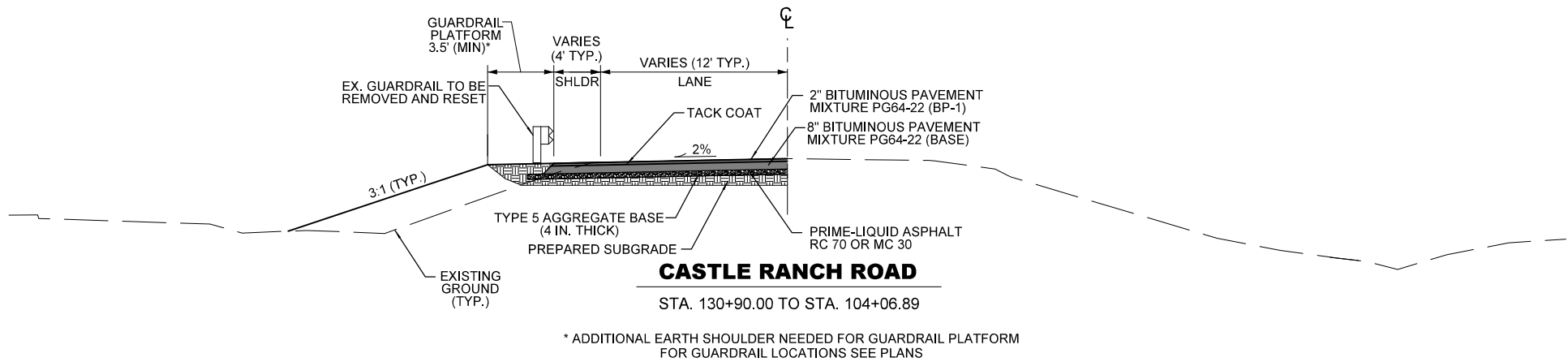
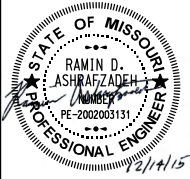




- NOTES:
1. CONTRACTOR TO STAKE ALL P.D.E AND T.C.E. POINTS AS SHOWN ON PLANS.
 2. NO TREES OUTSIDE THE EXISTING R/W SHALL BE REMOVED WITHOUT WRITTEN PERMISSION OF JEFFERSON COUNTY DEPARTMENT OF PUBLIC WORKS OR AS MARKED TO BE REMOVED ON THESE PLANS. COST OF REMOVAL SHALL BE INCLUDED IN CONTRACT UNIT PRICE FOR CLEARING.
 3. CONTRACTOR TO NOTIFY AND COORDINATE WITH UTILITY COMPANIES TWO WEEKS PRIOR TO COMMENCEMENT OF PROJECT.
 4. CONTRACTOR TO SALVAGE ALL SIGNS TO THE JEFFERSON COUNTY DEPARTMENT OF PUBLIC WORKS.
 5. CONTRACTOR SHALL PROVIDE EROSION CONTROL PLAN TO THE JEFFERSON COUNTY DEPARTMENT OF PUBLIC WORKS 10 DAYS PRIOR TO CONSTRUCTION FOR REVIEW AND APPROVAL.
 6. FULL DEPTH SAWCUT SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS.



NAME: RAMIN D. ASHRAFZADEH
DISCIPLINE: ENGINEER
LICENSE NO. PE-2002003131
EXPIRATION DATE: 12-31-17

DATE PREPARED
12/14/2015

ROUTE STATE
MO

DISTRICT SHEET NO.
2

COUNTY
JEFFERSON

JOB NO.
1401842

CONTRACT ID.

FEDERAL PROJECT NO.

MSD P-NUMBER

DATE	DESCRIPTION

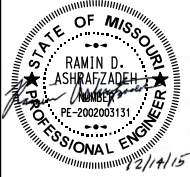
JEFFERSON COUNTY, MISSOURI
MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jeffco.mo.org



HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-4986 • WWW.HORNERSHIFRIN.COM
DESIGNER
CERTIFICATE OF AUTHORITY: 000169
EXPIRATION DATE: DECEMBER 31, 2016

**CASTLE RANCH RD.
BRIDGE
REHABILITATION**
TYPICAL SECTION

SUMMARY OF QUANTITIES			
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
ROADWAY ITEMS:			
2013000	CLEARING AND GRUBBING	AC	0.1
2022010	REMOVAL OF IMPROVEMENTS	LS	1
2031000	CLASS A EXCAVATION	CY	180
2036000	COMPACTING EMBANKMENT	CY	80
3040504	TYPE 5 AGGREGATE BASE (4" THICK)	SY	30
4011209	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BP-1)	TON	4
4013000	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	TON	13
4071005	TACK COAT	GAL	2
4081010	PRIME-LIQUID ASPHALT RC 70 OR MC 30	GAL	11
6069900	REMOVE AND RESET BRIDGE ANCHOR SECTION	EACH	4
6069901	REMOVE AND RESET TRANSITION SECTION	EACH	4
6119905	SLAB BOULDER WALL	CY	120
6119907	SPECIAL ROCK BLANKET	CY	400
6181000	MOBILIZATION	LS	1
6274000	CONTRACTOR FURNISHED SURVEYING AND STAKING	LS	1
8061019	SILT FENCE	LF	250
PAVEMENT MARKING ITEMS:			
6206000C	4 IN. WHITE WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	LF	25
6206001C	4 IN. YELLOW WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	LF	50
LANDSCAPING ITEMS:			
8052000A	SEEDING - WARM SEASON MIXTURES	AC	0.1
BRIDGE ITEMS:			
2061000	CLASS 1 EXCAVATION	CY	55
2163502	PARTIAL REMOVAL OF SUBSTRUCTURE CONCRETE	LS	1
6214600A	FLOWABLE BACKFILL	CY	14.1
7021010	STRUCTURAL STEEL PILES (10 IN.)	LF	54
7026000	PRE-BORE FOR PILING	LF	20
7032003	CLASS B CONCRETE (SUBSTRUCTURE)	CY	14.7
7061060	REINFORCING STEEL (BRIDGES)	LB	1820
7101000	REINFORCING STEEL (EPOXY COATED)	LB	120
7151001	VERTICAL DRAIN AT END BENTS	EACH	1
7201200	SELECT GRANULAR BACKFILL FOR STRUCTURAL SYSTEMS	CY	33



NAME: RAMIN D. ASHRAFZADEH
DISCIPLINE: ENGINEER
LICENSE NO. PE-2002003131
EXPIRATION DATE: 12/31/17

DATE PREPARED 12/14/2015	
ROUTE	STATE MO
DISTRICT	SHEET NO. 2A
COUNTY JEFFERSON	
JOB NO. 1401842	
CONTRACT ID.	

FEDERAL PROJECT NO.
MSD P-NUMBER

DESCRIPTION									
DATE									

JEFFERSON COUNTY, MISSOURI

MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jeffco.mo.org



 **HORNER SHIFRIN**

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-8986 • WWW.HORNERSHIFRIN.COM
DESIGN-BUILD CONTRACTING
CERTIFICATE OF AUTHORITY: 000169
EXPIRATION DATE: DECEMBER 31, 2016

**CASTLE RANCH RD.
BRIDGE
REHABILITATION**

SUMMARY OF QUANTITIES

EARTHWORK			
LOCATION	CLASS "A" EXCAVATION	COMPACTING EMBANKMENT	REMARKS
	(CY)	(CY)	
CASTLE RANCH ROAD	180	80	
TOTAL	180	80	
USE	180	80	

TEMPORARY EROSION CONTROL			
LOCATION	SIDE	SILT FENCE	REMARKS
		(LF)	
CASTLE RANCH ROAD	BOTH	250	
	TOTAL	250	
	USE	250	

CLEARING AND GRUBBING				
PLAN SHEET	LOCATION	SIDE	AREA	REMARKS
			(AC)	
1	CASTLE RANCH ROAD	BOTH	0.1	
	TOTAL		0.1	
	USE		0.1	

