piling	450.0	Lin. Ft.	\$150	\$67,500				
11	7032003	Class B Concrete (Substructure)	350.2	Cu. Yd.	\$850	\$297,664				
12	7034212	Slab on Steel	2028.6	Sq. Yd.	\$275	\$557,877				
13	7034620	Form Liners	835.6	Sq. Yd.	\$100	\$83,556				
14	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800				
15	7061060	Reinforcing Steel (Bridges)	73353	Lbs	\$1.40	\$102,694				
16	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	816698	Lbs	\$1.75	\$1,429,222				
17	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000				
18	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800				
19	7151001	Vertical Drain at End Bents	2.0	Each	\$2,000	\$4,000				
20	7162000	Laminated Neoprene Bearing Pad Assembly	24.0	Each	\$2,100	\$50,400				
21	7172001	Strip Seal Expansion Joint System	67	Lin. Ft.	\$425	\$28,620				
					Sub-Total (A) =	\$3,519,456				
				Price/Sq. Ft.	(Bridge Items) =	\$193				

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 300+00 to Sta. 312+78 across Current River. Estimate does not include costs for bridges.

Figure A-2: Alternative 1A,2A,5B North Option 2 - Temp Shoofly Bridge Downstream of Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1801	\$55	\$99,051	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	2	\$7,000	\$14,000	
EXCAVATION - CLASS A	CY	2961	\$8	\$22,204	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	1480	\$20	\$29,605	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	7332	\$12	\$87,981	
BORROW	CY	2891	\$2	\$5,782	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$709,656	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$179,914.01	
TOTAL CONSTRUCTION COST				\$899,570	

1 of 1

	ENG	INEER'S ESTIMATE - CONCEPTU	AL CON	STRUCT	ION COST		
		Client:	MoDOT		Date:	9/16/2019	
		Project:	J9P3305:	Rte 19 Arch E	Bridges Rehab. Stu	dy	
C	SS	Project Number:			By:	GCL	
		Description:		-	emporary Bridge (2	24' Rdwy)	
		These Costs	(102.5'-136'-136'-102.5') s do not include PE, RW, Permitting, Inspection Costs. Unit Prices are FY 20				
BID FORM #	MODOT BID ITEM #		QUANTITY	UNIT	UNIT COST	COST	
BRIDGE C		DN BID ITEMS					
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$160,160	\$160,160	
2	7011107	Drilled Shafts (4 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000	
3	7011206	Rock Sockets (4 Ft. 0 In. Dia.)	160.0	Lin. Ft.	\$950	\$152,000	
4	7011300	Video Camera Inspection	8.0	Each	\$225	\$1,800	
5	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800	
6	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000	
7	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200	
8	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250	
9	7032003	Class B Concrete (Substructure)	173.3	Cu. Yd.	\$750	\$129,955	
10	7056024	NU 63 (1600), Prestressed Concrete NU-Girder	2452.0	Lin. Ft.	\$300	\$735,600	
11	7061060	Reinforcing Steel (Bridges)	17516	Lbs	\$1.20	\$21,019	
12	7121160	Steel Grid Floor (Open)	16221.1	Sq. Ft.	\$20	\$324,423	
13	7134000	Bridge Guardrail (Thrie Beam)	1232.0	Lin. Ft.	\$240	\$295,680	
14	7161003	Laminated Neoprene Bearing Pad (Tapered)	30.0	Each	\$400	\$12,000	
					Sub-Total (A) =	\$2,120,890	
				Price/Sq. Ft.	(Bridge Items) =	\$132	

### Alternative 2B – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONST	RUCTI	ON COST					
C					J9P3305: Rte 19 Arch Bridges Rehab. Study           019-2126         By:         GCL					
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST				
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS								
1	2061000	Class I Excavation	1204	Cu. Yd.	\$50	\$60,200				
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074				
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	142.0	Lin. Ft.	\$1,200	\$170,400				
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000				
5	7011300	Video Camera Inspection	8.0	Each	\$650	\$5,200				
6	7011400	Foundation Inspection Holes	240.0	Lin. Ft.	\$130	\$31,200				
7	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000				
8	7021212	Galvanized Structural Steel Piles (12 In.)	700.0	Lin. Ft.	\$80	\$56,000				
9	7027000	Pile Point Reinforcement	10.0	Each	\$125	\$1,250				
10	7026000	Pre-Bore for Piling	450.0	Lin. Ft.	\$150	\$67,500				
11	7032003	Class B Concrete (Substructure)	350.2	Cu. Yd.	\$850	\$297,664				
12	7034212	Slab on Steel	2028.6	Sq. Yd.	\$275	\$557,877				
13	7034620	Form Liners	835.6	Sq. Yd.	\$100	\$83,556				
14	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800				
15	7061060	Reinforcing Steel (Bridges)	73353	Lbs	\$1.40	\$102,694				
16	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	816698	Lbs	\$1.75	\$1,429,222				
17	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000				
18	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800				
19	7151001	Vertical Drain at End Bents	2.0	Each	\$2,000	\$4,000				
20	7162000	Laminated Neoprene Bearing Pad Assembly	24.0	Each	\$2,100	\$50,400				
21	7172001	Strip Seal Expansion Joint System	67	Lin. Ft.	\$425	\$28,620				
					Sub-Total (A) =	\$3,519,456				
				Price/Sq. Ft.	(Bridge Items) =	\$193				

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 200+00 to Sta. 212+66 across Current River. Estimate does not include costs for bridges.

Figure A-3: Alternative 1B and 2B North - New Bridge; Remove Ped Bridge; Single-lane temp shoo-fly bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	GAIT	<b>WOANTIT</b>	0111 0001	112010031	COMMENT
MOBILIZATION AND TRAFFIC CONTROL				-	
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
WORK ZONE TRAFFIC SIGNAL SYSTEM	EACH	1	\$12,000	\$12,000	alternating traffic across bridge
TEMPORARY PAVING	SY	1758	\$55	\$96,685	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	2	\$7,000	\$14,000	
EXCAVATION - CLASS A	CY	5876	\$8	\$44,072	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2938	\$20	\$58,762	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	2991	\$12	\$35,892	
BORROW	CY		\$2		
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$712,445	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$180,611.13	
TOTAL CONSTRUCTION COST				\$903,056	

1 of 1

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS	<b>FRUCTI</b>	DN COST			
		Client: Project:		Rte 19 Arch E	<b>Date:</b> Bridges Rehab. Stu	9/12/2019 dy		
OSSON Project: Project Number: Description:				/er Bridge - F	By: Replace on Existing 6'-136'-102') PI. Gi	GCL Alignment		
				ts do not include PE, RW, Permitting, Inspection Costs. Unit Prices are FY QUANTITY UNIT UNIT COST				
#	ITEM #				COST			
BRIDGE CO	ONSTRUCTIO	ON BID ITEMS	I	L				
1	2061000	Class I Excavation	1128	Cu. Yd.	\$50	\$56,408		
2	6079903	(72 In.) Pedestrian Fence (Structures)	1300.0	Lin. Ft.	\$160	\$208,000		
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	142.0	Lin. Ft.	\$1,200	\$170,400		
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000		
5	7011300	Video Camera Inspection	8.0	Each	\$650	\$5,200		
6	7011400	Foundation Inspection Holes	240.0	Lin. Ft.	\$130	\$31,200		
7	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000		
8	7021212	Galvanized Structural Steel Piles (12 In.)	420.0	Lin. Ft.	\$80	\$33,600		
9	7027000	Pile Point Reinforcement	6.0	Each	\$125	\$750		
10	7026000	Pre-Bore for Piling	270.0	Lin. Ft.	\$150	\$40,500		
11	7032003	Class B Concrete (Substructure)	272.4	Cu. Yd.	\$850	\$231,553		
12	7034212	Slab on Steel	1088.0	Sq. Yd.	\$275	\$299,200		
13	7034620	Form Liners	604.4	Sq. Yd.	\$100	\$60,444		
14	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800		
15	7061060	Reinforcing Steel (Bridges)	64020	Lbs	\$1.40	\$89,628		
16	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	408349	Lbs	\$1.75	\$714,611		
17	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000		
18	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800		
19	7151001	Vertical Drain at End Bents	2.0	Each	\$1,000	\$2,000		
20	7162000	Laminated Neoprene Bearing Pad Assembly	12.0	Each	\$2,100	\$25,200		
21	7172001	Strip Seal Expansion Joint System	32	Lin. Ft.	\$425	\$13,600		
					Sub-Total (A) =	\$2,521,893		
				Price/Sq. Ft.	(Bridge Items) =	\$258		

## Alternative 3, Option 1 – Cost Estimate

	Project:	MoDOT Rte. 19	Oconcepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Repla	acement	Checked:	DGB	Date:	10/2/2019
FJK	Task:	Concept Cost	Estimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (No	phasing)						
Bridge Length =	612	Ft.			Skew =	0	degrees
New Bridge Width =	40.83	Ft.		New Arc	h Width =	35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Are	a (DGN) =	1060	ft²
Pier 2 Width =	40.5	ft.		New Side V	Vall Thk =	12	in.
Pier 2 Length =	13	ft.	Arc	h End Area (13	0' Span) =	290	ft²
Pier 3&4 Width =	43.5	ft.		Pie	r 2 Area =	165	ft²
Pier 3&4 Length =	14	ft.		Pier 3 8	& 4 Area =	300	ft²
Pier 5 Width =	43.5	ft.		Pie	r 5 Area =	450	ft²
Pier 5 Length =	20	ft.		# Girders (End	d Spans) =	5	
End Span Lengths (NU53) =	102	ft.		Wing	g Length =	15	ft.
ltem	Quantity			Unit Cost		Estimated Co	set
Arch Backfill	quantity						/31
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
( 00.10)	5650	Filled Arch - Ass	ume 33' wi		all area (m		AD)
Class 1 Excavation		incurrent inco			in area (m		
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
(200 10.00)		Excav. Depth =	5	ft.		<i><b><i>q</i>120</b>,<b>500</b></i>	
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
		Excav. Depth =	27	ft.			
Cofferdams		Executi Deptil -	27	10.			
(206-60.02)	1	Lump Sum Assume \$250,00	00 each	\$1,000,000		\$1,000,000	)
Ornamental Pedestrian Fence		. ,					
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		, ,	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
Dynamic Pile Testing		,					
(702-50.01)	2	Ea.		\$2,500		\$5,000	
()				+_/		+-/	
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side wal	ls, 6'x12" p	ilasters and su	pport brac	ckets w/ foun	dations
		Include new floo	orbeam bra	ices (10 per spa	ın - 15"x2	7"x33')	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	)
		Use end areas fi	rom DGN fi	le and multiply	by 35' wi	de arch	
Slab on Filled Arch							
(703-42.14)	1860	Sq. Yd.		\$200		\$372 <i>,</i> 000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	
Slab on Concrete NU-Girder							
(703-42.15)	930	Sq. Yd.		\$315		\$292,950	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Form Liners						
703-46.20)	400	Sq. Yd.	\$100		\$40,000	
		Back of Barrierss and new I	Pilasters at pie	rs (approx	x. 5' wide x 25'	tall)
IU 53, Prestressed Concrete NU-Girder	1010		40.40		40.40 A00	
705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
706-10.60)	489,300	Lb.	\$1.40		\$685,020	
		Assume 130# per CY of con	crete for Subst	tr. 150# fo	or the Arch con	crete
teel Intermediate Diaphragm (NU Girder)		_	4		4	
712-33.01)	16	Ea.	\$1,000		\$16,000	
lab Drain		Two in each end span per b	bay			
712-36.10)	84	Ea.	\$500		\$42,000	
,		Assume new VC on bridge		je. Spa. @	) 15' across brid	dge
rainage System on Structure						
712-99.01)	1	Lump Sum	\$80,000		\$80,000	
/lisc. Bridge Rail						
712-99.03)	1290	LF.	\$110		\$141,900	
/ertical Drain at End Bent						
715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway w	vidth + 2 wings	i		
aminated Neoprene Bearing (Tapered)		_	4		4	
716-10.03)	10	Ea.	\$375		\$3,750	
aminated Neoprene Bearing Assembly						
716-20.00)	10	Ea.	\$2,000		\$20,000	
trip Seal Expansion Joint System						
717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	<b>έ</b> 7 Ο	27,200 L	Jnit Cost =	¢217	7 / Sq. Ft.	
iotal New Bridge Cost -	9,75	27,200	Jint Cost –	321/	י אין אין אין אין אין אין אין אין אין אי	

Not including approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1627+50 to Sta. 1647+18 across Current River. Estimate does not include costs for bridges.

Figure A-4: Alternatives 3 and 4 North Option 1 - New Bridge on Offset alignment; Remove Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	ONT	QUANTIT		IT EM COOT	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	8613	\$8	\$64,597	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	4306	\$20	\$86,130	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9725	\$12	\$116,695	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4564	\$55	\$251,003	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$25,000	\$25,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$1,065,425	
CONSTRUCTION SURVEYING	LS		1%	\$10,654	
CONTINGENCIES	LS		25%	\$269,020	
TOTAL CONSTRUCTION COST				\$1,345,099	

# Alternative 3, Option 2 – Cost Estimate

	Project:	MoDOT Rte. 19	Oconcepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Repla	acement	Checked:	DGB	Date:	10/2/2019
E J K	Task:	Concept Cost	Estimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (No	phasing)						
Bridge Length =	612	Ft.			Skew =	0	degrees
New Bridge Width =	40.83	Ft.		New Arc	h Width =	35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Are	a (DGN) =	1060	ft²
Pier 2 Width =	40.5	ft.		New Side V	Vall Thk =	12	in.
Pier 2 Length =	13	ft.	Arc	h End Area (13	0' Span) =	290	ft²
Pier 3&4 Width =	43.5	ft.		Pie	r 2 Area =	165	ft²
Pier 3&4 Length =	14	ft.		Pier 3 8	& 4 Area =	300	ft²
Pier 5 Width =	43.5	ft.		Pie	r 5 Area =	450	ft²
Pier 5 Length =	20	ft.		# Girders (End	d Spans) =	5	
End Span Lengths (NU53) =	102	ft.		Wing	g Length =	15	ft.
ltem	Quantity			Unit Cost		Estimated Co	set
Arch Backfill	quantity						/31
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
( 00.10)	5650	Filled Arch - Ass	ume 33' wi		all area (m		AD)
Class 1 Excavation		incurrent inco			in area (m		
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
(200 10.00)		Excav. Depth =	5	ft.		<i><b><i>q</i>120</b>,<b>500</b></i>	
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
		Excav. Depth =	27	ft.			
Cofferdams		Excut. Depth -	27	10.			
(206-60.02)	1	Lump Sum Assume \$250,00	00 each	\$1,000,000		\$1,000,000	)
Ornamental Pedestrian Fence		. ,					
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		, ,	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
Dynamic Pile Testing		,					
(702-50.01)	2	Ea.		\$2,500		\$5,000	
()				+_/		+-/	
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side wal	ls, 6'x12" p	ilasters and su	pport brac	ckets w/ foun	dations
		Include new floo	orbeam bra	ices (10 per spa	ın - 15"x2	7"x33')	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	)
		Use end areas fi	rom DGN fi	le and multiply	by 35' wi	de arch	
Slab on Filled Arch							
(703-42.14)	1860	Sq. Yd.		\$200		\$372 <i>,</i> 000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	
Slab on Concrete NU-Girder							
(703-42.15)	930	Sq. Yd.		\$315		\$292,950	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Form Liners						
703-46.20)	400	Sq. Yd.	\$100		\$40,000	
		Back of Barrierss and new I	Pilasters at pie	rs (approx	x. 5' wide x 25'	tall)
IU 53, Prestressed Concrete NU-Girder	1010		40.40		40.40.400	
705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
706-10.60)	489,300	Lb.	\$1.40		\$685,020	
		Assume 130# per CY of con	crete for Subst	r. 150# fo	or the Arch con	crete
teel Intermediate Diaphragm (NU Girder)		_	4		4	
712-33.01)	16	Ea.	\$1,000		\$16,000	
lab Drain		Two in each end span per b	bay			
712-36.10)	84	Ea.	\$500		\$42,000	
,		Assume new VC on bridge		je. Spa. @	) 15' across brid	dge
rainage System on Structure						
712-99.01)	1	Lump Sum	\$80,000		\$80,000	
/lisc. Bridge Rail						
712-99.03)	1290	LF.	\$110		\$141,900	
/ertical Drain at End Bent						
715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway w	vidth + 2 wings	i		
aminated Neoprene Bearing (Tapered)		_	4		4	
716-10.03)	10	Ea.	\$375		\$3,750	
aminated Neoprene Bearing Assembly						
716-20.00)	10	Ea.	\$2,000		\$20,000	
trip Seal Expansion Joint System						
717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	<b>έ</b> 7 Ο	27,200 L	Jnit Cost =	¢217	7 / Sq. Ft.	
iotal New Bridge Cost -	9,75	27,200	Jint Cost –	321/	י אין אין אין אין אין אין אין אין אין אי	

Not including approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1627+50 to Sta. 1647+32 across Current River. Estimate does not include costs for bridges.