SEEDING				
PLAN SHEET	LOCATION	SIDE	AREA	REMARKS
			(AC)	
1	CASTLE RANCH ROAD	BOTH	0.1	
	TOTAL		0.1	
	USE		0.1	

REMOVE AND RESET GUARDRAIL					
PLAN SHEET	LOCATION	SIDE	REMOVE AND RESET BRIDGE ANCHOR SECTION	REMOVE AND RESET TRANSITION SECTION	REMARKS
			(EACH)	(EACH)	
1	CASTLE RANCH ROAD	BOTH	1		
		TOTAL	4	4	
		USE	4	4	

PAVEMENT MARKING				
LOCATION	SIDE	4 IN. WHITE WATERBORNE PAVEMENT MARKING PAINT TYPE P BEADS	4 IN. YELLOW WATERBORNE PAVEMENT MARKING PAINT TYPE P BEADS	REMARKS
		(LF)	(LF)	
CASTLE RANCH ROAD	LT	25	50	
	TOTAL	25	50	
	USE	25	50	

SPECIAL ROCK BLANKET				
PLAN SHEET	SIDE	LOCATION	SPECIAL ROCK BLANKET	REMARKS
			(CY)	
1	BOTH	CASTLE RANCH ROAD	400	
			400	
			400	

SLAB BOULDER WALL				
PLAN SHEET	SIDE	LOCATION	SLAB BOULDER WALL	REMARKS
			(CY)	
1	BOTH	CASTLE RANCH ROAD	120	
			120	
			120	

MOBILIZATION
LUMP SUM = 1

CONTRACTOR FURNISHED SURVEYING AND STAKING
LUMP SUM = 1

REMOVAL OF IMPROVEMENTS
LUMP SUM = 1

BITUMINOUS PAVEMENT													
PLAN SHEET	STATION	STATION	LOCATION	2" BIT. PAVT. MIX BP-1 (PG64-22)		8" BIT. PAVT. MIX BASE (PG64-22)		4" TYPE 5 AGGREGATE BASE	PRIME COAT		TACK COAT		REMARKS
				(SY)	(CY)	(SY)	(CY)	(SY)	(SY)	(GAL)	(SY)	(GAL)	
1	130+90.00	104+06.89	CASTLE RANCH ROAD	28.3	1.6	28.3	6.3	30.0	30.0	10.5	28.3	1.4	
			TOTALS	28.3	1.6		6.3	30.0	30.0	10.5	28.3	1.4	
			CONVERSION FACTORS										
			(TON/CY)		1.948		1.943						
			(GAL/SY)							0.35		0.05	
			TOTAL (TONS)		3.1		12.2						
			TOTAL (GAL)							10.5		1.4	
			USE		4		13	30		11		2	



NAME: RAMIN D. ASHRAFZADEH
DISCIPLINE: ENGINEER
LICENSE NO. PE-2002003131
EXPIRATION DATE: 12/31/17

DATE PREPARED
12/14/2015

ROUTE STATE
MO

DISTRICT SHEET NO.
2B

COUNTY
JEFFERSON

JOB NO.
1401842

CONTRACT ID.

FEDERAL PROJECT NO.

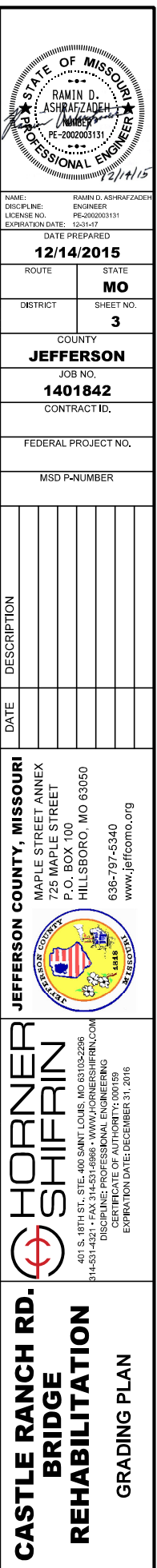
MSD P-NUMBER

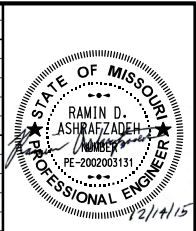
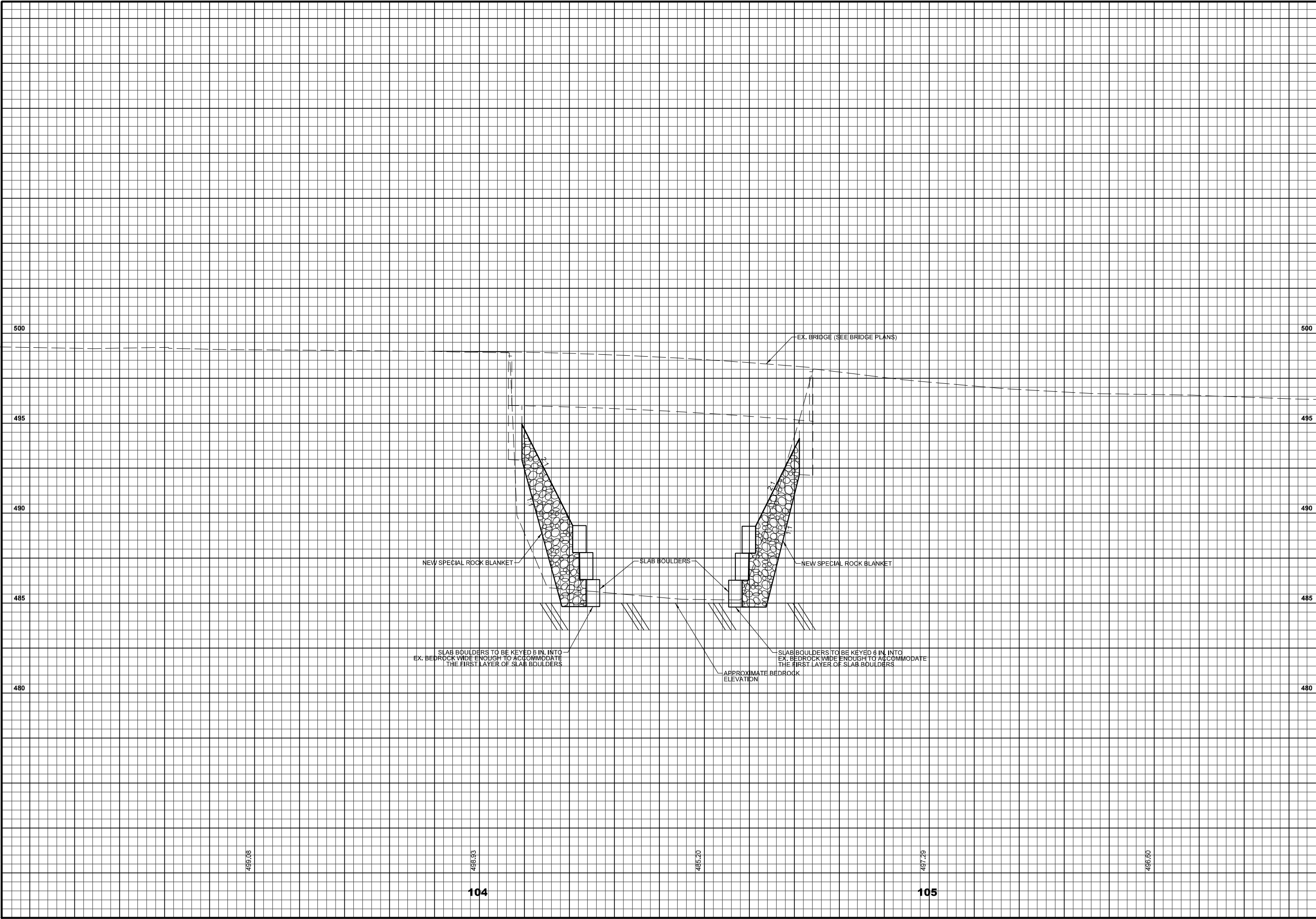
DESCRIPTION	DATE						

JEFFERSON COUNTY, MISSOURI
MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jefcomo.org

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-4986 • WWW.HORNERSHIFRIN.COM
DESIGNER
CERTIFICATE OF AUTHORITY: 000169
EXPIRATION DATE: DECEMBER 31, 2016