Figure A- 5: Alternatives 3 and 4 North Option 2 - New Bridge on Offset alignment; Ped Bridge Remains

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	U.I.I.	QUANTI			COMMENT
MOBILIZATION AND TRAFFIC CONTROL			•		
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	19136	\$8	\$143,523	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	9568	\$20	\$191,364	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	12950	\$12	\$155,397	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4631	\$55	\$254,730	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$25,000	\$25,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$1,292,015	
CONSTRUCTION SURVEYING	LS		1%	\$12,920	
CONTINGENCIES	LS		25%	\$326,234	
TOTAL CONSTRUCTION COST				\$1,631,169	

## Alternative 4, Option 1 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS1	<b>RUCTI</b>	DN COST	
C	SS	Client: Project: On Project Number: Description:	J9P3305: F 019-2126		Date: Bridges Rehab. Stu By: Replace on Existing	GCL
					6'-136'-102') PI. Gi	
		These Costs	do not include Pl	E, RW, Permitting	g, Inspection Costs. Un	it Prices are FY 202
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS				
1	2061000	Class I Excavation	1266	Cu. Yd.	\$50	\$63,282
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074
3	6079903	(72 In.) Pedestrian Fence (Structures)	650.0	Lin. Ft.	\$160	\$104,000
4	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	213.0	Lin. Ft.	\$1,200	\$255,600
5	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	240.0	Lin. Ft.	\$900	\$216,000
6	7011300	Video Camera Inspection	12.0	Each	\$650	\$7,800
7	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800
8	7011600	Sonic Logging Testing	12.0	Each	\$2,000	\$24,000
9	7021212	Galvanized Structural Steel Piles (12 In.)	980.0	Lin. Ft.	\$80	\$78,400
10	7027000	Pile Point Reinforcement	14.0	Each	\$125	\$1,750
11	7026000	Pre-Bore for Piling	630.0	Lin. Ft.	\$150	\$94,500
12	7032003	Class B Concrete (Substructure)	514.1	Cu. Yd.	\$850	\$437,022
13	7034212	Slab on Steel	2776.7	Sq. Yd.	\$275	\$763,583
14	7034620	Form Liners	1137.8	Sq. Yd.	\$100	\$113,778
15	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800
16	7061060	Reinforcing Steel (Bridges)	107202	Lbs	\$1.40	\$150,083
17	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	1045000	Lbs	\$1.75	\$1,828,750
18	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000
19	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800
20	7151001	Vertical Drain at End Bents	2.0	Each	\$3,500	\$7,000
21	7162000	Laminated Neoprene Bearing Pad Assembly	30.0	Each	\$2,100	\$63,000
22	7172001	Strip Seal Expansion Joint System	89	Lin. Ft.	\$425	\$37,970
					Sub-Total (A) =	\$4,706,991
				Price/Sq. Ft.	(Bridge Items) =	\$188

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1627+50 to Sta. 1647+18 across Current River. Estimate does not include costs for bridges.

Figure A-4: Alternatives 3 and 4 North Option 1 - New Bridge on Offset alignment; Remove Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	ONT	QUANTIT		IT EM COOT	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	8613	\$8	\$64,597	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	4306	\$20	\$86,130	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9725	\$12	\$116,695	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4564	\$55	\$251,003	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$25,000	\$25,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$1,065,425	
CONSTRUCTION SURVEYING	LS		1%	\$10,654	
CONTINGENCIES	LS		25%	\$269,020	
TOTAL CONSTRUCTION COST				\$1,345,099	

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# Alternative 4, Option 2 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS1	<b>RUCTI</b>	DN COST	
C	SS	Client: Project: On Project Number: Description:	J9P3305: F 019-2126		Date: Bridges Rehab. Stu By: Replace on Existing	GCL
					6'-136'-102') PI. Gi	
		These Costs	do not include Pl	E, RW, Permitting	g, Inspection Costs. Un	it Prices are FY 202
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS				
1	2061000	Class I Excavation	1266	Cu. Yd.	\$50	\$63,282
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074
3	6079903	(72 In.) Pedestrian Fence (Structures)	650.0	Lin. Ft.	\$160	\$104,000
4	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	213.0	Lin. Ft.	\$1,200	\$255,600
5	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	240.0	Lin. Ft.	\$900	\$216,000
6	7011300	Video Camera Inspection	12.0	Each	\$650	\$7,800
7	7011400	Foundation Inspection Holes	360.0	Lin. Ft.	\$130	\$46,800
8	7011600	Sonic Logging Testing	12.0	Each	\$2,000	\$24,000
9	7021212	Galvanized Structural Steel Piles (12 In.)	980.0	Lin. Ft.	\$80	\$78,400
10	7027000	Pile Point Reinforcement	14.0	Each	\$125	\$1,750
11	7026000	Pre-Bore for Piling	630.0	Lin. Ft.	\$150	\$94,500
12	7032003	Class B Concrete (Substructure)	514.1	Cu. Yd.	\$850	\$437,022
13	7034212	Slab on Steel	2776.7	Sq. Yd.	\$275	\$763,583
14	7034620	Form Liners	1137.8	Sq. Yd.	\$100	\$113,778
15	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800
16	7061060	Reinforcing Steel (Bridges)	107202	Lbs	\$1.40	\$150,083
17	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	1045000	Lbs	\$1.75	\$1,828,750
18	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000
19	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800
20	7151001	Vertical Drain at End Bents	2.0	Each	\$3,500	\$7,000
21	7162000	Laminated Neoprene Bearing Pad Assembly	30.0	Each	\$2,100	\$63,000
22	7172001	Strip Seal Expansion Joint System	89	Lin. Ft.	\$425	\$37,970
					Sub-Total (A) =	\$4,706,991
				Price/Sq. Ft.	(Bridge Items) =	\$188

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1627+50 to Sta. 1647+32 across Current River. Estimate does not include costs for bridges.

Figure A- 5: Alternatives 3 and 4 North Option 2 - New Bridge on Offset alignment; Ped Bridge Remains

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	U.I.I.	QUANTI			COMMENT
MOBILIZATION AND TRAFFIC CONTROL			•		
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	19136	\$8	\$143,523	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	9568	\$20	\$191,364	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	12950	\$12	\$155,397	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4631	\$55	\$254,730	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$25,000	\$25,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$1,292,015	
CONSTRUCTION SURVEYING	LS		1%	\$12,920	
CONTINGENCIES	LS		25%	\$326,234	
TOTAL CONSTRUCTION COST				\$1,631,169	

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### Alternative 5A – Cost Estimate

	Project:	MoDOT Rte. 1	9 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 F	Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost	Estimate	Page:	1	of:	ESTIMATE
	Job #:			No:			
G0804 Rehab - Filled Arch Option (Phased/No	on-phased C	Construction)					
- · · ·	-						
Bridge Length =	602	Ft.	Skew =	0	deg		
Exist. Bridge Width =	21.67	Ft.	21.67	Ft. along skew			
New Bridge Width =	40.83	Ft.					
Cantilever Width =	4.583	Ft.		Existing Arc			Ft.
Widening =	19.16	Ft.		New Arcl			Ft.
Average Abutment Length =	23.5	ft.		rch Ring Arc Leng			Ft
Abut. Footing Width =	3.5	ft.		ch Ring Arc Lengt			Ft
Pier 2 Width =	20.5	ft.		30' Side Wall Are			ft²
Pier 2 Length =	13	ft.	(	60' Side Wall Are			ft²
Pier 3&4 Width =	23.5	ft.		New Side V			in.
Pier 3&4 Length =	14	ft.		Ring End Area (6			ft²
Pier 5 Width =	23.5	ft.	Arch R	ing End Area (13			ft²
Pier 5 Length =	20	ft.			r 2 Area =		ft²
					4 Area =		ft²
					r 5 Area =		ft²
Item	Quantity			Unit Cost		Estimated Co	ost
Arch Backfill				405			
(202-60.40)	3830	Cu. Yd.	101	\$25		\$95,750	
		Filled Arch - As	sume 10' wi	ide fill added eac	h side x A	vg. Side Wall	Height
Class 1 Excavation				4			
(206-10.00)	1800	Cu. Yd.		\$50		\$90,000	
		Excav. Depth =	15	ft.			
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
o (( )	Pier 5	Excav. Depth =	27	ft.			
Cofferdams				<b>44 000 000</b>		<u>.</u>	
(206-60.02)	1	Lump Sum		\$1,000,000 		\$1,000,000	
Demovel of Evisting Buidge Deeles, New Com	-	Include all pier.	s in same po	iy item			
Removal of Existing Bridge Decks - Non. Com	-	C ~ . [t		ć0.00		¢ 40 CC 1	
(216-25.00)	5,518	Sq. Ft.		\$9.00		\$49,661	
Deutic Develop Frida Ded		Remove slab co	antilevers bo	oth sides			
Partial Removal of Exist. Bridge Deck	40.0	C Vd		¢1.000		¢ 40,000	
(216-99.01)	49.0	Cu. Yd.		\$1,000		\$49,000	
			-	oport brackets. So	-		е.
Ownemental Dadastrian Former		Also remove pl	iusters at pi	ers (assume aver	uge 20° to	ин. 6" х 12")	
Ornamental Pedestrian Fence	602			¢4.60		¢06.000	
(607-99.03)	602	LF.		\$160		\$96,320	
Class B Concrete (Substanting)							
Class B Concrete (Substructure)	1 5 4 0	C Vd		¢000		¢4.250.000	
(703-20.03)	1,510	Cu. Yd.		\$900	farradartia	\$1,359,000	
				port brackets w/			total
				vers (7" thick). Ad			
				-3*10)) = 76. Pier		-	DGN
Class B 2 Conserves (Auch)		Add new 6' wid	ie x 12" thic	k x 20' (average)	nign pila:	sters at piers.	
Class B-2 Concrete (Arch)	050			¢3,000		ć1 700 000	
(703-20.03)	850	Cu. Yd.	from DCN C	\$2,000		\$1,700,000	1
		use ena areas	rrom DGN fi	ile and multiply b	y 15' WId	ening	
Slab on Filled Arch	2740			6200		ĆE 40.000	
(703-42.14)	2740	Sq. Yd.		\$200		\$548,000	
Poweiow Curk							
Barrier Curb	4040			¢05		6444.050	
(703-42.15)	1210	LF.		\$95		\$114,950	

	Project:	MoDOT Rte. 19 Concept	G Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Form Liners						
(703-46.20)	380	Sq. Yd.	\$100	. ,	\$38,000	
Substructure Repair (Formed)		Back of Barrier Curbs and	new Pilasters at	piers (apj	orox. 5' wide x	25' tall)
(704-01.01)	940	Sq. Ft.	\$135		\$126,900	
()	5.0	Assume 5% of arch surfac for side walls and tie bear	e area needs rep	air. Assur		2
Embedded Galvanic Anodes		,				
(704-99.01)	2000	Ea.	\$100		\$200,000	
Reinforcing Steel (Bridges)						
(706-10.60)	331,350	Lb.	\$1.40		\$463,890	
		Assume 135# per CY of co	ncrete for Substr	. 150# foi	r the Arch conc	rete
Slab Drain						
(712-36.10)	90	Ea.	\$500		\$45,000	
Drainage System on Structure						
(712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail						
(712-99.03)	1210	LF.	\$110		\$133,100	
Strip Seal						
(717-20.02)	90	LF.	\$100		\$9,000	
Total Bridge Cost =	\$6,1	.98,600	Unit Cost =	\$252	2 / Sq. Ft.	1
		-	* - wi	ithout pl	hasing	•
Phasing Premium =	ć1 0	220 720				
ritasilig rienilum =	<b>,</b> τζ	<b>39,720</b> Assume 20	6			
Total Bridge Cost =	\$7 <i>/</i>	38,320	Unit Cost =	\$303	3 / Sq. Ft.	1
	۳, ۲۷			with pha	-	J

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. No construction of shoofly or offset alignment. Estimate does not include costs for bridges.

Figure A-1: Alternative 5A North - Phased Traffic Control

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	UNIT	QUANTIT		ITEM COOT	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$100,000	\$100,000	assumes flagging, temp barrier, signs, etc
WORK ZONE TRAFFIC SIGNAL SYSTEM	EACH	1	\$12,000	\$12,000	alternating traffic across bridge
EROSION CONTROL					
EROSION CONTROL	LS		\$20,000		
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
ASPHALT PAVEMENT SAW CUTTING	FOOT		\$1		
CLEARING AND GRUBBING	ACRE		\$7,000		
EXCAVATION - CLASS A	CY		\$8		
EXCAVATION - CLASS C	CY		\$20		
EMBANKMENT IN PLACE	CY		\$12		
DRAINAGE AND SEWERS					
DRAINAGE	LS		\$20,000		
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS		\$250,000		
TEMPORARY SHORING	LS		\$50,000		
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS		\$15,000		
BID ITEMS SUBTOTAL				\$173,033	
CONSTRUCTION SURVEYING	LS			\$5,000.00	
CONTINGENCIES	LS		25%	\$44,508.17	
TOTAL CONSTRUCTION COST				\$222,541	

# Alternative 5B, Option 1 – Cost Estimate

	Project:	MoDOT Rte. 1	9 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 F	Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost	Estimate	Page:	1	of:	ESTIMATE
	Job #:			No:			
G0804 Rehab - Filled Arch Option (Phased/No	on-phased C	Construction)					
- · · ·	-						
Bridge Length =	602	Ft.	Skew =	0	deg		
Exist. Bridge Width =	21.67	Ft.	21.67	Ft. along skew			
New Bridge Width =	40.83	Ft.					
Cantilever Width =	4.583	Ft.		Existing Arc			Ft.
Widening =	19.16	Ft.		New Arcl			Ft.
Average Abutment Length =	23.5	ft.		rch Ring Arc Leng			Ft
Abut. Footing Width =	3.5	ft.		ch Ring Arc Lengt			Ft
Pier 2 Width =	20.5	ft.		30' Side Wall Are			ft²
Pier 2 Length =	13	ft.	(	60' Side Wall Are			ft²
Pier 3&4 Width =	23.5	ft.		New Side V			in.
Pier 3&4 Length =	14	ft.		Ring End Area (6			ft²
Pier 5 Width =	23.5	ft.	Arch R	ing End Area (13			ft²
Pier 5 Length =	20	ft.			r 2 Area =		ft²
					4 Area =		ft²
					r 5 Area =		ft²
Item	Quantity			Unit Cost		Estimated Co	ost
Arch Backfill				405			
(202-60.40)	3830	Cu. Yd.	101	\$25		\$95,750	
		Filled Arch - As	sume 10' wi	ide fill added eac	h side x A	vg. Side Wall	Height
Class 1 Excavation				4			
(206-10.00)	1800	Cu. Yd.		\$50		\$90,000	
		Excav. Depth =	15	ft.			
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
o (( )	Pier 5	Excav. Depth =	27	ft.			
Cofferdams				<b>44 000 000</b>		<u>.</u>	
(206-60.02)	1	Lump Sum		\$1,000,000 		\$1,000,000	
Demovel of Evisting Buidge Deeles, New Com	-	Include all pier.	s in same po	iy item			
Removal of Existing Bridge Decks - Non. Com	-	C ~ . [t		ć0.00		¢ 40 CC 1	
(216-25.00)	5,518	Sq. Ft.		\$9.00		\$49,661	
Deutic Develop Frida Ded		Remove slab co	antilevers bo	oth sides			
Partial Removal of Exist. Bridge Deck	40.0	C Vd		¢1.000		¢ 40,000	
(216-99.01)	49.0	Cu. Yd.		\$1,000		\$49,000	
			-	oport brackets. So	-		е.
Ownemental Dadastrian Former		Also remove pl	iusters at pi	ers (assume aver	uge 20° to	ин. 6" х 12")	
Ornamental Pedestrian Fence	602			¢4.60		¢06.000	
(607-99.03)	602	LF.		\$160		\$96,320	
Class B Concrete (Substanting)							
Class B Concrete (Substructure)	1 5 4 0	C Vd		¢000		¢4.250.000	
(703-20.03)	1,510	Cu. Yd.		\$900	farradartia	\$1,359,000	
				port brackets w/			total
				vers (7" thick). Ad			
				-3*10)) = 76. Pier		-	DGN
Class B 2 Conserves (Auch)		Add new 6' wid	ie x 12" thic	k x 20' (average)	nign pila:	sters at piers.	
Class B-2 Concrete (Arch)	050			¢3,000		ć1 700 000	
(703-20.03)	850	Cu. Yd.	from DCN C	\$2,000		\$1,700,000	1
		use ena areas	rrom DGN fi	ile and multiply b	y 15' WId	ening	
Slab on Filled Arch	2740			6200		ĆE 40.000	
(703-42.14)	2740	Sq. Yd.		\$200		\$548,000	
Poweiow Curk							
Barrier Curb	4040			¢05		6444.050	
(703-42.15)	1210	LF.		\$95		\$114,950	

	Project:	MoDOT Rte. 19 Concept	G Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Form Liners						
(703-46.20)	380	Sq. Yd.	\$100	. ,	\$38,000	
Substructure Repair (Formed)		Back of Barrier Curbs and	new Pilasters at	piers (apj	orox. 5' wide x	25' tall)
(704-01.01)	940	Sq. Ft.	\$135		\$126,900	
()	5.0	Assume 5% of arch surfac for side walls and tie bear	e area needs rep	air. Assur		2
Embedded Galvanic Anodes		,				
(704-99.01)	2000	Ea.	\$100		\$200,000	
Reinforcing Steel (Bridges)						
(706-10.60)	331,350	Lb.	\$1.40		\$463,890	
		Assume 135# per CY of co	ncrete for Substr	. 150# foi	r the Arch conc	rete
Slab Drain						
(712-36.10)	90	Ea.	\$500		\$45,000	
Drainage System on Structure						
(712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail						
(712-99.03)	1210	LF.	\$110		\$133,100	
Strip Seal						
(717-20.02)	90	LF.	\$100		\$9,000	
Total Bridge Cost =	\$6,1	.98,600	Unit Cost =	\$252	2 / Sq. Ft.	1
		-	* - wi	ithout pl	hasing	•
Phasing Premium =	ć1 0	220 720				
ritasilig rienilum =	<b>,</b> τζ	<b>39,720</b> Assume 20	6			
Total Bridge Cost =	\$7 <i>/</i>	38,320	Unit Cost =	\$303	3 / Sq. Ft.	1
	۳, ۲۷			with pha	-	J

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 100+00 to Sta. 113+47 across Current River. Estimate does not include costs for bridges.

Figure A-1: Alternative 1A,2A, 5B North Option 1 - Temp Shoofly Bridge; Remove Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
	_				
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1984	\$55	\$109,141	8" asphalt; 6" aggregate base
EROSION CONTROL					
ROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	8539	\$8	\$64,041	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	4269	\$20	\$85,388	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	3411	\$12	\$40,935	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
AVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
DTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$771,537	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$195,384.20	
FOTAL CONSTRUCTION COST				\$976,921	

# Alternative 5B, Option 2 – Cost Estimate

	Project:	MoDOT Rte. 1	9 Concepts	Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 F	Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost	Estimate	Page:	1	of:	ESTIMATE
	Job #:			No:			
G0804 Rehab - Filled Arch Option (Phased/No	on-phased C	Construction)					
- · · ·	-						
Bridge Length =	602	Ft.	Skew =	0	deg		
Exist. Bridge Width =	21.67	Ft.	21.67	Ft. along skew			
New Bridge Width =	40.83	Ft.					
Cantilever Width =	4.583	Ft.		Existing Arc			Ft.
Widening =	19.16	Ft.		New Arcl			Ft.
Average Abutment Length =	23.5	ft.		rch Ring Arc Leng			Ft
Abut. Footing Width =	3.5	ft.		ch Ring Arc Lengt			Ft
Pier 2 Width =	20.5	ft.		30' Side Wall Are			ft²
Pier 2 Length =	13	ft.	(	60' Side Wall Are			ft²
Pier 3&4 Width =	23.5	ft.		New Side V			in.
Pier 3&4 Length =	14	ft.		Ring End Area (6			ft²
Pier 5 Width =	23.5	ft.	Arch R	ing End Area (13			ft²
Pier 5 Length =	20	ft.			r 2 Area =		ft²
					4 Area =		ft²
					r 5 Area =		ft²
Item	Quantity			Unit Cost		Estimated Co	ost
Arch Backfill				405			
(202-60.40)	3830	Cu. Yd.	101	\$25		\$95,750	
		Filled Arch - As	sume 10' wi	ide fill added eac	h side x A	vg. Side Wall	Height
Class 1 Excavation				4			
(206-10.00)	1800	Cu. Yd.		\$50		\$90,000	
		Excav. Depth =	15	ft.			
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
o (( )	Pier 5	Excav. Depth =	27	ft.			
Cofferdams				<b>44 000 000</b>		<u>.</u>	
(206-60.02)	1	Lump Sum		\$1,000,000 		\$1,000,000	
Demovel of Evisting Buidge Deeles, New Com	-	Include all pier.	s in same po	iy item			
Removal of Existing Bridge Decks - Non. Com	-	C ~ . [t		ć0.00		¢ 40 CC 1	
(216-25.00)	5,518	Sq. Ft.		\$9.00		\$49,661	
Deutic Develop Frida Ded		Remove slab co	antilevers bo	oth sides			
Partial Removal of Exist. Bridge Deck	40.0	C Vd		¢1.000		¢ 40,000	
(216-99.01)	49.0	Cu. Yd.		\$1,000	4.611	\$49,000	
			-	oport brackets. So	-		е.
Ownemental Redestries For-		Also remove pl	iusters at pi	ers (assume aver	uge 20° to	ин. 6° х 12″)	
Ornamental Pedestrian Fence	602			¢4.60		¢06.000	
(607-99.03)	602	LF.		\$160		\$96,320	
Class B Concrete (Substanting)							
Class B Concrete (Substructure)	1 5 4 0	C Vd		¢000		¢4.250.000	
(703-20.03)	1,510	Cu. Yd.		\$900	farradartia	\$1,359,000	
				port brackets w/			total
				vers (7" thick). Ad			
				-3*10)) = 76. Pier		-	DGN
Class B 2 Conserves (Auch)		Add new 6' wid	ie x 12" thic	k x 20' (average)	nign pila:	sters at piers.	
Class B-2 Concrete (Arch)	050			¢3,000		ć1 700 000	
(703-20.03)	850	Cu. Yd.	from DCN C	\$2,000		\$1,700,000	1
		use ena areas	rrom DGN fi	ile and multiply b	y 15' WId	ening	
Slab on Filled Arch	2740			6200		ĆE 40.000	
(703-42.14)	2740	Sq. Yd.		\$200		\$548,000	
Poweiow Curk							
Barrier Curb	4040			¢05		6444.050	
(703-42.15)	1210	LF.		\$95		\$114,950	

	Project:	MoDOT Rte. 19 Concept	G Computed:	JDM	Date:	9/18/2019
FJS	Subject:	G0804 Rehab	Checked:	DGB	Date:	10/2/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Form Liners						
(703-46.20)	380	Sq. Yd.	\$100	. ,	\$38,000	
Substructure Repair (Formed)		Back of Barrier Curbs and	new Pilasters at	piers (apj	orox. 5' wide x	25' tall)
(704-01.01)	940	Sq. Ft.	\$135		\$126,900	
()	5.0	Assume 5% of arch surfac for side walls and tie bear	e area needs rep	air. Assur		2
Embedded Galvanic Anodes		,				
(704-99.01)	2000	Ea.	\$100		\$200,000	
Reinforcing Steel (Bridges)						
(706-10.60)	331,350	Lb.	\$1.40		\$463,890	
		Assume 135# per CY of co	ncrete for Substr	. 150# foi	r the Arch conc	rete
Slab Drain						
(712-36.10)	90	Ea.	\$500		\$45,000	
Drainage System on Structure						
(712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail						
(712-99.03)	1210	LF.	\$110		\$133,100	
Strip Seal						
(717-20.02)	90	LF.	\$100		\$9,000	
Total Bridge Cost =	\$6,1	.98,600	Unit Cost =	\$252	2 / Sq. Ft.	1
		-	* - wi	ithout pl	hasing	•
Phasing Premium =	ć1 0	20 720				
ritasilig rienilum =	<b>,</b> τζ	<b>39,720</b> Assume 20	6			
Total Bridge Cost =	\$7 <i>/</i>	38,320	Unit Cost =	\$303	3 / Sq. Ft.	1
	۳, ۲۷			with pha	-	J

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 300+00 to Sta. 312+78 across Current River. Estimate does not include costs for bridges.

Figure A-2: Alternative 1A,2A,5B North Option 2 - Temp Shoofly Bridge Downstream of Ped Bridge

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	1801	\$55	\$99,051	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$20,000	\$20,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	2	\$7,000	\$14,000	
EXCAVATION - CLASS A	CY	2961	\$8	\$22,204	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	1480	\$20	\$29,605	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	7332	\$12	\$87,981	
BORROW	CY	2891	\$2	\$5,782	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
TEMPORARY SHORING	LS	1	\$50,000	\$50,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	146	\$55	\$8,033	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$709,656	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$179,914.01	
TOTAL CONSTRUCTION COST				\$899,570	

1 of 1

### Alternative 6 – Cost Estimate

	Project:	MoDOT Rte. 19 C	oncepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Replace	ement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Es	stimate	Page:		of:	ESTIMATE
	Job #:			No:			
G0804 Replacement - Filled Arch Option (Pha	sed Construe	ction)					
Bridge Length =	612	Ft.			Skew =		degrees
New Bridge Width =	40.83	Ft.		New Arch		35	Ft.
Cantilever Width =	4.583	Ft.		Side Wall Area		1060	ft²
Pier 2 Width =	40.5	ft.	•	New Side W			in.
Pier 2 Length =	13	ft.	Arc	h End Area (130		290	ft <sup>2</sup>
Pier 3&4 Width =	43.5	ft.			2 Area =		ft² ft²
Pier 3&4 Length = Pier 5 Width =	14 42 E	ft. ft.			4 Area = 5 Area =		ft²
Pier 5 Width = Pier 5 Length =	43.5 20	ft.		Pier	5 Area =	450	it.
End Span Lengths (NU53) =	102	ft.		# Girders (End	Snans) -	5	
Wing Length =	102	ft.		# Glidels (Liid	spans) –	J	
	15	11.					
ltem	Quantity			Unit Cost		Estimated Co	ost
Arch Backfill							
(202-60.40)	3890	Cu. Yd.		\$25		\$97,250	
		Filled Arch - Assum	e 33' wi	de fill x side wal	ll area (m	easured in CA	AD)
Class 1 Excavation							
(206-10.00)	2530	Cu. Yd.		\$50		\$126,500	
		Excav. Depth =	5	ft.			
		Excav. Depth =	12	ft.			
		Excav. Depth =	17	ft.			
	Pier 5	Excav. Depth =	27	ft.			
Cofferdams							
(206-60.02)	1	Lump Sum		\$1,000,000		\$1,000,000	)
		Assume \$250,000 e	each				
Ornamental Pedestrian Fence	64.2			¢4.50		607 000	
(607-99.03)	612	LF.		\$160		\$97,920	
Galvanized Structural Steel Pile (12")							
(702-12.12)	324	LF.		\$75		\$24,300	
		Length (EB 1) =	24	ft		φ <u>2</u> 1,500	
		Length (EB 6) =	30	ft			
		iles/End Bent =	6				
		,					
Pile Point Reinforcement							
(702-70.00)	12	Ea.		\$125		\$1,500	
Class B Concrete (Substructure)							
(703-20.03)	2,460	Cu. Yd.		\$900		\$2,214,000	
		Include side walls,	-	-	-	-	dations
		Include new floorb	eam bra	ices (10 per spai	1 - 15"x2,	("X33")	
Class B-2 Concrete (Arch)							
(703-20.03)	1130	Cu. Yd.		\$2,000		\$2,260,000	
()	1150	Use end areas from	n DGN fi		by 35' wii		
Slab on Filled Arch			<b>j</b>		,		
(703-42.14)	1860	Sq. Yd.		\$200		\$372,000	
Barrier Curb							
(703-42.15)	1290	LF.		\$95		\$122,550	