CASTLE RANCH RD.
BRIDGE
REHABILITATION
SCHEDULE OF QUANTITIES





NAME: RAMIN D. ASHRAFZADEH	
DISCIPLINE: ENGINEER	
LICENSE NO.: PE-2002003131	
EXPIRATION DATE: 12/31/17	
DATE PREPARED: 12/14/2015	
ROUTE	STATE
	MO
DISTRICT	SHEET NO.
	4
COUNTY	
JEFFERSON	
JOB NO.	
1401842	
CONTRACT ID.	
FEDERAL PROJECT NO.	
MSD P-NUMBER	

DATE	DESCRIPTION

JEFFERSON COUNTY, MISSOURI
MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jeffco.mo.org

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-4396 • WWW.HORNERSHIFRIN.COM
DESIGN ENGINEERING
CERTIFICATE OF AUTHORITY: 000169
EXPIRATION DATE: DECEMBER 31, 2016

CASTLE RANCH RD. BRIDGE REHABILITATION
ROADWAY PROFILE

ENGINEER'S SEAL



2-14-2015

DATE PREPARED
12/14/2015

ROUTE	STATE
	MO

STRICT	SHEET NO. B1
--------	-----------------

COUNTY
JEFFERSON

JOB NO.
1401842

FEDERAL PROJECT NO.

BRIDGE NO.
25900261

[illegible]

MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jeffco.org

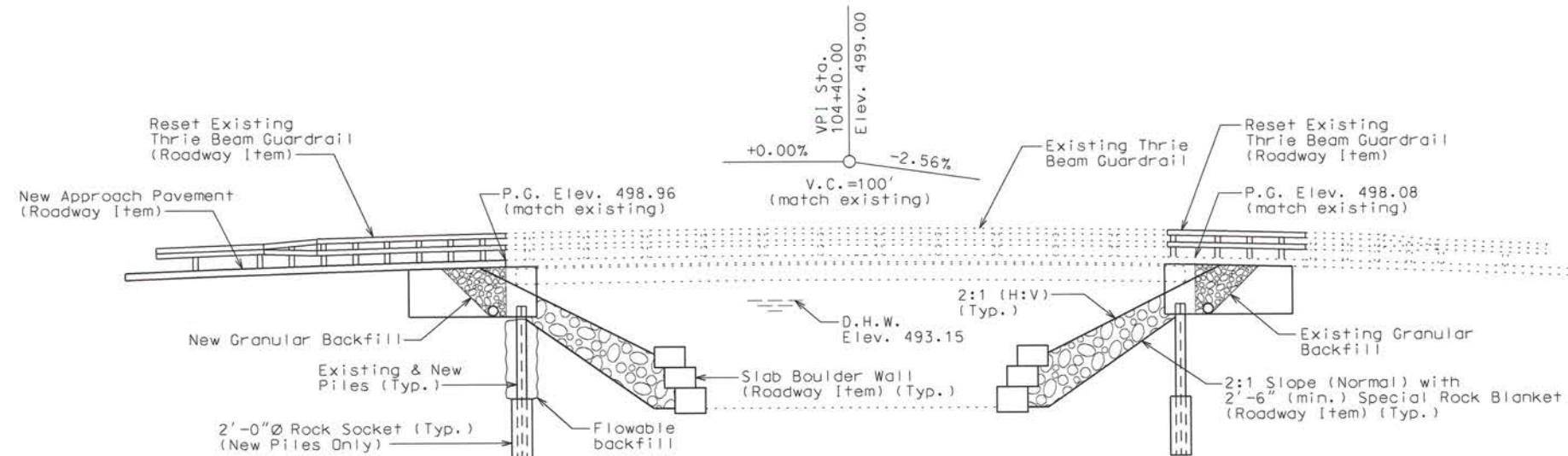


HURNER
SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6960 • WWW.HURNERSHIFRIN.COM

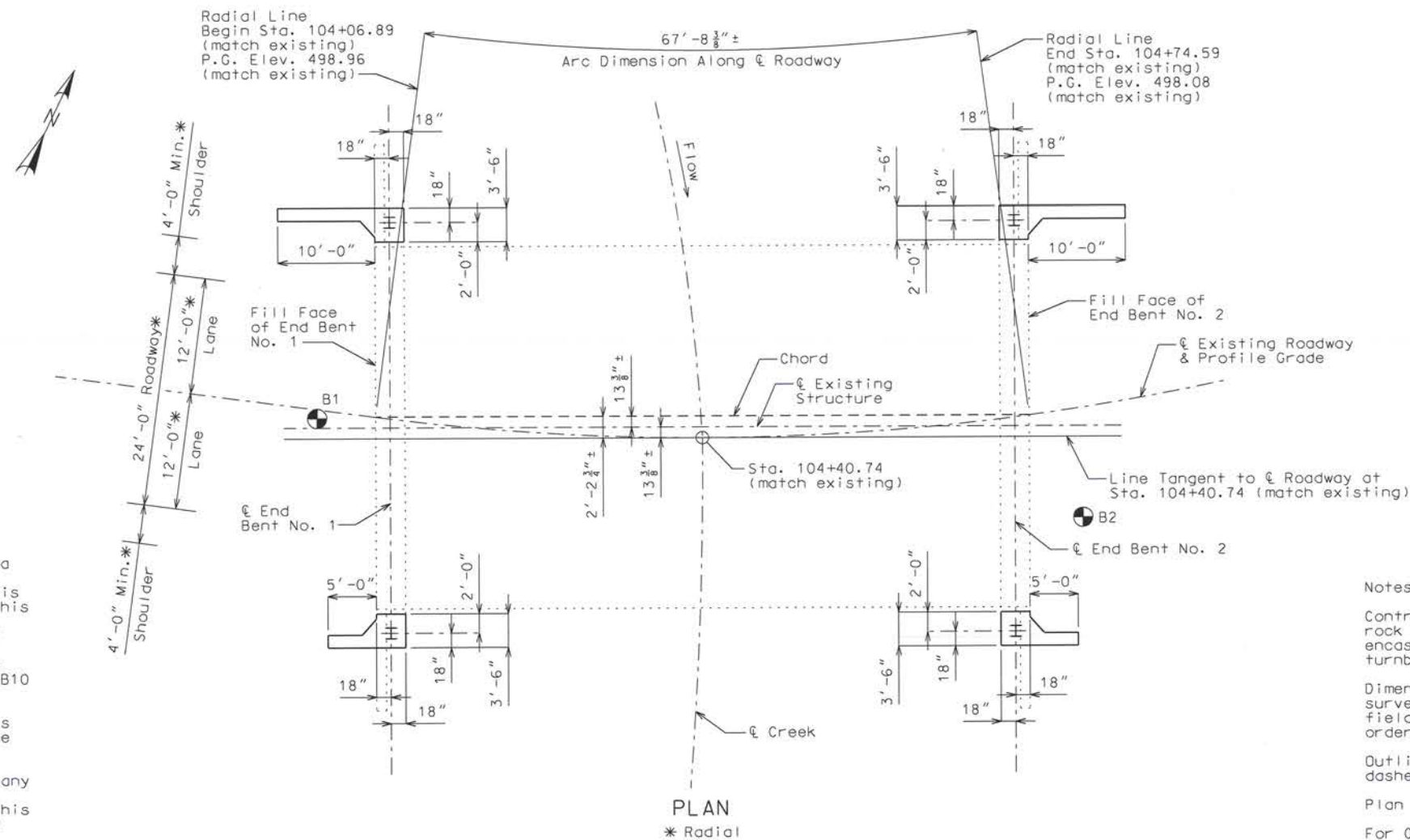
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2016

**CASTLE RANCH ROAD
BRIDGE REPAIR**
JEFFERSON COUNTY, MISSOURI



ELEVATION

HORIZONTAL CURVE (match existing)
 P.I. STA. = 106+33.14
 $\Delta = 82^{\circ}52'41''$ (LT)
 $D = 22^{\circ}22'52''$
 $R = 256.00'$
 $T = 226.00'$
 $L = 370.30'$
 $E = 85.49'$
 P.C. STA. = 104+07.13
 P.T. STA. = 107+77.43



PLAN
* Radial

⊙ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the County for the design of the project, are shown on Sheet No. B10 or in the contract documents. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the County or elsewhere.