	Project:	MoDOT Rte. 19 Concepts	Computed:	JDM	Date:	9/18/2019
FDS	Subject:	G0804 Replacement	Checked:	DGB	Date:	10/2/2019
	Task:	Concept Cost Estimate	Page:		of:	ESTIMATE
	Job #:		No:			
Slab on Concrete NU-Girder						
(703-42.15)	930	Sq. Yd.	\$315		\$292,950	
Form Liners						
(703-46.20)	400	Sq. Yd. Back of Barriers and new P	\$100 Pilasters at piers	(approx	\$40,000 . 5' wide x 25' t	all)
NU 53, Prestressed Concrete NU-Girder			·····	(		
(705-60.23)	1010	LF.	\$240		\$242,400	
Reinforcing Steel						
(706-10.60)	489,300	Lb.	\$1.40		\$685,020	
Steel Intermediate Diaphragm (NU Girder)		Assume 130# per CY of cor	ncrete for Substr	r. 150# fe	or the Arch con	crete
(712-33.01)	16	Ea.	\$1,000		\$16,000	
·	_~	Two in each end span per l			, ,	
Slab Drain						
(712-36.10)	84	Ea.	\$500		\$42,000	
		Assume new VC on bridge	to help drainage	e. Spa. @	15' across bri	dge
Drainage System on Structure						
(712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail						
(712-99.03)	1290	LF.	\$110		\$141,900	
Vertical Drain at End Bent						
(715-10.01)	2	Ea.	\$3,060		\$6,120	
		Assume \$45/ft. Roadway v	vidth + 2 wings			
Laminated Neoprene Bearing (Tapered)	10	F-	6275		¢2.750	
(716-10.03)	10	Ea.	\$375		\$3,750	
Laminated Neoprene Bearing Assembly						
(716-20.00)	10	Ea.	\$2,000		\$20,000	
Strip Seal Expansion Joint System						
(717-20.01)	90	LF.	\$400		\$36,000	
Total New Bridge Cost =	\$7,9	22,200 l	Jnit Cost =	\$317	7 / Sq. Ft.	
	i	•	Not includir		ng premium	•
Phasing Premium =	¢1 ⊑	<b>84,440</b> Assume 20	0/			
	ζιτς	Assume 20	70			
TOTAL COST =	ćn r	i06,640 U	Jnit Cost =	\$20/	0 / Sq. Ft.	1
	כ, כל			730	<i>.</i> , 34. Lt	J

: **Cost = \$380 / Sq. Ft.** Including phasing premium HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits a	ssume reconstruction	on of Route 19 from	Sta. 1627+50 to Sta. 1	647+09 across Curre	nt River. Estimate does not include costs for bridges.
Figure A-6: Alternative 6 and 7 North - Slight alignment shift; Remove Ped	Bridge				
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL			,		
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	5994	\$8	\$44,953	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2997	\$20	\$59,937	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	5562	\$12	\$66,741	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4522	\$55	\$248,706	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	incl. Sta. 1660+50 to Sta. 1666+50; west side
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					

1

1

\$25,000

\$15,000

1%

25%

\$25,000

\$15,000

\$967,337

\$9,673.37 \$244,252.64 **\$1,221,263** 

LS

LS

LS

LS

1 of 1

SIGNING AND STRIPING

SEEDING AND MULCHING

CONSTRUCTION SURVEYING

TOTAL CONSTRUCTION COST

BID ITEMS SUBTOTAL

CONTINGENCIES

OTHER

### Alternative 7 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS1	<b>FRUCTI</b>	DN COST	
0	ss	Client: Project: ON Project Number: Description:	J9P3305: F 019-2126 Current Riv	ver Bridge - R	Date: Bridges Rehab. Stu By: Ceplace on Existing 6'-136'-102') PI. Gi	GCL Alignment
BID FORM #	MODOT BID ITEM #		do not include P	E, RW, Permitting	g, Inspection Costs. Un UNIT COST	it Prices are FY 202
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS				
1	2061000	Class I Excavation	1204	Cu. Yd.	\$50	\$60,200
2	5031010A	Bridge Approach Slab (Major Road)	136.3	Sq. Yd.	\$250	\$34,074
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	142.0	Lin. Ft.	\$1,200	\$170,400
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	160.0	Lin. Ft.	\$900	\$144,000
5	7011300	Video Camera Inspection	8.0	Each	\$650	\$5,200
6	7011400	Foundation Inspection Holes	240.0	Lin. Ft.	\$130	\$31,200
7	7011600	Sonic Logging Testing	8.0	Each	\$2,000	\$16,000
8	7021212	Galvanized Structural Steel Piles (12 In.)	700.0	Lin. Ft.	\$80	\$56,000
9	7027000	Pile Point Reinforcement	10.0	Each	\$125	\$1,250
10	7026000	Pre-Bore for Piling	450.0	Lin. Ft.	\$150	\$67,500
11	7032003	Class B Concrete (Substructure)	350.2	Cu. Yd.	\$850	\$297,664
12	7034212	Slab on Steel	2028.6	Sq. Yd.	\$275	\$557,877
13	7034620	Form Liners	835.6	Sq. Yd.	\$100	\$83,556
14	7039903	Misc. Barrier Curb	1298.0	Lin. Ft.	\$100	\$129,800
15	7061060	Reinforcing Steel (Bridges)	73353	Lbs	\$1.40	\$102,694
16	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	816698	Lbs	\$1.75	\$1,429,222
17	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000
18	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1298.0	Lin. Ft.	\$100	\$129,800
19	7151001	Vertical Drain at End Bents	2.0	Each	\$2,000	\$4,000
20	7162000	Laminated Neoprene Bearing Pad Assembly	24.0	Each	\$2,100	\$50,400
21	7172001	Strip Seal Expansion Joint System	67	Lin. Ft.	\$425	\$28,620
					Sub-Total (A) =	\$3,519,456
				Price/Sq. Ft.	(Bridge Items) =	\$193

Staging Premium = 20% Sub-Total (B)	\$703,891 \$703,891
Total (A+B)	\$4,223,347
Price / sq.ft. (Bridge Items)	\$232

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits a	ssume reconstruction	on of Route 19 from	Sta. 1627+50 to Sta. 1	647+09 across Curre	nt River. Estimate does not include costs for bridges.
Figure A-6: Alternative 6 and 7 North - Slight alignment shift; Remove Ped	Bridge				
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$50,000	\$50,000	assumes flagging, temp barrier, signs, etc
EROSION CONTROL			,		
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF SURFACINGS	SY	8000	\$3	\$24,000	
REMOVAL OF IMPROVEMENTS	LS	1	\$25,000	\$25,000	
CLEARING AND GRUBBING	ACRE	5	\$7,000	\$35,000	
EXCAVATION - CLASS A	CY	5994	\$8	\$44,953	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2997	\$20	\$59,937	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	5562	\$12	\$66,741	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$50,000	\$50,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER CURRENT RIVER	LS				See Bridge Costs
TEMPORARY CAUSEWAY	LS	1	\$250,000	\$250,000	
PAVEMENT					
DRIVEWAY RECONSTRUCTION	EACH	2	\$10,000	\$20,000	
ROUTE 19 RECONSTRUCTION	SY	4522	\$55	\$248,706	8" asphalt; Type 5 aggregate base (6")
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	incl. Sta. 1660+50 to Sta. 1666+50; west side
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					

1

1

\$25,000

\$15,000

1%

25%

\$25,000

\$15,000

\$967,337

\$9,673.37 \$244,252.64 **\$1,221,263** 

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LS

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1 of 1

SIGNING AND STRIPING

SEEDING AND MULCHING

CONSTRUCTION SURVEYING

TOTAL CONSTRUCTION COST

BID ITEMS SUBTOTAL

CONTINGENCIES

OTHER

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# Spring Valley Bridge

### Alternative 1A – Cost Estimate

	Project:	MoDOT Rte. 19 Concepts	S Computed:	DGB	Date:	9/16/2019
FC	Subject:	J0420 Replacement	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
J0420 Replacement - In Kind - On Alignment	(Concrete A	oproaches)				
New Bridge Length = New Bridge Width =	540 28	ft ft				
Item	Quantity		Unit Cost		Estimated Cost	
Class 1 Excavation						
(206-10.00)	120	Cu. Yd.	\$50		\$6,000	
Class 2 Excavation						
(206-20.00)	1795	Cu. Yd.	\$60		\$107,700	
Cofferdams			¢5.00.000		<u> </u>	
(206-60.02)	1	Lump Sum	\$500,000		\$500,000	
Bridge Approach Slab (Minor Road)						
(503-10.11A)	116	Sq. Yd.	\$215		\$24,940	
<b>Drilled Shaft (6'-0" Dia.)</b> (701-11.06)	87	LF	\$1,200		\$104,400	
(701-11.00)	07	Li	<b>ΥΙ,200</b>		Ş104,400	
Rock Socket (5'-6" Dia.)						
(701-12.06)	32	LF	\$900		\$28,800	
Video Camera Inspection						
(701-13.00)	4	Ea.	\$650		\$2,600	
· · · ·					. ,	
Foundation Inspection Hole						
(701-14.00)	72	LF	\$120		\$8,640	
Sonic Logging Testing						
(701-16.00)	4	Ea.	\$2,000		\$8,000	
Galvanized Structural Steel Pile (12") (702-12.12)	497	LF	\$75		\$37,275	
(702-12.12)	497	LF	275		<i>331,213</i>	
Dynamic Pile Testing						
(702-50.01)	2	Ea.	\$5,000		\$10,000	
Pile Point Reinforcement						
(702-70.00)	14	Ea.	\$125		\$1,750	
( )					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Class B Concrete (Substructure)						
(703-20.03)	780	Cu. Yd.	\$900	hantco	\$702,000	
Class B-2 Concrete (Spandrel Columns)		Includes thrust blocks and	new pier/ena	Deni CO		
(703-20.03)	152	Cu. Yd.	\$1,000		\$152,000	
Class B-2 Concrete (Arch)	220	Cu. Yd.	\$2,000		¢110.000	
(703-20.03)	220	cu. tu.	\$2,000		\$440,000	
Slab on Concrete NU Girder						
(703-42.14)	1223	Sq. Yd.	\$320		\$391,360	

	Project:	MoDOT Rte. 19 Concepts	G Computed:	DGB	Date:	9/16/2019
FJS	Subject:	J0420 Replacement	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Slab on Concrete Spandrel Arch						
(703-42.14)	475	Sq. Yd.	\$350		\$166,250	
Barrier Curb						
(703-42.15)	1155	LF	\$95		\$109,725	
Form Liners			64.00		÷ 40, 400	
(703-46.20)	494	Sq. Yd.	\$100		\$49,400	
NU 53, Prestressed Concrete NU-Girder						
(705-60.23)	1568	LF	\$250		\$392,000	
Reinforcing Steel (Epoxy Coated) (706-10.00)	386,314	Lb.	\$1.40		\$540,839	
(700-10.00)	560,514	Assume 130#/CY for subst		150#/C		ete
Steel Int. Diaphragms for P/S Conc. NU Gird	er			,	- <b>,</b>	
(712-33.01)	18	Ea.	\$1,000		\$18,000	
Slab Drain (712-36.10)	108	Ea.	\$340		\$36,720	
(, 00.20)			40.10		<i>400)/ 20</i>	
Misc. Bridge Rail						
(712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents						
(715-10.01)	2	Ea.	\$2,500		\$5,000	
Laminated Neoprene Bearing Pad		_			44	
(716-10.02)	24	Ea.	\$260		\$6,240	
Laminated Neoprene Bearing Pad Assembly						
(716-20.00)	8	Ea.	\$2,200		\$17,600	
Strip Seal	62		64.00		66.000	
(717-20.02)	62	LF	\$100		\$6,200	
Total Bridge Cost =	\$4.0	00,500 U	nit Cost =	\$263	3 / Sq. Ft.	1
	÷ .)•		Not including			

Not including bridge approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 400+00 to Sta. 413+71 across Spring Valley. Estimate does not include costs for bridges.

Figure A-7: Alternatives 1A,1B,2,5A,5B South - Shoofly Bridge Upstream

	·	<del></del>			
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	2733	\$55	\$150,332	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	4391	\$8	\$32,932	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2195	\$20	\$43,909	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9680	\$12	\$116,166	
BORROW	CY	3094	\$2	\$6,188	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER SPRING VALLEY	LS				See Bridge Costs
TEMPORARY SHORING	LS	1	\$100,000	\$100,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	145	\$55	\$7,962	8" asphalt; Type 5 aggregate base (6")
ROTUE 19 TIE-IN MILL/OVERLAY	SY		\$25		2" thickness
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$626,488	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$159,122.07	
TOTAL CONSTRUCTION COST				\$795,610	

### ENGINEER'S ESTIMATE - CONCEPTUAL CONSTRUCTION COST

C	s	Description:	J9P3305: 019-2126 Spring Val (40' - 110'	ley Bridge - T - 10 @ 40')	Date: Bridges Rehab. Str By: emporary Bridge g, Inspection Costs. Ur	GCL (24' Rdwy)
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE C	ONSTRUCTIO	ON BID ITEMS				
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$65,825	\$65,825
2	7021214	Galvanized Structural Steel Piles (14 in)	611.8	Lin. Ft.	\$75	\$45,885
3	7021316	Galvanized Cast-in-Place Concrete Piles (16 in)	2635.6	Lin. Ft.	\$125	\$329,450
4	7026000	Pre-bore for Piling	1238.0	Lin. Ft.	\$110	\$136,180
5	7032003	Class B Concrete (Substructure)	23.1	Cu. Yd.	\$850	\$19,644
6	7061060	Reinforcing Steel (Bridges)	2774	Lbs	\$1.20	\$3,329
7	7121000	Fabricated Structural Carbon Steel (Misc)	75000	Lbs	\$3.50	\$262,500
8	7181020	Transporting and Erecting Superstructure (10 - 40' Spans)	1	L.S.	\$375,000	\$375,000
9	7181020A	Transporting and Erecting Superstructure (1 - 110' Span)	1	L.S.	\$50,000	\$50,000
10	7181030	Removing and Storing Superstructure (10 - 40' Spans)	1	L.S.	\$165,000	\$165,000
11	7181030A	Removing and Storing Superstructure (1 - 110' Span)	1	L.S.	\$20,000	\$20,000
					Sub-Total (A) =	\$1,472,813
				Price/Sq. Ft.	(Bridge Items) =	\$102

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## Alternative 1B – Cost Estimate

Project:	MoDOT Rte. 19 Concepts	6 Computed:	DGB	Date:	9/16/2019
Subject:	J0420 Replacement	Checked:	JDM	Date:	10/10/2019
Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
Job #:		No:			

#### J0420 Replacement - In Kind - On Alignment (Steel PL Girder Approaches)

New Bridge Length =	540	ft
New Bridge Width =	28	ft

Item	Quantity		Unit Cost	Estimated Cost
Class 1 Excavation				
(206-10.00)	120	Cu. Yd.	\$50	\$6,000
Class 2 Excavation				
(206-20.00)	1795	Cu. Yd.	\$60	\$107,700
Cofferdams				
(206-60.02)	1	Lump Sum	\$500,000	\$500,000
Bridge Approach Slab (Minor Road)				
(503-10.11A)	107	Sq. Yd.	\$215	\$23,005
Drilled Shaft (6'-0" Dia.)				
(701-11.10)	87	LF	\$1,200	\$104,400
Pack Sacket (5' 6" Dia )				
Rock Socket (5'-6" Dia.) (701-12.09)	32	LF	\$900	\$28,800
(101 12.03)	32	L.	<b>900</b>	920,000
Video Camera Inspection				
(701-13.00)	4	Ea.	\$650	\$2,600
Foundation Inspection Hole			<b>4400</b>	40.040
(701-14.00)	72	LF	\$120	\$8,640
Sonic Logging Testing				
(701-16.00)	4	Ea.	\$2,000	\$8,000
. ,				
Galvanized Structural Steel Pile (12")				
(702-12.12)	497	LF	\$75	\$37,275
Dynamic Bile Testing				
Dynamic Pile Testing (702-50.01)	2	Ea.	\$5,000	\$10,000
(702-50.01)	2	La.	Ş3,000	\$10,000
Pile Point Reinforcement				
(702-70.00)	14	Ea.	\$125	\$1,750
Class B Concrete (Substructure)	700		4000	6700 000
(703-20.03)	780	Cu. Yd.	\$900	\$702,000
Class B-2 Concrete (Spandrel Columns)		includes thrust block	s and new pier/end bent	concrete
(703-20.03)	152	Cu. Yd.	\$1,000	\$152,000
· · · · · /			, ,	· - /
Class B-2 Concrete (Arch)				
(703-20.03)	220	Cu. Yd.	\$2,000	\$440,000
Slab on Steel	1000	Sa Vd	¢ο <del>τ</del> ε	¢226.22E
(703-42.12)	1223	Sq. Yd.	\$275	\$336,325

	Project:	MoDOT Rte. 19 Concepts	S Computed:	DGB	Date:	9/16/2019
FDS	Subject:	J0420 Replacement	Checked:	JDM	Date:	10/10/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Slab on Concrete Spandrel Arch (703-42.14)	475	Sq. Yd.	\$350		\$166,250	
Barrier Curb (703-42.15)	1155	LF	\$95		\$109,725	
Form Liners (703-46.20)	494	Sq. Yd.	\$100		\$49,400	
<b>Reinforcing Steel (Epoxy Coated)</b> (706-10.00)	386,314	Lb.	\$1.40		\$540,839	
Fabricated Structural Steel (Plate Girder)						
712-11.22	473,132	Lb. Assume 130#/CY for subst	\$1.75	150#/0	\$827,981 V of arch concr	ata
Slab Drain		Assume 150#/CF joi subsi	i concrete unu	150#/C		ele
(712-36.10)	108	Ea.	\$340		\$36,720	
Drainage System on Structure (712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail (712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents						
(715-10.01)	2	Ea.	\$2,500		\$5,000	
Laminated Neoprene Bearing Pad Assembly		r.	ća 200		éar 200	
(716-20.00)	16	Ea.	\$2,200		\$35,200	
Strip Seal Expansion Joint System (717-20.01)	62	LF	\$425		\$26,350	
Total Bridge Cost =	\$4,4	73,000 U	nit Cost =	\$294	4 / Sq. Ft.	

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 400+00 to Sta. 413+71 across Spring Valley. Estimate does not include costs for bridges.

Figure A-7: Alternatives 1A,1B,2,5A,5B South - Shoofly Bridge Upstream

	ī	-			-
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	2733	\$55	\$150,332	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	4391	\$8	\$32,932	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2195	\$20	\$43,909	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9680	\$12	\$116,166	
BORROW	CY	3094	\$2	\$6,188	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER SPRING VALLEY	LS				See Bridge Costs
TEMPORARY SHORING	LS	1	\$100,000	\$100,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	145	\$55	\$7,962	8" asphalt; Type 5 aggregate base (6")
ROTUE 19 TIE-IN MILL/OVERLAY	SY		\$25		2" thickness
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$626,488	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$159,122.07	
TOTAL CONSTRUCTION COST				\$795,610	

### ENGINEER'S ESTIMATE - CONCEPTUAL CONSTRUCTION COST

C	s	Description:	J9P3305: 019-2126 Spring Val (40' - 110'	ley Bridge - T - 10 @ 40')	Date: Bridges Rehab. Str By: emporary Bridge g, Inspection Costs. Ur	GCL (24' Rdwy)
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE C	ONSTRUCTIO	ON BID ITEMS				
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$65,825	\$65,825
2	7021214	Galvanized Structural Steel Piles (14 in)	611.8	Lin. Ft.	\$75	\$45,885
3	7021316	Galvanized Cast-in-Place Concrete Piles (16 in)	2635.6	Lin. Ft.	\$125	\$329,450
4	7026000	Pre-bore for Piling	1238.0	Lin. Ft.	\$110	\$136,180
5	7032003	Class B Concrete (Substructure)	23.1	Cu. Yd.	\$850	\$19,644
6	7061060	Reinforcing Steel (Bridges)	2774	Lbs	\$1.20	\$3,329
7	7121000	Fabricated Structural Carbon Steel (Misc)	75000	Lbs	\$3.50	\$262,500
8	7181020	Transporting and Erecting Superstructure (10 - 40' Spans)	1	L.S.	\$375,000	\$375,000
9	7181020A	Transporting and Erecting Superstructure (1 - 110' Span)	1	L.S.	\$50,000	\$50,000
10	7181030	Removing and Storing Superstructure (10 - 40' Spans)	1	L.S.	\$165,000	\$165,000
11	7181030A	Removing and Storing Superstructure (1 - 110' Span)	1	L.S.	\$20,000	\$20,000
					Sub-Total (A) =	\$1,472,813
				Price/Sq. Ft.	(Bridge Items) =	\$102

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### Alternative 2 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS	<b>FRUCTI</b>	ON COST	
C	Project Nu Descr		019-2126 Spring Vall Alt #2 - Br.	ey Bridge - F Option 2 (13	Date:	GCL Alignment Pl. Girder
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	ng, Inspection Costs. Un UNIT COST	COST
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS				
1	2061000	Class I Excavation	1242	Cu. Yd.	\$50	\$62,097
2	5031010A	Bridge Approach Slab (Major Road)	118.5	Sq. Yd.	\$250	\$29,630
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	102.0	Lin. Ft.	\$1,200	\$122,400
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	120.0	Lin. Ft.	\$900	\$108,000
5	7011300	Video Camera Inspection	6.0	Each	\$650	\$3,900
6	7011400	Foundation Inspection Holes	180.0	Lin. Ft.	\$130	\$23,400
7	7011600	Sonic Logging Testing	6.0	Each	\$2,000	\$12,000
8	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200
9	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250
10	7032003	Class B Concrete (Substructure)	261.6	Cu. Yd.	\$850	\$222,392
11	7034212	Slab on Steel	1690.1	Sq. Yd.	\$275	\$464,772
12	7034620	Form Liners	566.0	Sq. Yd.	\$100	\$56,600
13	7039903	Misc. Barrier Curb	1164.0	Lin. Ft.	\$100	\$116,400
14	7061060	Reinforcing Steel (Bridges)	51899	Lbs	\$1.40	\$72,659
15	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	761743	Lbs	\$1.75	\$1,333,050
16	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000
17	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1164.0	Lin. Ft.	\$100	\$116,400
18	7151001	Vertical Drain at End Bents	2.0	Each	\$3,500	\$7,000
19	7162000	Laminated Neoprene Bearing Pad Assembly	20.0	Each	\$2,100	\$42,000
20	7172001	Strip Seal Expansion Joint System	63	Lin. Ft.	\$425	\$26,920
					Sub-Total (A) =	\$3,021,069
				Price/Sq. Ft	. (Bridge Items) =	\$199

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 400+00 to Sta. 413+71 across Spring Valley. Estimate does not include costs for bridges.

Figure A-7: Alternatives 1A,1B,2,5A,5B South - Shoofly Bridge Upstream

	·	-			-
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	2733	\$55	\$150,332	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	4391	\$8	\$32,932	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2195	\$20	\$43,909	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9680	\$12	\$116,166	
BORROW	CY	3094	\$2	\$6,188	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER SPRING VALLEY	LS				See Bridge Costs
TEMPORARY SHORING	LS	1	\$100,000	\$100,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	145	\$55	\$7,962	8" asphalt; Type 5 aggregate base (6")
ROTUE 19 TIE-IN MILL/OVERLAY	SY		\$25		2" thickness
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$626,488	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$159,122.07	
TOTAL CONSTRUCTION COST				\$795,610	

### ENGINEER'S ESTIMATE - CONCEPTUAL CONSTRUCTION COST

C	s	Description:	J9P3305: 019-2126 Spring Val (40' - 110'	ley Bridge - T - 10 @ 40')	Date: Bridges Rehab. Str By: emporary Bridge g, Inspection Costs. Ur	GCL (24' Rdwy)
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE C	ONSTRUCTIO	ON BID ITEMS				
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$65,825	\$65,825
2	7021214	Galvanized Structural Steel Piles (14 in)	611.8	Lin. Ft.	\$75	\$45,885
3	7021316	Galvanized Cast-in-Place Concrete Piles (16 in)	2635.6	Lin. Ft.	\$125	\$329,450
4	7026000	Pre-bore for Piling	1238.0	Lin. Ft.	\$110	\$136,180
5	7032003	Class B Concrete (Substructure)	23.1	Cu. Yd.	\$850	\$19,644
6	7061060	Reinforcing Steel (Bridges)	2774	Lbs	\$1.20	\$3,329
7	7121000	Fabricated Structural Carbon Steel (Misc)	75000	Lbs	\$3.50	\$262,500
8	7181020	Transporting and Erecting Superstructure (10 - 40' Spans)	1	L.S.	\$375,000	\$375,000
9	7181020A	Transporting and Erecting Superstructure (1 - 110' Span)	1	L.S.	\$50,000	\$50,000
10	7181030	Removing and Storing Superstructure (10 - 40' Spans)	1	L.S.	\$165,000	\$165,000
11	7181030A	Removing and Storing Superstructure (1 - 110' Span)	1	L.S.	\$20,000	\$20,000
					Sub-Total (A) =	\$1,472,813
				Price/Sq. Ft.	(Bridge Items) =	\$102

## Alternative 3A – Cost Estimate

	Project:	MoDOT Rte. 19 Concepts	S Computed:	DGB	Date:	9/16/2019
FC	Subject:	J0420 Replacement	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
J0420 Replacement - In Kind - On Alignment	(Concrete A	oproaches)				
New Bridge Length = New Bridge Width =	540 28	ft ft				
Item	Quantity		Unit Cost		Estimated Cost	
Class 1 Excavation						
(206-10.00)	120	Cu. Yd.	\$50		\$6,000	
Class 2 Excavation						
(206-20.00)	1795	Cu. Yd.	\$60		\$107,700	
Cofferdams			¢5.00.000		<u> </u>	
(206-60.02)	1	Lump Sum	\$500,000		\$500,000	
Bridge Approach Slab (Minor Road)						
(503-10.11A)	116	Sq. Yd.	\$215		\$24,940	
<b>Drilled Shaft (6'-0" Dia.)</b> (701-11.06)	87	LF	\$1,200		\$104,400	
(701-11.00)	07	Li	<b>ΥΙ,200</b>		Ş104,400	
Rock Socket (5'-6" Dia.)						
(701-12.06)	32	LF	\$900		\$28,800	
Video Camera Inspection						
(701-13.00)	4	Ea.	\$650		\$2,600	
· · · ·					. ,	
Foundation Inspection Hole						
(701-14.00)	72	LF	\$120		\$8,640	
Sonic Logging Testing						
(701-16.00)	4	Ea.	\$2,000		\$8,000	
Galvanized Structural Steel Pile (12") (702-12.12)	497	LF	\$75		\$37,275	
(702-12.12)	497	LF	275		<i>331,213</i>	
Dynamic Pile Testing						
(702-50.01)	2	Ea.	\$5,000		\$10,000	
Pile Point Reinforcement						
(702-70.00)	14	Ea.	\$125		\$1,750	
( )					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Class B Concrete (Substructure)						
(703-20.03)	780	Cu. Yd.	\$900	hantco	\$702,000	
Class B-2 Concrete (Spandrel Columns)		Includes thrust blocks and	new pier/ena	JEIIL CO		
(703-20.03)	152	Cu. Yd.	\$1,000		\$152,000	
Class B-2 Concrete (Arch)	220	Cu. Yd.	\$2,000		¢110.000	
(703-20.03)	220	cu. tu.	\$2,000		\$440,000	
Slab on Concrete NU Girder						
(703-42.14)	1223	Sq. Yd.	\$320		\$391,360	

	Project:	MoDOT Rte. 19 Concepts	G Computed:	DGB	Date:	9/16/2019
FJS	Subject:	J0420 Replacement	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Slab on Concrete Spandrel Arch						
(703-42.14)	475	Sq. Yd.	\$350		\$166,250	
Barrier Curb						
(703-42.15)	1155	LF	\$95		\$109,725	
Form Liners			64.00		÷ 40, 400	
(703-46.20)	494	Sq. Yd.	\$100		\$49,400	
NU 53, Prestressed Concrete NU-Girder						
(705-60.23)	1568	LF	\$250		\$392,000	
Reinforcing Steel (Epoxy Coated) (706-10.00)	386,314	Lb.	\$1.40		\$540,839	
(700-10.00)	560,514	Assume 130#/CY for subst		150#/C		ete
Steel Int. Diaphragms for P/S Conc. NU Gird	er			,	- <b>,</b>	
(712-33.01)	18	Ea.	\$1,000		\$18,000	
Slab Drain (712-36.10)	108	Ea.	\$340		\$36,720	
(, 00.20)			40.10		<i>400)/ 20</i>	
Misc. Bridge Rail						
(712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents						
(715-10.01)	2	Ea.	\$2,500		\$5,000	
· ·						
Laminated Neoprene Bearing Pad		_			44	
(716-10.02)	24	Ea.	\$260		\$6,240	
Laminated Neoprene Bearing Pad Assembly						
(716-20.00)	8	Ea.	\$2,200		\$17,600	
Strip Seal	62		64.00		66.000	
(717-20.02)	62	LF	\$100		\$6,200	
Total Bridge Cost =	\$4.0	00,500 U	nit Cost =	\$263	3 / Sq. Ft.	1
	÷ .)•		Not including			

Not including bridge approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1700+00 to Sta. 1723+51 across Spring Valley. Estimate does not include costs for bridges. Figure A-8: Alternatives 3A, 3B, & 4 South - New Bridge Upstream ITEM UNIT QUANTITY UNIT COST **ITEM COST** COMMENT MOBILIZATION AND TRAFFIC CONTROL TEMPORARY TRAFFIC CONTROL LS 1 \$50,000 \$50,000 assumes flagging, temp barrier, signs, etc EROSION CONTROL LS \$25,000 \$25,000 EROSION CONTROL 1 ROADWORK REMOVAL OF SURFACINGS SY 8000 \$3 \$24 000 \$25,000 \$25.000 REMOVAL OF IMPROVEMENTS LS 1 CLEARING AND GRUBBING \$7,000 ACRE \$35,000 5 32682 EXCAVATION - CLASS A \$245,118 Assumes 2/3 cut volume is Class A CY \$8 16341 \$20 EXCAVATION - CLASS C CY \$326,823 Assumes 1/3 cut volume is Class C EMBANKMENT IN PLACE CY 20239 \$12 \$242,867 DRAINAGE AND SEWERS DRAINAGE LS 1 \$50,000 \$50,000 BRIDGES BRIDGE DEMOLITION LS See Bridge Costs ROUTE 19 OVER SPRING VALLEY LS See Bridge Costs TEMPORARY CAUSEWAY 1.5 \$250,000 PAVEMENT DRIVEWAY RECONSTRUCTION FACH \$10,000 \$40,000 4 ROUTE 19 RECONSTRUCTION 6438 \$354,096 8" asphalt; Type 5 aggregate base (6") SY \$55 PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES 825 \$20 \$16,500 incl. Sta. 1660+50 to Sta. 1666+50; west side FOOT GUARDRAIL, MGS GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION \$3,000 \$12,000 EACH 4 GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH) 4 \$2,500 \$10,000 EACH PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS SIGNING AND STRIPING LS \$25,000 \$25,000 1 OTHER SEEDING AND MULCHING LS 1 \$15,000 \$15,000 BID ITEMS SUBTOTAL \$1,496,403 CONSTRUCTION SURVEYING LS 1% \$14,964.03

LS

25%

\$377,841.84

\$1,889,209

CONTINGENCIES TOTAL CONSTRUCTION COST

## Alternative 3B – Cost Estimate

Project:	MoDOT Rte. 19 Concepts	6 Computed:	DGB	Date:	9/16/2019
Subject:	J0420 Replacement	Checked:	JDM	Date:	10/10/2019
Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
Job #:		No:			