The County does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the County.

Notes:

Contractor shall install one new pile in a rock socket at each corner of the bridge, encased in an extended beam cap and new turnbacked wings.

Dimensions and elevations shown are based on survey data and existing plans and shall be field verified by the contractor prior to ordering new materials.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Plan dimensions are horizontal.

For General Notes, Estimated Quantities, and Location Sketch, see Sheet No. B2.

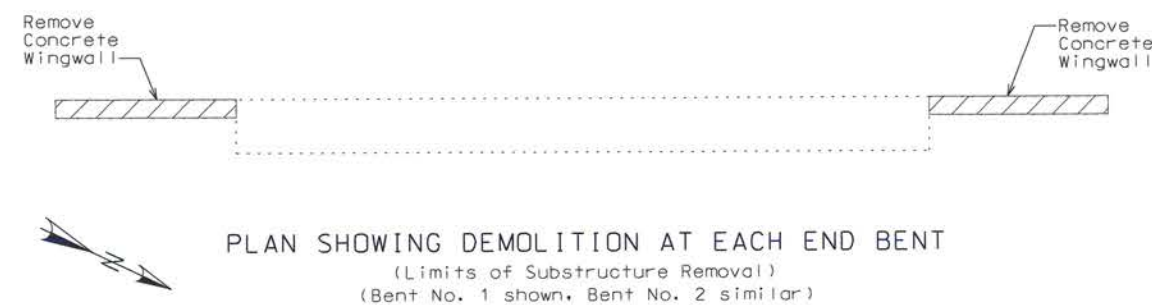
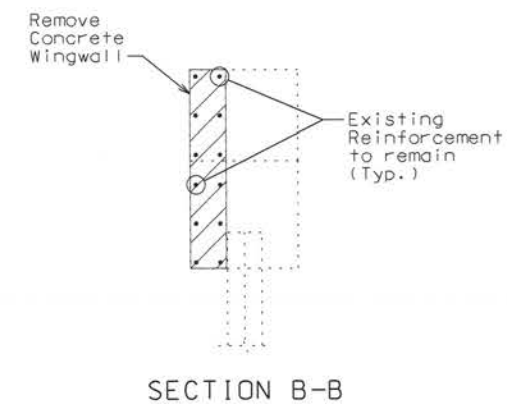
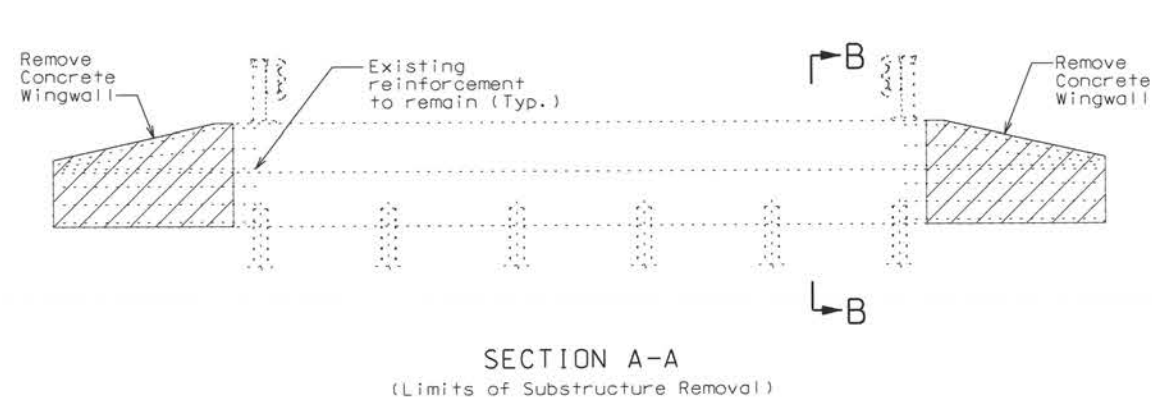
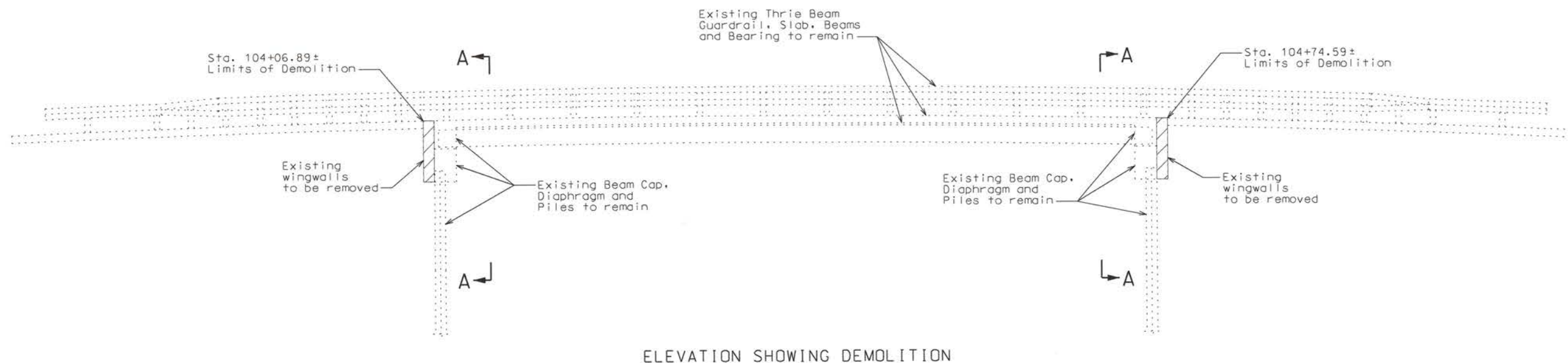
For Slab Boulder Wall and Special Rock Blanket Details, see the Job Special Provisions and Roadway Plans.

For details of Flowable backfill, see Sheet No. B2.

Designed: MAC
Detailed: CAB
Checked: TPL

Note: This drawing is not to scale. Follow dimensions.

Sheet No. B1 of 11



Notes:

All demolition work of substructure shown on this sheet shall be included in the contract lump sum price for Partial Removal of Substructure Concrete.

See Sheet No. B2 for notes on re-use of existing reinforcement.



DATE PREPARED
12/4/2015

ROUTE	STATE MO
-------	-------------

DISTRICT	SHEET NO
	B3

COUNTY
JEFFERSON

JOB NO.
1401842

FEDERAL PROJECT NO.

BRIDGE NO.
25900261[illegible]

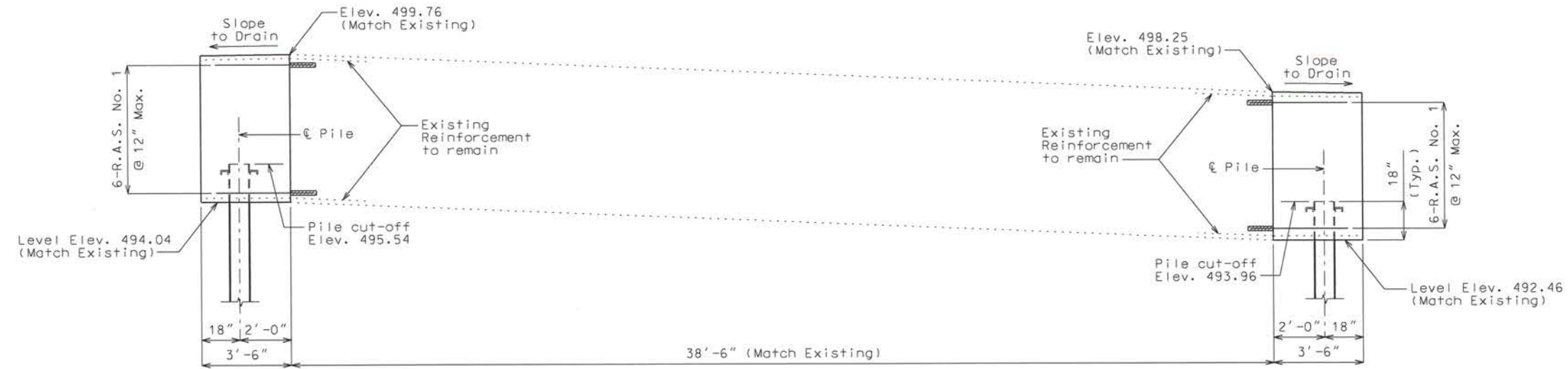
MAPLE STREET ANNEX
 725 MAPLE STREET
 P.O. BOX 100
 HILLSBORO, MO 63050
 636-797-5340
www.jeflicomo.org



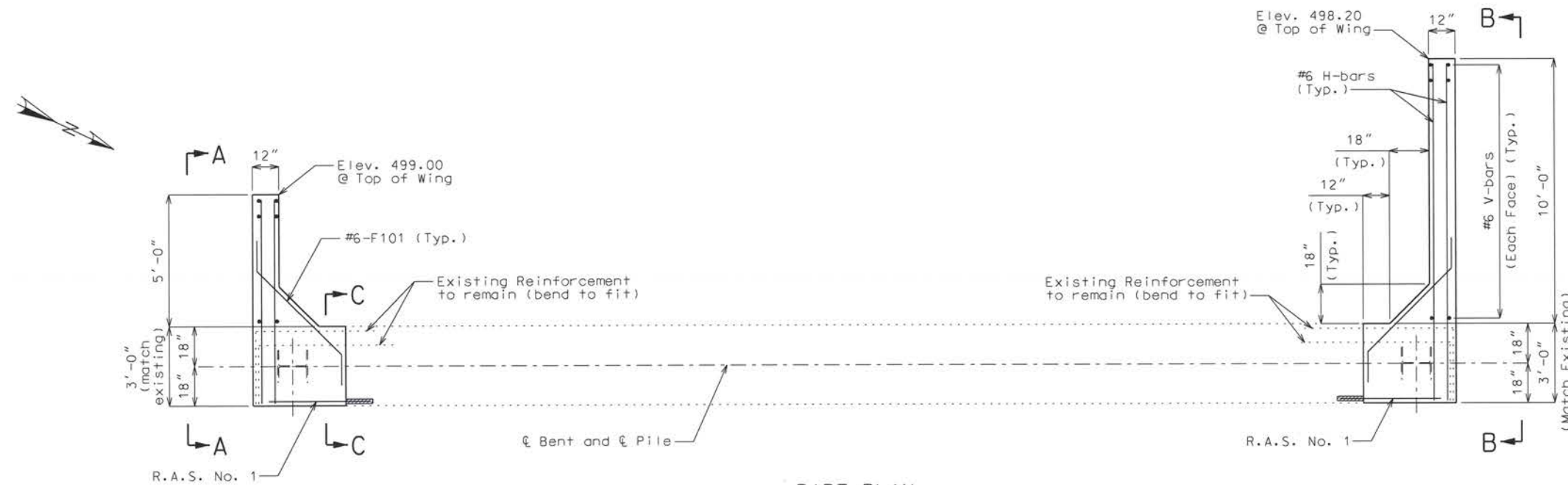
**HORNER
SHIFRIN**

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2016

**CASTLE RANCH ROAD
BRIDGE REPAIR**



SECTION NEAR END BENT



PART PLAN

Substructure Quantity Table for End Bent 1		
Item		Quantity
Class 1 Excavation	cu. yard	40
Flowable Backfill	cu. yard	14.1
Structural Steel Piles (10 in.)	linear foot	28
Pre-Bore for Piling	linear foot	10
Class B Concrete (Substructure)	cu. yard	7.4
Reinforcing Steel (Bridges)	pound	919
Reinforcing Steel (Epoxy Coated)	pound	61

Note: These quantities are included in the Estimated Quantities table on Sheet No. B2.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. B4 of 11

Notes:

R.A.S. = Resin Anchor System

For details of Resin Anchors, see Sheet No. B5.

All concrete in the end bent shall be Class B.

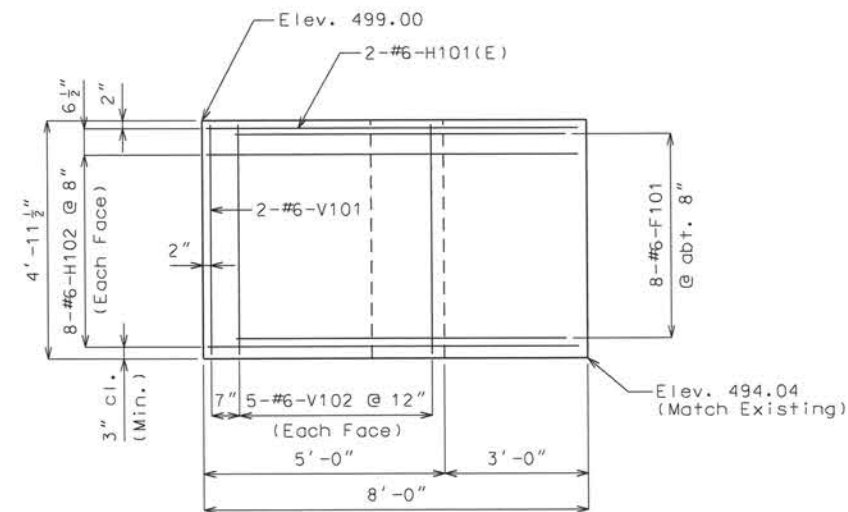
Existing reinforcement re-used in the new concrete shall be bent and trimmed only as necessary to fit in the new concrete.

For Elevations A-A and B-B, see Sheet No. B5.

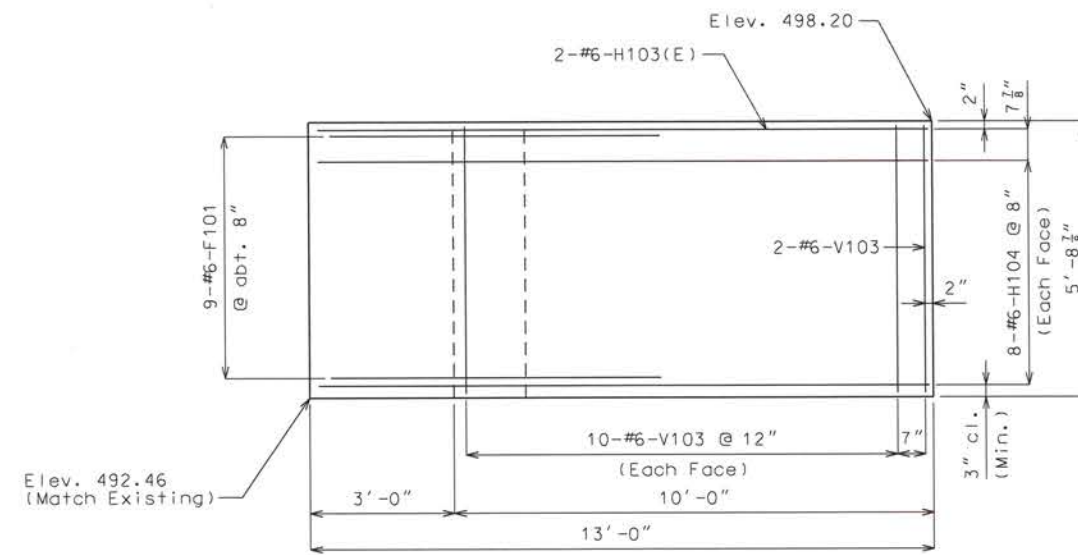
For Section C-C, see Sheet No. B5.

New and existing reinforcement shall have a minimum clearance of 1 1/2".