#### J0420 Replacement - In Kind - On Alignment (Steel PL Girder Approaches)

New Bridge Length =	540	ft
New Bridge Width =	28	ft

Item	Quantity		Unit Cost	Estimated Cost
Class 1 Excavation				
(206-10.00)	120	Cu. Yd.	\$50	\$6,000
Class 2 Excavation				
(206-20.00)	1795	Cu. Yd.	\$60	\$107,700
Cofferdams				
(206-60.02)	1	Lump Sum	\$500,000	\$500,000
Bridge Approach Slab (Minor Road)				
(503-10.11A)	107	Sq. Yd.	\$215	\$23,005
Drilled Shaft (6'-0" Dia.)				
(701-11.10)	87	LF	\$1,200	\$104,400
Pack Sacket (5' 6" Dia )				
Rock Socket (5'-6" Dia.) (701-12.09)	32	LF	\$900	\$28,800
(101 12.03)	32	L.	<b>900</b>	920,000
Video Camera Inspection				
(701-13.00)	4	Ea.	\$650	\$2,600
Foundation Inspection Hole			<b>4400</b>	40.040
(701-14.00)	72	LF	\$120	\$8,640
Sonic Logging Testing				
(701-16.00)	4	Ea.	\$2,000	\$8,000
. ,				
Galvanized Structural Steel Pile (12")				
(702-12.12)	497	LF	\$75	\$37,275
Dynamic Bile Testing				
Dynamic Pile Testing (702-50.01)	2	Ea.	\$5,000	\$10,000
(702-50.01)	2	La.	Ş3,000	Ş10,000
Pile Point Reinforcement				
(702-70.00)	14	Ea.	\$125	\$1,750
Class B Concrete (Substructure)	700		4000	6700 000
(703-20.03)	780	Cu. Yd.	\$900	\$702,000
Class B-2 Concrete (Spandrel Columns)		includes thrust block	s and new pier/end bent	concrete
(703-20.03)	152	Cu. Yd.	\$1,000	\$152,000
· · · · · /			, ,	· - /
Class B-2 Concrete (Arch)				
(703-20.03)	220	Cu. Yd.	\$2,000	\$440,000
Slab on Steel	1000	Sa Vd	¢ο <del>τ</del> ε	¢226.22E
(703-42.12)	1223	Sq. Yd.	\$275	\$336,325

	Project:	MoDOT Rte. 19 Concepts	S Computed:	DGB	Date:	9/16/2019
FDS	Subject:	J0420 Replacement	Checked:	JDM	Date:	10/10/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Slab on Concrete Spandrel Arch (703-42.14)	475	Sq. Yd.	\$350		\$166,250	
Barrier Curb (703-42.15)	1155	LF	\$95		\$109,725	
Form Liners (703-46.20)	494	Sq. Yd.	\$100		\$49,400	
<b>Reinforcing Steel (Epoxy Coated)</b> (706-10.00)	386,314	Lb.	\$1.40		\$540,839	
Fabricated Structural Steel (Plate Girder)						
712-11.22	473,132	Lb. Assume 130#/CY for subst	\$1.75	150#/0	\$827,981 V of arch concr	ata
Slab Drain		Assume 150#/CF joi subsi	i concrete unu	150#/C		ele
(712-36.10)	108	Ea.	\$340		\$36,720	
Drainage System on Structure (712-99.01)	1	Lump Sum	\$80,000		\$80,000	
Misc. Bridge Rail (712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents						
(715-10.01)	2	Ea.	\$2,500		\$5,000	
Laminated Neoprene Bearing Pad Assembly		r.	ća 200		éar 200	
(716-20.00)	16	Ea.	\$2,200		\$35,200	
Strip Seal Expansion Joint System (717-20.01)	62	LF	\$425		\$26,350	
Total Bridge Cost =	\$4,4	73,000 U	nit Cost =	\$294	4 / Sq. Ft.	

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1700+00 to Sta. 1723+51 across Spring Valley. Estimate does not include costs for bridges. Figure A-8: Alternatives 3A, 3B, & 4 South - New Bridge Upstream ITEM UNIT QUANTITY UNIT COST **ITEM COST** COMMENT MOBILIZATION AND TRAFFIC CONTROL TEMPORARY TRAFFIC CONTROL LS 1 \$50,000 \$50,000 assumes flagging, temp barrier, signs, etc EROSION CONTROL LS \$25,000 \$25,000 EROSION CONTROL 1 ROADWORK REMOVAL OF SURFACINGS SY 8000 \$3 \$24 000 \$25,000 \$25.000 REMOVAL OF IMPROVEMENTS LS 1 CLEARING AND GRUBBING \$7,000 ACRE \$35,000 5 32682 EXCAVATION - CLASS A \$245,118 Assumes 2/3 cut volume is Class A CY \$8 16341 \$20 EXCAVATION - CLASS C CY \$326,823 Assumes 1/3 cut volume is Class C EMBANKMENT IN PLACE CY 20239 \$12 \$242,867 DRAINAGE AND SEWERS DRAINAGE LS 1 \$50,000 \$50,000 BRIDGES BRIDGE DEMOLITION LS See Bridge Costs ROUTE 19 OVER SPRING VALLEY LS See Bridge Costs TEMPORARY CAUSEWAY 1.5 \$250,000 PAVEMENT DRIVEWAY RECONSTRUCTION FACH \$10,000 \$40,000 4 ROUTE 19 RECONSTRUCTION 6438 \$354,096 8" asphalt; Type 5 aggregate base (6") SY \$55 PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES 825 \$20 \$16,500 incl. Sta. 1660+50 to Sta. 1666+50; west side FOOT GUARDRAIL, MGS GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION \$3,000 \$12,000 EACH 4 GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH) 4 \$2,500 \$10,000 EACH PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS SIGNING AND STRIPING LS \$25,000 \$25,000 1 OTHER SEEDING AND MULCHING LS 1 \$15,000 \$15,000 BID ITEMS SUBTOTAL \$1,496,403 CONSTRUCTION SURVEYING LS 1% \$14,964.03

LS

25%

\$377,841.84

\$1,889,209

CONTINGENCIES TOTAL CONSTRUCTION COST

### Alternative 4 – Cost Estimate

	EN	<b>GINEER'S ESTIMATE - CONCEPTUA</b>	L CONS	<b>FRUCTI</b>	ON COST				
C	Project: Project Number: Description: These Costs			019-2126 By: GCL					
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	ng, Inspection Costs. Un UNIT COST	COST			
BRIDGE CO	ONSTRUCTIO	DN BID ITEMS							
1	2061000	Class I Excavation	1242	Cu. Yd.	\$50	\$62,097			
2	5031010A	Bridge Approach Slab (Major Road)	118.5	Sq. Yd.	\$250	\$29,630			
3	7011107	Drilled Shafts (6 Ft. 0 In. Dia.)	102.0	Lin. Ft.	\$1,200	\$122,400			
4	7011206	Rock Sockets (5 Ft. 6 In. Dia.)	120.0	Lin. Ft.	\$900	\$108,000			
5	7011300	Video Camera Inspection	6.0	Each	\$650	\$3,900			
6	7011400	Foundation Inspection Holes	180.0	Lin. Ft.	\$130	\$23,400			
7	7011600	Sonic Logging Testing	6.0	Each	\$2,000	\$12,000			
8	7021212	Galvanized Structural Steel Piles (12 In.)	990.0	Lin. Ft.	\$80	\$79,200			
9	7027000	Pile Point Reinforcement	18.0	Each	\$125	\$2,250			
10	7032003	Class B Concrete (Substructure)	261.6	Cu. Yd.	\$850	\$222,392			
11	7034212	Slab on Steel	1690.1	Sq. Yd.	\$275	\$464,772			
12	7034620	Form Liners	566.0	Sq. Yd.	\$100	\$56,600			
13	7039903	Misc. Barrier Curb	1164.0	Lin. Ft.	\$100	\$116,400			
14	7061060	Reinforcing Steel (Bridges)	51899	Lbs	\$1.40	\$72,659			
15	7121122	Fab. Structural LA Steel (Plate Girder) A709, Gr 50W	761743	Lbs	\$1.75	\$1,333,050			
16	7123610	Slab Drain	1.0	L.S.	\$120,000	\$120,000			
17	7129903	Misc. Bridge Rail (One Tube Structural Steel)	1164.0	Lin. Ft.	\$100	\$116,400			
18	7151001	Vertical Drain at End Bents	2.0	Each	\$3,500	\$7,000			
19	7162000	Laminated Neoprene Bearing Pad Assembly	20.0	Each	\$2,100	\$42,000			
20	7172001	Strip Seal Expansion Joint System	63	Lin. Ft.	\$425	\$26,920			
					Sub-Total (A) =	\$3,021,069			
				Price/Sq. Ft	. (Bridge Items) =	\$199			

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume reconstruction of Route 19 from Sta. 1700+00 to Sta. 1723+51 across Spring Valley. Estimate does not include costs for bridges. Figure A-8: Alternatives 3A, 3B, & 4 South - New Bridge Upstream ITEM UNIT QUANTITY UNIT COST **ITEM COST** COMMENT MOBILIZATION AND TRAFFIC CONTROL TEMPORARY TRAFFIC CONTROL LS 1 \$50,000 \$50,000 assumes flagging, temp barrier, signs, etc EROSION CONTROL LS \$25,000 \$25,000 EROSION CONTROL 1 ROADWORK REMOVAL OF SURFACINGS SY 8000 \$3 \$24 000 \$25,000 \$25.000 REMOVAL OF IMPROVEMENTS LS 1 CLEARING AND GRUBBING \$7,000 ACRE \$35,000 5 32682 EXCAVATION - CLASS A \$245,118 Assumes 2/3 cut volume is Class A CY \$8 16341 \$20 EXCAVATION - CLASS C CY \$326,823 Assumes 1/3 cut volume is Class C EMBANKMENT IN PLACE CY 20239 \$12 \$242,867 DRAINAGE AND SEWERS DRAINAGE LS 1 \$50,000 \$50,000 BRIDGES BRIDGE DEMOLITION LS See Bridge Costs ROUTE 19 OVER SPRING VALLEY LS See Bridge Costs TEMPORARY CAUSEWAY 1.5 \$250,000 PAVEMENT DRIVEWAY RECONSTRUCTION FACH \$10,000 \$40,000 4 ROUTE 19 RECONSTRUCTION 6438 \$354,096 8" asphalt; Type 5 aggregate base (6") SY \$55 PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES 825 \$20 \$16,500 incl. Sta. 1660+50 to Sta. 1666+50; west side FOOT GUARDRAIL, MGS GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION \$3,000 \$12,000 EACH 4 GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH) 4 \$2,500 \$10,000 EACH PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS SIGNING AND STRIPING LS \$25,000 \$25,000 1 OTHER SEEDING AND MULCHING LS 1 \$15,000 \$15,000 BID ITEMS SUBTOTAL \$1,496,403 CONSTRUCTION SURVEYING LS 1% \$14,964.03

LS

25%

\$377,841.84

\$1,889,209

CONTINGENCIES TOTAL CONSTRUCTION COST This page is intentionally left blank.

## Alternative 5A – Cost Estimate

	Project:	MoDOT R	te. 19 Concept	S Computed:	DGB	Date:	9/16/2019
FDS	Subject:	J042	20 Rehab	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. (	Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:			No:			
J0420 Rehab (New concrete approach s	pans; retain existin	ng arch)					
New Bridge Leng	;th = 540	ft					
New Bridge Wid		ft					
Arch Span Leng	th = 155	ft					
Item	Quantity			Unit Cost		Estimated Cost	:
Class 1 Excavation							
(206-10.00)	120	Cu. Yd.		\$50		\$6,000	
Removal of Bridge (Approaches)							
(216-05.00)	1	Lump Sum		\$180,435		\$180,435	
Bridge Approach Slab (Minor Road)							
(503-10.11A)	120	Sq. Yd.		\$215		\$25,800	
Drilled Shaft (5'-0" Dia.)				<u>.</u>			
(701-11.06)	214	LF	<b>F</b> .	\$1,100		\$235,400	
	Bent 2 Length =	23	Ft.				
	Bent 3 Length =	25	Ft.				
	Bent 6 Length =	26	Ft.				
	Bent 7 Length =	17 16	Ft.				
Rock Socket (4'-6" Dia.)	Bent 8 Length =	10	Ft.				
(701-12.06)	150	LF		\$800		\$120,000	
(701-12.00)	150		are 8'-0" Long			\$120,000	
Video Camera Inspection		Assume un	ure 8 -0 Long				
(701-13.00)	10	Ea.		\$650		\$6,500	
(701 13.00)	10	Lu.		ÇÜÜÜ		90,000	
Foundation Inspection Hole							
(701-14.00)	250	LF		\$120		\$30,000	
Sonic Logging Testing		_		40.000		***	
(701-16.00)	10	Ea.		\$2,000		\$20,000	
Galvanized Structural Steel Pile (12")							
(702-12.12)	497	LF		\$75		\$37,275	
(702-12.12)	437			<u>ر ب</u> ې		<i>,21,215</i>	
Dynamic Pile Testing							
(702-50.01)	2	Ea.		\$5,000		\$10,000	
Pile Point Reinforcement							
(702-70.00)	14	Ea.		\$125		\$1,750	
Class P Consists (Substanting)							
Class B Concrete (Substructure)	256	Cu. Yd.		¢000		6220 400	
(703-20.03)	356 Column Size =	Cu. Ya. 3	Ft. X	\$900 3 F	⁼t.	\$320,400	
			FL X Ft.	5 I	ι.		
	Cap Length =			4 E F	-+		
	Cap Size =		Ft. X		-t.		
147.	Column Height =		Ft.	(Approx. Ave	iuge)		
We	b Wall thickness =	1.75	Ft.				

	Project:	MoDOT Rte. 19 Concepts Computed:		DGB	Date:	9/16/2019
FDS	Subject:	J0420 Rehab	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Class B-2 Concrete (Spandrel Columns) (703-20.03)	152	Cu. Yd. Including Spandrel Caps	\$1,000		\$152,000	
Slab on Concrete I Girder (703-42.14)	1200	Sq. Yd.	\$320		\$384,000	
Slab on Concrete Spandrel Arch (703-42.14)	490	Sq. Yd.	\$350		\$171,500	
Barrier Curb (703-42.15)	1155	LF	\$95		\$109,725	
Form Liners (703-46.20)	541	Sq. Yd.	\$100		\$54,100	
Substructure Repair (Formed) (704-01.01)	233	Sq. Ft.	\$130		\$30,290	
Embedded Galvanic Anodes (704-99.01)	600	Ea.	\$100		\$60,000	
<b>Type 4, Prestressed Concrete I-Girder</b> (705-60.02)	1532	LF	\$190		\$291,080	
<b>Reinforcing Steel (Epoxy Coated)</b> (706-10.00)	753,600	Lb.	\$1.40		\$1,055,040	
Steel Int. Diaphragms for P/S Conc. I-Girder (712-33.01)	21	Ea.	\$800		\$16,800	
Drainage System on Structure (712-99.01)	1	Lump Sum	\$120,000		\$120,000	
Misc. Bridge Rail (712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents (715-10.01)	2	Ea.	\$2,500		\$5,000	
Laminated Neoprene Bearing Pad (716-10.02)	48	Ea.	\$260		\$12,480	
Laminated Neoprene Bearing Pad Assembly (716-20.00)	8	Ea.	\$2,200		\$17,600	
<b>Strip Seal</b> (717-20.02)	76	LF	\$400		\$30,400	
Total Bridge Cost =	\$3,6	30,600 U	nit Cost =	\$238	3 / Sq. Ft.	
		-	Not includina	bridae (	approach slab	

Not including bridge approach slab

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 400+00 to Sta. 413+71 across Spring Valley. Estimate does not include costs for bridges.

Figure A-7: Alternatives 1A,1B,2,5A,5B South - Shoofly Bridge Upstream

	·	-			-
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	2733	\$55	\$150,332	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	4391	\$8	\$32,932	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2195	\$20	\$43,909	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9680	\$12	\$116,166	
BORROW	CY	3094	\$2	\$6,188	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER SPRING VALLEY	LS				See Bridge Costs
TEMPORARY SHORING	LS	1	\$100,000	\$100,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	145	\$55	\$7,962	8" asphalt; Type 5 aggregate base (6")
ROTUE 19 TIE-IN MILL/OVERLAY	SY		\$25		2" thickness
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$626,488	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$159,122.07	
TOTAL CONSTRUCTION COST				\$795,610	

### ENGINEER'S ESTIMATE - CONCEPTUAL CONSTRUCTION COST

C	s	Description:	J9P3305: Rte 19 Arch Bridges Rehab. Study           r:         019-2126         By:         GC				
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	
BRIDGE C	ONSTRUCTIO	ON BID ITEMS					
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$65,825	\$65,825	
2	7021214	Galvanized Structural Steel Piles (14 in)	611.8	Lin. Ft.	\$75	\$45,885	
3	7021316	Galvanized Cast-in-Place Concrete Piles (16 in)	2635.6	Lin. Ft.	\$125	\$329,450	
4	7026000	Pre-bore for Piling	1238.0	Lin. Ft.	\$110	\$136,180	
5	7032003	Class B Concrete (Substructure)	23.1	Cu. Yd.	\$850	\$19,644	
6	7061060	Reinforcing Steel (Bridges)	2774	Lbs	\$1.20	\$3,329	
7	7121000	Fabricated Structural Carbon Steel (Misc)	75000	Lbs	\$3.50	\$262,500	
8	7181020	Transporting and Erecting Superstructure (10 - 40' Spans)	1	L.S.	\$375,000	\$375,000	
9	7181020A	Transporting and Erecting Superstructure (1 - 110' Span)	1	L.S.	\$50,000	\$50,000	
10	7181030	Removing and Storing Superstructure (10 - 40' Spans)	1	L.S.	\$165,000	\$165,000	
11	7181030A	Removing and Storing Superstructure (1 - 110' Span)	1	L.S.	\$20,000	\$20,000	
					Sub-Total (A) =	\$1,472,813	
				Price/Sq. Ft.	(Bridge Items) =	\$102	

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## Alternative 5B – Cost Estimate

Tradic         Prelim. Coat Estimate         Page:         1         ot         ESTIMATI           Job it         No:         No:         No:         No:         Idea (Control of Control of Contero of Conterol of Control of Contero Control of Control of Con		Project:	MoE	DOT Rt	e. 19 C	oncep	ts Computed:	DGB	Date:	9/16/2019	
Jub #: Ne:           Joint 20           Joint 20           Joint 20           New Bridge Length = 540         ft           New Bridge Length = 540         ft           New Bridge Length = 28         ft           Iteration Colspan="2">Execution           Class 1 Execution           Class 1 Execution           Class 1 Execution           (206-10.00)         120         Cu. Vd.         S50         S6,000           Removal of Bridge (Approaches)           (216-05.00)         1 Lump Sum         \$180,435         \$180,435           Bridge Approach Slab (Minor Road)         (503-10.11A)         120         \$215         \$215         \$255,800           Drilled Shaft (5'0" Dia.)         (701-12.06)         Bent 2 Length = 25         FL           Bent 2 Length = 25         FL           Bent 3 Length = 17         FL           Bent 3 Length = 17         FL		Subject:		J042	20 Reha	b	Checked:	JDM	Date:	9/25/2019	
19420 Rehab (New steel plate girder approach spans; retain existing arch)         New Bridge Length = 540 ft         New Bridge Width = 28 ft       ft         Arch Span Length = 155 ft       Unit Cost       Estimated Cost         Class 1 Excavation         Quantity       Unit Cost       Estimated Cost         Class 1 Excavation         (206-10.00)       120       Cu. Yd.       550       \$6,000         Removal of Bridge (Approaches)         (216-05.00)       1       Lump Sum       \$180,435       \$180,435         Bridge Approach Slab (Minor Road)         (503-10.11A)       120       5q, Yd.       \$215       \$25,800         Drilled Shaft (5'0" Dia.)         (701-11.06)       214       LF       \$1,100       \$235,400         Bent 2 Length =       25       Ft.       Bent 2 Length =       25         Bent 3 Length =       16       Ft.       Bent 3 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       10       Ea.       \$650       \$6,500         Yoldeo Camera Inspection       701       Ea.       \$650       \$6,500         Foundation Inspection Hole       701-14.00) <td< th=""><th></th><th>Task:</th><th>Pr</th><th>relim. C</th><th>Cost Est</th><th>imate</th><th>Page:</th><th>1</th><th>of:</th><th>ESTIMATE</th></td<>		Task:	Pr	relim. C	Cost Est	imate	Page:	1	of:	ESTIMATE	
New Bridge Length = New Bridge With = Arch Span Length =         540 28         ft 155         ft           Item         Quantity         Unit Cost         Estimated Cost           Class I Ecoaration (206-10.00)         120         Cu. Yd.         \$50         \$6,000           Removal of Bridge (Approaches) (216-05.00)         1         Lump Sum         \$180,435         \$180,435           Bridge Approach Slab (Minor Road) (503-10.11A)         120         Sq. Yd.         \$215         \$25,800           Orilled Shaft (5'0" Dia.) (701-11.06)         214         LF         \$1,100         \$235,400           Bent 2 Length =         23         FL Bent 3 Length =         25         FL Bent 3 Length =         26           701-11.06)         Ent 1         16         FL Bent 3 Length =         17         FL Bent 3 Length =         16           701-12.06)         150         LF         \$800         \$120,000           Arch Socket (4'-6" Dia.) (701-13.00)         10         Ea.         \$650         \$6,500           Foundation Inspection (701-14.00)         250         LF         \$120         \$30,000           Solic Logging Testing (701-14.00)         20         Ea.         \$2,000         \$20,000           Galvanized Structural Steel Pile (12") (702-10.01)		Job #:					No:				
New Bridge Width =         28 155         ft           Item         Quantity         Unit Cost         Estimated Cost           Class 1 Excavation (206-10.00)         120         Cu. Yd.         \$50         \$6,000           Removal of Bridge (Approaches) (216-05.00)         1         Lump Sum         \$180,435         \$180,435           Bridge Approach Slab (Minor Road) (503-10.11A)         120         \$9, Yd.         \$215         \$25,800           prilled shaft (5'0" Dia.) (701-11.06)         214         LF         \$1,100         \$235,400           Bent 2 Length =         23         Ft. Bent 3 Length =         25         Ft. Bent 7 Length =         \$217         Ft. Bent 7 Length =         \$210,000           (701-12.06)         150         LF         \$800         \$120,000           Video Camera Inspection (701-13.00)         10         Ea.         \$650         \$6,500           Foundation Inspection Hole (701-14.00)         10         Ea.         \$220,000         \$20,000           Sonic Logging Testing (701-16.00)         10         Ea.         \$22,000         \$20,000           Sonic Logging Testing (702-16.00)         2         Ea.         \$22,000         \$20,000           Sonic Logging Testing (702-20.01)         2         Ea.	J0420 Rehab (New steel plate girder app	roach spans; reta	in exi	sting a	rch)						
New Bridge Width =         28 155         ft           Item         Quantity         Unit Cost         Estimated Cost           Class 1 Excavation (206-10.00)         120         Cu. Yd.         \$50         \$6,000           Removal of Bridge (Approaches) (216-05.00)         1         Lump Sum         \$180,435         \$180,435           Bridge Approach Slab (Minor Road) (503-10.11A)         120         \$9, Yd.         \$215         \$25,800           prilled shaft (5'0" Dia.) (701-11.06)         214         LF         \$1,100         \$235,400           Bent 2 Length =         23         Ft. Bent 3 Length =         25         Ft. Bent 7 Length =         \$217         Ft. Bent 7 Length =         \$210,000           (701-12.06)         150         LF         \$800         \$120,000           Video Camera Inspection (701-13.00)         10         Ea.         \$650         \$6,500           Foundation Inspection Hole (701-14.00)         10         Ea.         \$220,000         \$20,000           Sonic Logging Testing (701-16.00)         10         Ea.         \$22,000         \$20,000           Sonic Logging Testing (702-16.00)         2         Ea.         \$22,000         \$20,000           Sonic Logging Testing (702-20.01)         2         Ea.	New Bridge Lengt	h- 540	ft								
Arch Span Length =         155         ft           Item         Quantity         Unit Cost         Estimated Cost           Class 1 Excavation (206-10.00)         120         Cu, Yd.         S50         S6,000           Removal of Bridge (Approaches) (216-05.00)         1         Lump Sum         S180,435         \$180,435           Bridge Approach Slab (Mior Road) (503-10.11A)         200         Sq. Yd.         \$215         \$25,800           Drilled Shaft (5'-0" Dia.) (701-11.06)         214         LF         \$1,100         \$235,400           Bent 2 Length =         2.5         FL         Bent 3 Length =         2.5         FL           Bent 3 Length =         2.5         FL         Bent 5 Length =         2.6         FL           Bent 5 Length =         2.6         FL         Bent 6 Length =         2.6         FL           Bent 6 Length =         1.6         FL         St0.00         St20,000           Video Camera Inspection (701-12.06)         100         Ea.         St50         S6,500           Soundation Inspection Hole (701-14.00)         200         F         S120         S30,000           Soundation Inspection Hole (702-12.01)         20         F         S120         S20,000 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>											
Class 1 Excavation         (206-10.00)       120       Cu. Yd.       \$50       \$6,000         Removal of Bridge (Approaches)       1       Lump Sum       \$180,435       \$180,435         (216-05.00)       1       Lump Sum       \$2180,435       \$180,435         Bridge Approach Slab (Minor Road)       (503-10.11A)       120       \$9, Yd.       \$215       \$25,800         Drilled Shaft (5'-0" Dia.)       214       LF       \$1,100       \$235,400         Bent 2 Length =       23       Ft.       Bent 3 Length =       25       Ft.         Bent 1 Length =       26       Ft.       Bent 7 Length =       26       Ft.         Bent 7 Length =       17       Ft.       Bent 8 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       150       LF       \$800       \$120,000         /(701-12.06)       150       LF       \$800       \$120,000         Assume all are 8'-0" Long       ///>////////////////////////////////	_										
Class 1 Excavation         (206-10.00)       120       Cu. Yd.       \$50       \$6,000         Removal of Bridge (Approaches)       1       Lump Sum       \$180,435       \$180,435         (216-05.00)       1       Lump Sum       \$2180,435       \$180,435         Bridge Approach Slab (Minor Road)       (503-10.11A)       120       \$9, Yd.       \$215       \$25,800         Drilled Shaft (5'-0" Dia.)       214       LF       \$1,100       \$235,400         Bent 2 Length =       23       Ft.       Bent 3 Length =       25       Ft.         Bent 1 Length =       26       Ft.       Bent 7 Length =       26       Ft.         Bent 7 Length =       17       Ft.       Bent 8 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       150       LF       \$800       \$120,000         /(701-12.06)       150       LF       \$800       \$120,000         Assume all are 8'-0" Long       ///>////////////////////////////////	ltem	Ouantity					Unit Cost		Estimated Cost	:	
Renoval of Bridge (Approaches)         (216-05.00)       1       Lump Sum       5180,435       5180,435         Bridge Approach Slab (Minor Road)       120       Sq. Yd.       \$215       \$25,800         Drilled Shaft (5'-0" Dia.)       214       LF       \$1,100       \$235,400         Bent 5 Length =       23       FL       Bent 6 Length =       25       FL         Bent 6 Length =       26       FL       Bent 7 Length =       17       FL         Rock Socket (4'-6" Dia.)       150       LF       \$800       \$120,000         7(01-12.06)       150       LF       \$800       \$120,000         Video Camera Inspection       10       Ea       5650       \$6,500         Foundation Inspection Hole         (701-12.06)       10       Ea       \$120       \$30,000         Solic Logging Testing         (701-12.00)       10       Ea       \$2,000       \$2,000         Solic Logging Testing       \$200       \$2,000         Solic Logging Testing       \$200       \$2,000         (702-12.01)       20       Ea       \$2,000       \$10,000 <th colspace="" diseteret="" distri<="" district="" for="" solic="" td="" the=""><td>Class 1 Excavation</td><td>200001</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>·</td></th>	<td>Class 1 Excavation</td> <td>200001</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>·</td>	Class 1 Excavation	200001								·
(216-05.00)       1       Lump Sum       \$180,435       \$180,435         Bridge Approach Slab (Minor Road)       120       \$q. Yd.       \$215       \$25,800         prilled Shaft (5'-0" Dia.)       214       LF       \$1,100       \$235,400         Bent 2 Length =       23       Ft.       Bent 2 Length =       25       Ft.         Bent 3 Length =       25       Ft.       Bent 6 Length =       26       Ft.         Bent 7 Length =       16       Ft.       Bent 7 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       100       Ea.       \$800       \$120,000         Video Camera Inspection (701-12.06)       100       Ea.       \$650       \$6,500         Foundation Inspection Hole (701-13.00)       10       Ea.       \$120,000       \$30,000         Sonic Logging Testing (701-16.00)       10       Ea.       \$22,000       \$20,000         Galvanized Structural Steel Plie (12")       497       LF       \$75       \$37,275         Dynamic Plie Testing (702-50.01)       2       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Y	(206-10.00)	120	Cu. Y	′d.			\$50		\$6,000		
(216-05.00)       1       Lump Sum       \$180,435       \$180,435         Bridge Approach Slab (Minor Road)       120       \$q. Yd.       \$215       \$25,800         prilled Shaft (5'-0" Dia.)       214       LF       \$1,100       \$235,400         Bent 2 Length =       23       Ft.       Bent 2 Length =       25       Ft.         Bent 3 Length =       25       Ft.       Bent 6 Length =       26       Ft.         Bent 7 Length =       16       Ft.       Bent 7 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       100       Ea.       \$800       \$120,000         Video Camera Inspection (701-12.06)       100       Ea.       \$650       \$6,500         Foundation Inspection Hole (701-13.00)       10       Ea.       \$120,000       \$30,000         Sonic Logging Testing (701-16.00)       10       Ea.       \$22,000       \$20,000         Galvanized Structural Steel Plie (12")       497       LF       \$75       \$37,275         Dynamic Plie Testing (702-50.01)       2       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Y	Removal of Bridge (Approaches)										
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(216-05.00)	1	Lum	p Sum			\$180,435		\$180,435		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Bridge Approach Slab (Minor Road)										
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(503-10.11A)	120	Sq. Y	′d.			\$215		\$25,800		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Drilled Shaft (5'-0" Dia.)										
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(701-11.06)	214	LF				\$1,100		\$235,400		
Bent 6 Length = $26$ Ft. Bent 7 Length = $17$ Ft. Bent 8 Length = $16$ Ft. St. St. St. St. St. St. St. St. St. S		Bent 2 Length =		23	Ft.						
Bent 7 Length =       17       Ft.         Bent 8 Length =       16       Ft.         Rock Socket (4'-6" Dia.)       150       LF       \$800       \$120,000         Video Camera Inspection       10       Ea.       \$650       \$6,500         Foundation Inspection Hole       250       LF       \$120       \$30,000         Foundation Inspection Hole       250       LF       \$120       \$30,000         Sonic Logging Testing       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         (703-20.03)       256       Cu. Yd.       \$900       \$320,400       \$320,400         Column Size =       3       Ft.       X       3       Ft.         (Cap		Bent 3 Length =		25	Ft.						
Bent 8 Length         16         Ft.           Rock Socket (4'-6" Dia.) (701-12.06)         150         LF         \$800         \$120,000           Video Camera Inspection (701-13.00)         10         Ea.         \$650         \$6,500           Foundation Inspection Hole (701-14.00)         250         LF         \$120         \$30,000           Sonic Logging Testing (701-16.00)         10         Ea.         \$20,000         \$20,000           Galvanized Structural Steel Pile (12") (702-12.12)         10         Ea.         \$20,000         \$20,000           Dynamic Pile Testing (702-50.01)         2         Ea.         \$75         \$37,275           Dynamic Pile Testing (702-70.00)         14         Ea.         \$125         \$1,750           Class B Concrete (Substructure) (703-20.03)         356         Cu. Yd.         \$900         \$320,400           Column Size = Cap Length = 4         3         Ft.         X         3         Ft.           Cap Length = Column Height =         20         Ft.         (Approx. Average)         \$320,400		Bent 6 Length =		26	Ft.						
Rock Socket (4'-6" Dia.)       IF       \$800       \$120,000         Assume all are 8'-0" Long       Assume all are 8'-0" Long       \$650       \$6,500         Video Camera Inspection       10       Ea.       \$650       \$6,500         Foundation Inspection Hole       250       LF       \$120       \$30,000         Sonic Logging Testing       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         Cap Length =       400       Ft.       X       3       Ft.         Cap Length =       400       Ft.       X       4.5       Ft.         Cap Length =       40       Ft.       X       4.5       Ft.         Cap Length =       20       Ft.       (Approx. Average)       \$10000		Bent 7 Length =		17	Ft.						
(701-12.06)       150       LF       \$800       \$120,000         Assume all are 8'-0" Long       Nideo Camera Inspection       \$650       \$6,500         Foundation Inspection Hole $10$ Ea.       \$650       \$6,500         Foundation Inspection Hole $701-14.00$ 250       LF       \$120       \$30,000         Sonic Logging Testing $701-16.00$ 10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing $702-70.00$ 2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement $702-70.00$ 14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Cap Size = 4       40       Ft.       Cap Size = 4       Ft.       X       4.5       Ft.         Cap Size = 4       40       Ft.       Cap Size = 4       Ft.       (Approx. Average)       Xerage Size = 4		Bent 8 Length =		16	Ft.						
Assume all are 8'-0" Long         Video Camera Inspection       Assume all are 8'-0" Long         (701-13.00)       10       Ea.       \$650       \$6,500         Foundation Inspection Hole       (701-14.00)       250       LF       \$120       \$30,000         Sonic Logging Testing       250       LF       \$120       \$30,000         Sonic Logging Testing       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$125       \$1,750         (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Cap Length =       40       Ft.       Cap Size =       3       Ft.       X         (Column Height =       20       Ft.       (Approx. Average)       \$320,400											
Video Camera Inspection (701-13.00)       10       Ea.       \$650       \$6,500         Foundation Inspection Hole (701-14.00)       250       LF       \$120       \$30,000         Sonic Logging Testing (701-16.00)       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12") (702-12.12)       497       LF       \$75       \$37,275         Dynamic Pile Testing (702-50.01)       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure) (703-20.03)       356       Cu. Yd.       \$990       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Column Height =       20       Ft.       (Approx. Average)       \$320,400	(701-12.06)	150							\$120,000		
(701-13.00)       10       Ea.       \$650       \$6,500         Foundation Inspection Hole (701-14.00)       250       LF       \$120       \$30,000         Sonic Logging Testing (701-16.00)       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12") (702-12.12)       497       LF       \$75       \$37,275         Dynamic Pile Testing (702-50.01)       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure) (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Class B Concrete (Substructure) (Cap Length =       40       Ft. Cap Size =       4       Ft. X       3       Ft.         Class B Concrete (Substructure) (Column Size =       3       Ft. X       3       Ft.       Cap Length =       40       Ft. Cap Size =       4       Ft. X       4.5       Ft.       (Approx. Average)			Assu	me all	are 8'-0	" Long	1				
Foundation Inspection Hole (701-14.00)       250       LF       \$120       \$30,000         Sonic Logging Testing (701-16.00)       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12") (702-12.12)       497       LF       \$75       \$37,275         Dynamic Pile Testing (702-50.01)       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure) (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       Cap Length =       40       Ft.         Cap Length =       40       Ft.       Cap Length =       40       Ft.         Cap Length =       40       Ft.       Cap Length =       40       Ft.         Cap Length =       20       Ft.       (Approx. Average)       5320,400	-		_				40-0		40 - 00		
(701-14.00)250LF\$120\$30,000Sonic Logging Testing (701-16.00)10Ea.\$2,000\$20,000Galvanized Structural Steel Pile (12") (702-12.12)497LF\$75\$37,275Dynamic Pile Testing (702-50.01)2Ea.\$5,000\$10,000Pile Point Reinforcement (702-70.00)14Ea.\$125\$1,750Class B Concrete (Substructure) (703-20.03)356Cu. Yd.\$900\$320,400Class B Concrete (Substructure) (Column Size =3Ft.X3Ft.Cap Length =400Ft. Cap Size =4Ft. X4.5Ft. (Approx. Average)	(701-13.00)	10	Ea.				Ş650		Ş6,500		
Sonic Logging Testing (701-16.00)       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12") (702-12.12)       497       LF       \$75       \$37,275         Dynamic Pile Testing (702-50.01)       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure) (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       X       4.5       Ft.         Cap Size =       4       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       Image: Column Size =	-										
(701-16.00)       10       Ea.       \$2,000       \$20,000         Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       400       Ft.       Cap Length =       400       Ft.         Column Height =       20       Ft.       X       4.5       Ft.	(701-14.00)	250	LF				\$120		\$30,000		
Galvanized Structural Steel Pile (12")       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       Cap Size =       4       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       (Approx. Average)       Image: Column Size =       Column Height =       Colum	Sonic Logging Testing										
(702-12.12)       497       LF       \$75       \$37,275         Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       14       Ea.       \$125       \$1,750         (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       Cap Size =       4       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       (Approx. Average)       (Approx. Average)	(701-16.00)	10	Ea.				\$2,000		\$20,000		
Dynamic Pile Testing       2       Ea.       \$5,000       \$10,000         Pile Point Reinforcement       2       Ea.       \$125       \$1,750         (702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       Ft.	Galvanized Structural Steel Pile (12")										
(702-50.01)2Ea.\$5,000\$10,000Pile Point Reinforcement $(702-70.00)$ 14Ea.\$125\$1,750Class B Concrete (Substructure) $(703-20.03)$ 356Cu. Yd.\$900\$320,400Column Size = 3Ft. X3Ft.Cap Length =40Ft.Cap Size =4Ft. X4.5Ft.Column Height =20Ft. $(Approx. Average)$ Column Size =Column Height =Column Height =Cap Size	(702-12.12)	497	LF				\$75		\$37,275		
Pile Point Reinforcement       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure)       356       Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       Kerage	Dynamic Pile Testing		_						<b>1</b>		
(702-70.00)       14       Ea.       \$125       \$1,750         Class B Concrete (Substructure) $356$ Cu. Yd.       \$900       \$320,400         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average) $Average$	(702-50.01)	2	Ea.				\$5,000		\$10,000		
Class B Concrete (Substructure)         (703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       Cap Size =       4       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       Cap Column Height	Pile Point Reinforcement		<b>F</b> :				6405		64 750		
(703-20.03)       356       Cu. Yd.       \$900       \$320,400         Column Size =       3       Ft.       X       3       Ft.         Cap Length =       40       Ft.       Cap Size =       4       Ft.       X       4.5       Ft.         Column Height =       20       Ft.       (Approx. Average)       X       X       X	(702-70.00)	14	Ea.				\$125		\$1,750		
Column Size =3Ft.X3Ft.Cap Length =40Ft.TCap Size =4Ft.X4.5Ft.Column Height =20Ft.(Approx. Average)	Class B Concrete (Substructure)	250	C · · · ·	(d			¢000		6220 400		
Cap Length =40Ft.Cap Size =4Ft.X4.5Ft.Column Height =20Ft.(Approx. Average)	(705-20.03)		CU. Y		F+	v		<b>F</b> +	ş320,400		
Cap Size =4Ft.X4.5Ft.Column Height =20Ft.(Approx. Average)						X	5	Γι.			
Column Height = 20 Ft. (Approx. Average)						v	<u>л</u> с	E+			
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		-		1.75	Ft.		ιπρριολ. Αν	cruye/			