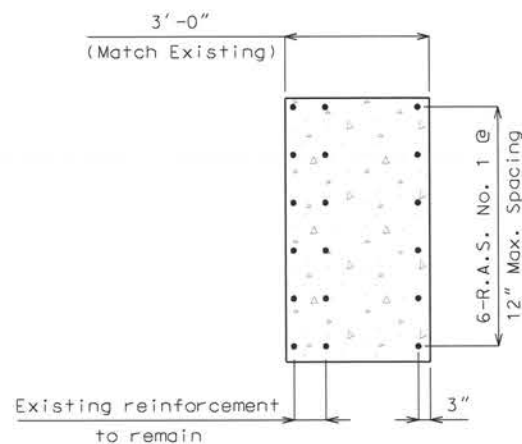
For details of pre-bore for pile and flowable backfill, see Sheet No. B2.



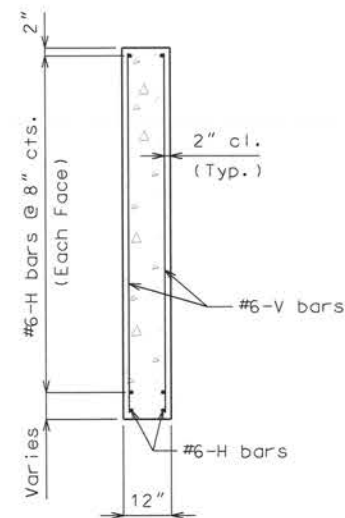
ELEVATION A-A



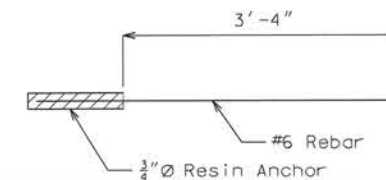
ELEVATION B-B



SECTION C-C



TYPICAL SECTION THRU WING



RESIN ANCHOR SYSTEM NO. 1 DETAIL (12 Total)

Notes:

R.A.S. = Resin Anchor System

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

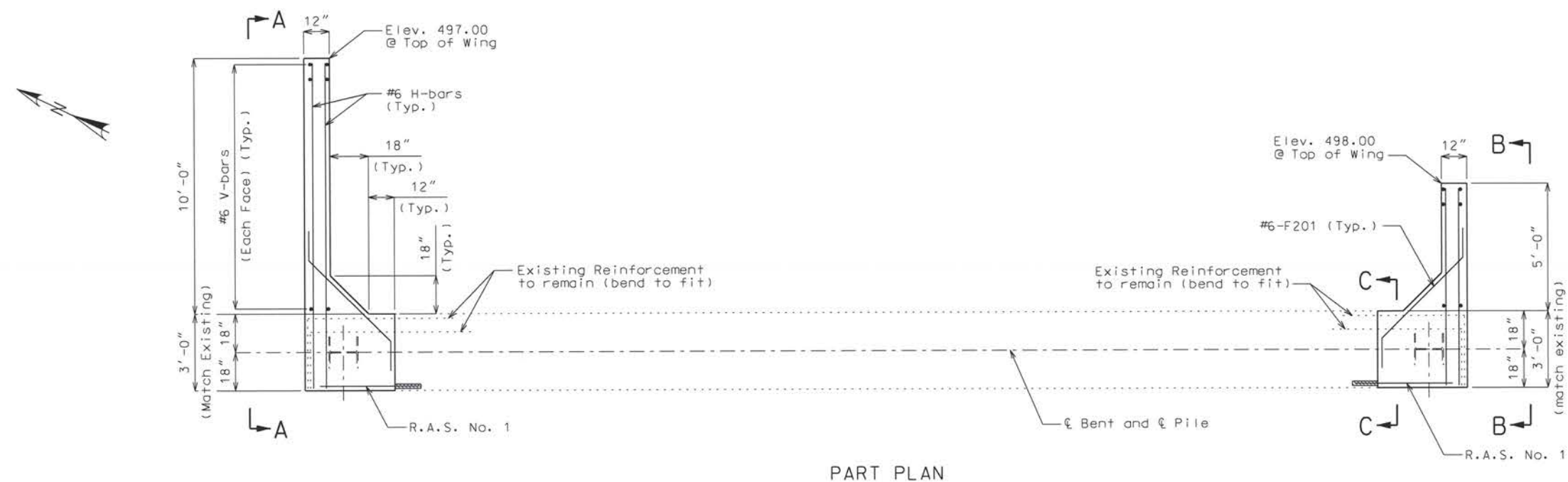
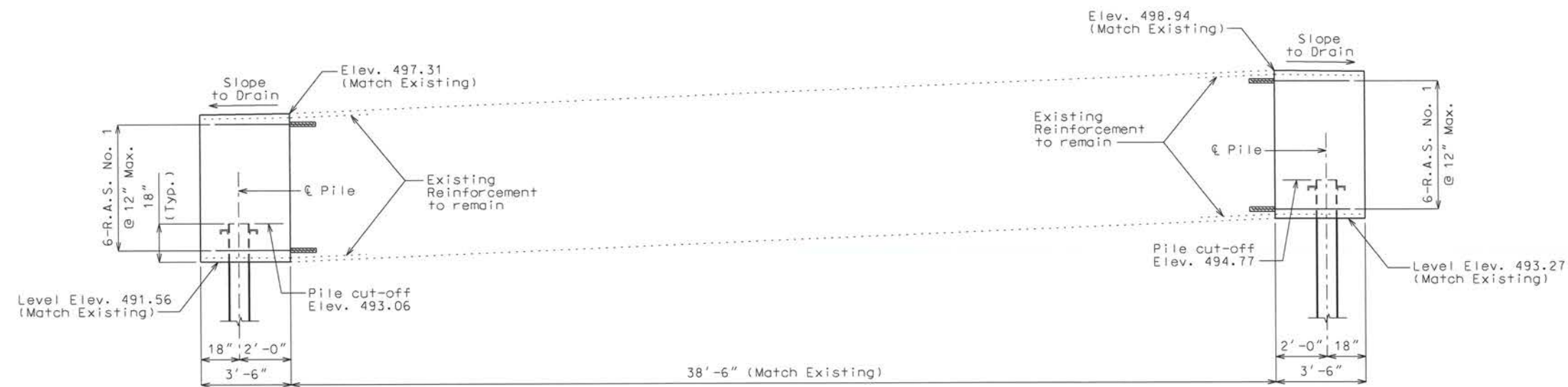
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Class B Concrete (Substructure).

The minimum embedment depth in concrete with $f'c = 3,000$ psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

For location of Elevations A-A and B-B, see Sheet B4.

For location of Section C-C, see Sheet B4.





Substructure Quantity Table for End Bent 2		
Item		Quantity
Class 1 Excavation	cu. yard	15
Structural Steel Piles (10 in.)	linear foot	26
Pre-Bore for Piling	linear foot	10
Class B Concrete (Substructure)	cu. yard	7.3
Reinforcing Steel (Bridges)	pound	902
Reinforcing Steel (Epoxy Coated)	pound	61

Note: These quantities are included in the Estimated Quantities table on Sheet No. B2.

Notes:

R.A.S. = Resin Anchor System

For details of Resin Anchors, see Sheet No. B8.

All concrete in the end bent shall be Class B.

Existing reinforcement re-used in the new concrete shall be bent and trimmed only as necessary to fit in the new concrete.

For Elevations A-A and B-B, see Sheet No. B8.

For Section C-C, see Sheet No. B8.

New and existing reinforcement shall have a minimum clearance of $1\frac{1}{2}$ ".

For details of pre-bore for pile and flowable backfill,
see Sheet No. B2.



2.14.2015

DATE PREPARED _____

12/14/2015

ROUTE	STATE
-------	-------

	MO
--	----

STRICT	SHEET NO.
--------	-----------

	B7
--	----

COUNTY
JEFFERSON

JEFFERSON
1821-1822

JOB NO.
1401842

1401642
FEDERAL PROJECT NO.

FEDERAL PROJECT NO.

BRIDGE NO.