	Project:	MoDOT Rte. 19 Concept	S Computed:	Computed: DGB		9/16/2019
FJS	Subject:	J0420 Rehab	Checked:	JDM	Date:	9/25/2019
	Task:	Prelim. Cost Estimate	Page:	1	of:	ESTIMATE
	Job #:		No:			
Class B-2 Concrete (Spandrel Columns) (703-20.03)	152	Cu. Yd. Including Spandrel Caps	\$1,000		\$152,000	
Slab on Steel (703-42.12)	1200	Sq. Yd.	\$275		\$330,000	
Slab on Concrete Spandrel Arch (703-42.14)	490	Sq. Yd.	\$350		\$171,500	
Barrier Curb (703-42.15)	1155	LF	\$95		\$109,725	
Form Liners (703-46.20)	541	Sq. Yd.	\$100		\$54,100	
Substructure Repair (Formed) (704-01.01)	233	Sq. Ft.	\$130		\$30,290	
Embedded Galvanic Anodes (704-99.01)	600	Ea.	\$100		\$60,000	
Fabricated Structural Steel (Plate Girder) 712-11.22	420,360	Lb.	\$1.75		\$735,629	
<b>Reinforcing Steel (Epoxy Coated)</b> (706-10.00)	753,600	Lb.	\$1.40		\$1,055,040	
Drainage System on Structure (712-99.01)	1	Lump Sum	\$120,000		\$120,000	
Misc. Bridge Rail (712-99.03)	1155	LF	\$110		\$127,050	
Vertical Drain at End Bents (715-10.01)	2	Ea.	\$2,500		\$5,000	
Laminated Neoprene Bearing Pad (716-10.02)	0	Ea.	\$260		\$0	
Laminated Neoprene Bearing Pad Assembly (716-20.00)	28	Ea.	\$2,200		\$61,600	
Strip Seal Expansion Joint System (717-20.01)	76	LF	\$400		\$30,400	
Total Bridge Cost =	\$4,0	35,900 U	Init Cost =	\$265	5 / Sq. Ft.	

HDR

DESCRIPTION: Route 19 two-lane minor rural highway. Project limits assume construction of shoofly along Route 19 from Sta. 400+00 to Sta. 413+71 across Spring Valley. Estimate does not include costs for bridges.

Figure A-7: Alternatives 1A,1B,2,5A,5B South - Shoofly Bridge Upstream

	ī	-			-
ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST	COMMENT
MOBILIZATION AND TRAFFIC CONTROL					
TEMPORARY TRAFFIC CONTROL	LS	1	\$35,000	\$35,000	assumes flagging, temp barrier, signs, etc
TEMPORARY PAVING	SY	2733	\$55	\$150,332	8" asphalt; 6" aggregate base
EROSION CONTROL					
EROSION CONTROL	LS	1	\$25,000	\$25,000	
ROADWORK					
REMOVAL OF IMPROVEMENTS	LS	1	\$15,000	\$15,000	
CLEARING AND GRUBBING	ACRE	3	\$7,000	\$21,000	
EXCAVATION - CLASS A	CY	4391	\$8	\$32,932	Assumes 2/3 cut volume is Class A
EXCAVATION - CLASS C	CY	2195	\$20	\$43,909	Assumes 1/3 cut volume is Class C
EMBANKMENT IN PLACE	CY	9680	\$12	\$116,166	
BORROW	CY	3094	\$2	\$6,188	
DRAINAGE AND SEWERS					
DRAINAGE	LS	1	\$20,000	\$20,000	
BRIDGES					
BRIDGE DEMOLITION	LS				See Bridge Costs
ROUTE 19 OVER SPRING VALLEY	LS				See Bridge Costs
TEMPORARY SHORING	LS	1	\$100,000	\$100,000	
PAVEMENT					
ROUTE 19 RECONSTRUCTION	SY	145	\$55	\$7,962	8" asphalt; Type 5 aggregate base (6")
ROTUE 19 TIE-IN MILL/OVERLAY	SY		\$25		2" thickness
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES					
GUARDRAIL, MGS	FOOT	300	\$20	\$6,000	
GUARDRAIL, BRIDGE APPROACH TRANSITION SECTION	EACH	4	\$3,000	\$12,000	
GUARDRAIL, TYPE A CRASHWORTHY END TERMINAL (MASH)	EACH	4	\$2,500	\$10,000	
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS					
SIGNING AND STRIPING	LS	1	\$10,000	\$10,000	
OTHER					
SEEDING AND MULCHING	LS	1	\$15,000	\$15,000	
BID ITEMS SUBTOTAL				\$626,488	
CONSTRUCTION SURVEYING	LS			\$10,000.00	
CONTINGENCIES	LS		25%	\$159,122.07	
TOTAL CONSTRUCTION COST				\$795,610	

### ENGINEER'S ESTIMATE - CONCEPTUAL CONSTRUCTION COST

Client: Project: Project Number: Description:			J9P3305: Rte 19 Arch Bridges Rehab. Study           019-2126         By:         GCL			
BID FORM #	MODOT BID ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
BRIDGE C	ONSTRUCTIO	ON BID ITEMS				
1	2160500	Removal of Bridges (Temp Structure)	1	L.S.	\$65,825	\$65,825
2	7021214	Galvanized Structural Steel Piles (14 in)	611.8	Lin. Ft.	\$75	\$45,885
3	7021316	Galvanized Cast-in-Place Concrete Piles (16 in)	2635.6	Lin. Ft.	\$125	\$329,450
4	7026000	Pre-bore for Piling	1238.0	Lin. Ft.	\$110	\$136,180
5	7032003	Class B Concrete (Substructure)	23.1	Cu. Yd.	\$850	\$19,644
6	7061060	Reinforcing Steel (Bridges)	2774	Lbs	\$1.20	\$3,329
7	7121000	Fabricated Structural Carbon Steel (Misc)	75000	Lbs	\$3.50	\$262,500
8	7181020	Transporting and Erecting Superstructure (10 - 40' Spans)	1	L.S.	\$375,000	\$375,000
9	7181020A	Transporting and Erecting Superstructure (1 - 110' Span)	1	L.S.	\$50,000	\$50,000
10	7181030	Removing and Storing Superstructure (10 - 40' Spans)	1	L.S.	\$165,000	\$165,000
11	7181030A	Removing and Storing Superstructure (1 - 110' Span)	1	L.S.	\$20,000	\$20,000
					Sub-Total (A) =	\$1,472,813
				Price/Sq. Ft.	(Bridge Items) =	\$102

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