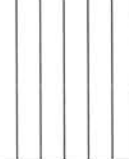
25900261

--	--	--	--	--	--	--

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

[illegible][illegible]

--	--	--	--	--	--	--

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

--	--	--	--	--	--	--

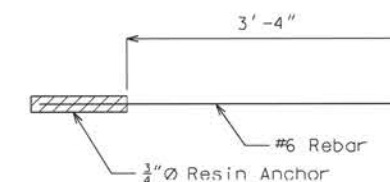
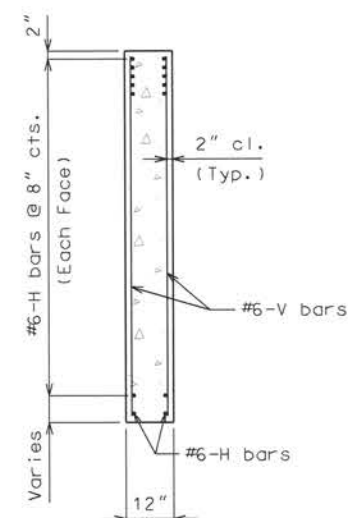
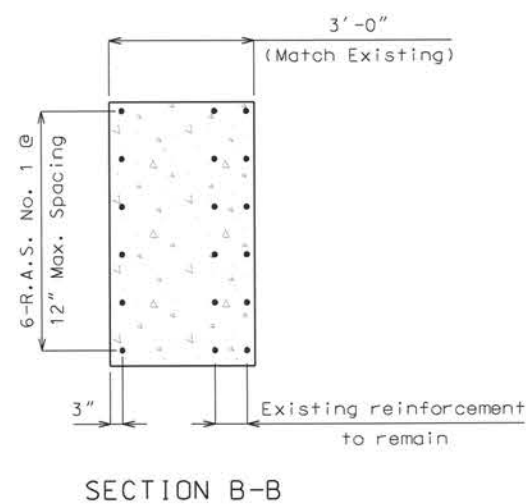
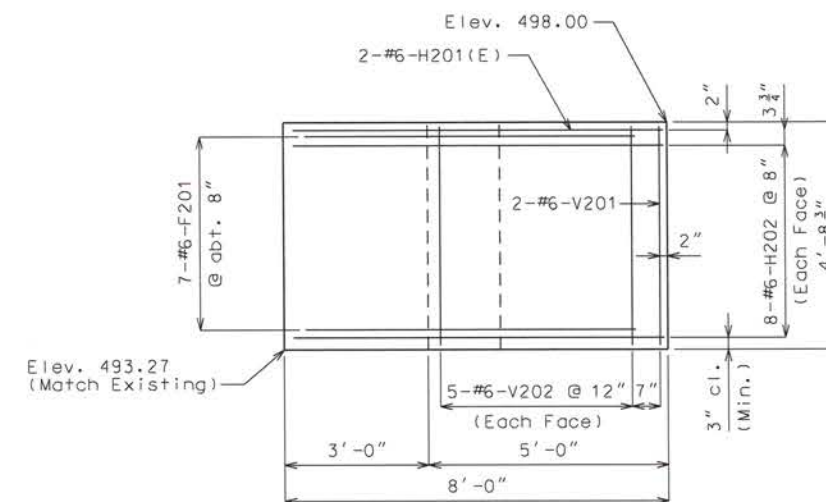
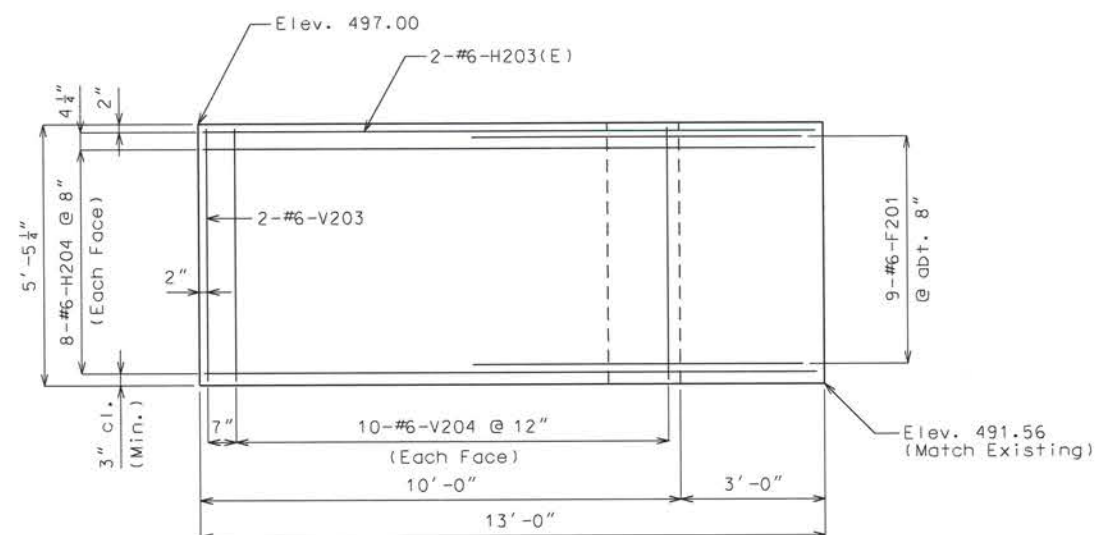
EX 50

NNI
ET
6309

orig

REF ST NO. M 40 NO. C

STP
PLE
X 11
ORO
-53
com



Notes:

R.A.S. = Resin Anchor System

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Class B Concrete (Substructure).

The minimum embedment depth in concrete with $f'c = 3,000$ psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

For location of Elevations A-A and B-B, see Sheet B7.

For location of Section C-C, see Sheet B7.



12.14.2015

DATE PREPARED
12/4/2015

ROUTE	STATE
	MO

DISTRICT	SHEET 1 B8
----------	---------------

COUNTY
JEFFERSON

JOB NO.
1401842

FEDERAL PROJECT NO.

BRIDGE NO.
25900261

[illegible]

JEFFERSON COUNTY, MISSOURI
 MAPLE STREET ANNEX
 725 MAPLE STREET
 P.O. BOX 100
 HILLSBORO, MO 63050
 636-797-5340
www.jeffco.mo.gov



The seal of Jefferson County, Missouri, is circular. It features a central shield with a plow and a sheaf of wheat. The shield is surrounded by a wreath. The words "JEFFERSON COUNTY" are written in a circle around the top, and "MISSOURI" is at the bottom. The year "1820" is also present.



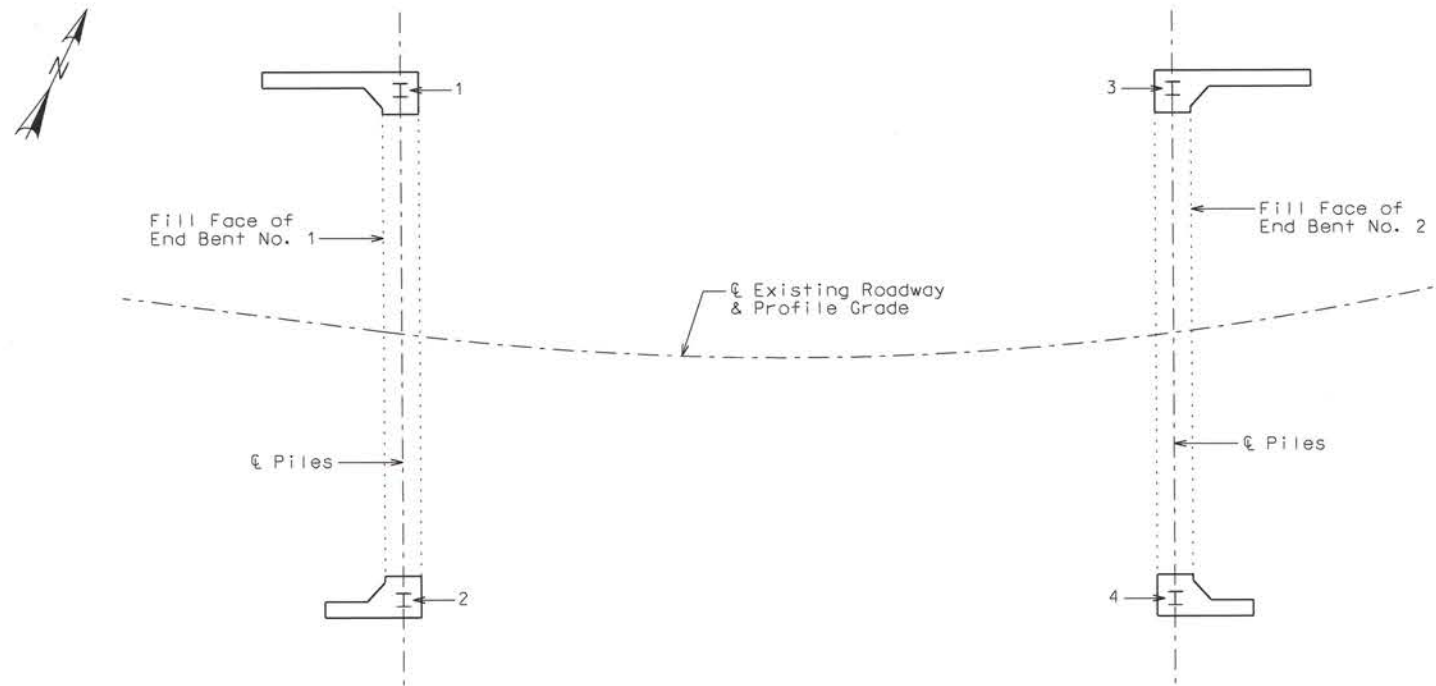
**HORNER
SHIFRIN**

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2286
14-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000155
EXPIRATION DATE: DECEMBER 31, 2016

DETAILS OF END BENT NO. 2

**CASTLE RANCH ROAD
BRIDGE REPAIR**

WHEELER COUNTY, MISSOURI



PART PLAN SHOWING
PILE NUMBERING FOR RECORDING
"AS BUILT PILE" DATA

"AS BUILT PILE" DATA		
PILE NO.	LENGTH IN PLACE (FT.)	REMARKS
		End Bent No. 1
1		
2		

"AS BUILT PILE" DATA		
PILE NO.	LENGTH IN PLACE (FT.)	REMARKS
		End Bent No. 2
3		
4		

NOTE: INDICATE IN REMARKS COLUMN:
A.) PILE BATTER IF OTHER THAN SHOWN ON BENT DETAIL SHEET.
B.) TYPE OF PILING USED AND GRADE.

THIS SHEET TO BE COMPLETED BY CONSTRUCTION PERSONNEL.

ENGINEER'S SEAL

12.14.2015

DATE PREPARED
12/14/2015

ROUTE	STATE
	MO
DISTRICT	SHEET NO.
	B9
COUNTY	
JEFFERSON	
JOB NO.	
1401842	
FEDERAL PROJECT NO.	
BRIDGE NO.	
25900261	

DESCRIPTION	DATE

JEFFERSON COUNTY, MISSOURI

MAPLE STREET ANNEX
725 MAPLE STREET
P.O. BOX 100
HILLSBORO, MO 63050
636-797-5340
www.jeffco.org

HORNER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2286
314-531-4100 FAX 314-531-4101
www.horner-shifrin.com
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 0002559
EXPIRATION DATE: DECEMBER 31, 2016

AS-BUILT PILE DATA SHEET

CASTLE RANCH ROAD
BRIDGE REPAIR

JEFFERSON COUNTY, MISSOURI



BORING LOG

PROJECT Castle Ranch Road Bridge BORING NO. B-1
LOCATION Jefferson County, Missouri SHEET 1 OF 1
DRILLER Midwest Drilling Inc. PROJECT NO. 10-0571
SURFACE ELEVATION 495 +/- DRILLING METHOD 4" O.D. CFA DATE DRILLED 9/5/11

DEPTH (FT)	SAMPLE				DESCRIPTION	GRAPHIC	UNIFIED SOIL CLASSIFICATION	SEE REMARK NO.	LABORATORY TEST RESULTS					DEPTH (FT)
	NUMBER	TYPE	RECOVERY (IN/IN)	BLOWS (PER 6 IN)					MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	LIQUID LIMIT	PLASTIC LIMIT	
0					Asphaltic Concrete 5"									0
					FILL - Crushed Rock 2"		FILL							
					FILL - Brown low plastic SILTY CLAY		FILL							
1	1	SS		6					8		--			
				5										
				6										
3	2	ST	5/10		Dark brown low plastic SILTY CLAY, some sand, gravel		CL		9		--			3
6	3	SS		4					13		--			6
				5										
				7										
9	4	SS		8					9		--			9
				6										
				8										
					Weathered Rock			1						
					Gray LIMESTONE and weathered LIMESTONE									
12	5	NX	57/60		RQD 78%									12
15														15
					Boring terminated at 15.5 feet.									
18														18

WATER LEVEL:
☒ NONE OBSERVED WHILE DRILLING
☐ FT WHILE DRILLING
☐ FT HRS AFTER DRILLING
☐ FT DAYS AFTER DRILLING

REMARKS: Unconfined strength determined by hand penetrometer, unless noted.
1) Driller's Observation.



BORING LOG

PROJECT Castle Ranch Road Bridge BORING NO. B-2
LOCATION Jefferson County, Missouri SHEET 1 OF 1
DRILLER Midwest Drilling Inc. PROJECT NO. 10-0571
SURFACE ELEVATION 495 +/- DRILLING METHOD 4" O.D. CFA DATE DRILLED 9/14/ & 9/5/11

DEPTH (FT)	SAMPLE				DESCRIPTION	GRAPHIC	UNIFIED SOIL CLASSIFICATION	LABORATORY TEST RESULTS						DEPTH (FT)
	NUMBER	TYPE	RECOVERY (IN/IN)	BLOWS (PER 6 IN)				SEE REMARK NO.	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	LIQUID LIMIT	PLASTIC LIMIT	
0					Aphaltic Concrete 5"									0
					FILL - Crushed Rock 7"		FILL							
1	1	SS		9	Brown SANDY CLAY, some gravel		CL	9	--					
				10										
				18										
3														
	2	SS		14	Brown low plastic SILTY CLAY, some sand, gravel		CL	11	--					3
				11										
				7										
6														
	3	SS		5				9	--					6
				7										
9	4	ST	4/10					9	--					9
					Weathered Rock			1						
					Gray LIMESTONE and weathered LIMESTONE									
12	5	NX	50/60											12
					RQD 57%									
15					Boring terminated at 14.5 feet.									15
18														18

WATER LEVEL:
☒ NONE OBSERVED WHILE DRILLING
☐ FT WHILE DRILLING
☐ FT HRS AFTER DRILLING
☐ FT DAYS AFTER DRILLING

REMARKS: Unconfined strength determined by hand penetrometer, unless noted.
1) Driller's Observation.

ENGINEER'S SEAL



12-14-2015

DATE PREPARED
12/14/2015

ROUTE STATE
MO

DISTRICT SHEET NO.
B10

COUNTY
JEFFERSON

JOB NO.
1401842

FEDERAL PROJECT NO.

BRIDGE NO.
25900261

DESCRIPTION

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

[illegible]

6d FOR #4 AND #5,
12d FOR #6

HOOK
A OR C

DETAILING
DIMENSION

90° STIRRUP

135° STIRRUP

DETAILING
DIMENSION

6d

b

d

a OR c

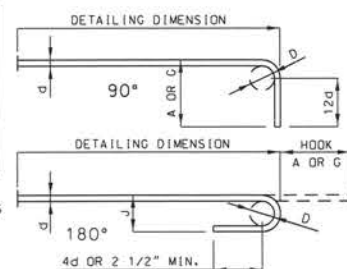
H

d

b

a OR c

NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME
PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE
AND THE FOLLOWING LINE.
NO. EA = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND
ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYMENTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO
BE SET ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE
SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Note: This drawing is not to scale. Follow dimensions.

K DIMENSIONS					
ALL GRADES					
180° HOOKS				90° HOOKS	
A OR G	J			A OR G	J
5"	3"			6"	
6"	4"			8"	
7"	5"			10"	
8"	6"			12"	
10"	7"			14"	
11"	8"			16"	
15"	11 3/4"			19"	
17"	13 1/4"			22"	
19"	14 3/4"			2'-0"	
2'-3"	21 3/4"			2'-7"	

