



DEPARTMENT OF PUBLIC WORKS

Contract Documents for:

Contract No. 201312778

**RED ROCKS ROAD BRIDGE AND
ROADWAY PROJECT**

SEPTEMBER 3, 2013



Denver Public Works

Engineering Division
Capital Projects Management – Dept. 506
Right-of-Way Services – Dept 507
Traffic Engineering Services – Dept 508
Policy and Planning – Dept. 509

201 West Colfax Ave, Dept 614
Denver, CO 80202
www.work4denver.com

NOTICE OF APPARENT LOW BIDDER

**New Design Construction Company
2350 East 70th Avenue
Denver, CO 80229**

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on **September 27th 2013**, for work to be done and materials to be furnished in and for:

CONTRACT NO. 201312778 Red Rocks Road Bridge and Roadway Project

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to the approval and execution of the Contract Documents by the City in accordance with the Charter of the City and County of Denver, and to your furnishing the items specified below. The award is based on the total bid items: **201 through 700.3, (Ninety-Two[92]) total bid items**, the total estimated cost thereof being: **One Million Seventy-Six Thousand Eight Hundred Thirty-Two Dollars and Fifteen Cents (\$1,076,832.15)**.

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Contract Administration, 201 W. Colfax Ave., Dept 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Contract Administration within the time limit set forth in the Bid Package Documents.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability;
- b. Payment and Performance Bond along with One original Power of Attorney relative to Performance and/or Payment Bond; and,

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section B1.12.2 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720-913-1700).

NOTICE OF APPARENT LOW BIDDER

CONTRACT NO. 201312778

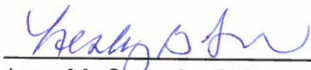
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The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this 8th day of Oct 2013.

CITY AND COUNTY OF DENVER

By



Jose M. Cornejo, P.E.
Manager of Public Works

JC/du

cc: M Gonzales (CAO), Gallagher (AUD), Schellinger (Treasury/Tax Compliance) DSBO
Inbox, Marco Cabanillas, Rob Merritt (PW-Aud), File

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

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This Checklist is provided solely for the assistance of the bidders, and need not be returned by Bidders with your BID FORM PACKAGE.

BIDDER'S CHECKLIST

These forms comprise the Bid Form and Submittal Package. Designated forms must be completed and turned in at the time of Bid Opening. Bidders should refer to the Contract Documents, particularly the Instructions to Bidders, accompanying this package, in completing these forms.

FORM/ PAGE NO.	COMMENTS	COMPLETE
BF-4 – BF-5	a.) Acknowledgment signature and attestation required.	<input type="checkbox"/>
BF-6+	a.) Fill in individual bid item dollars and totals in Numerical figures only	<input type="checkbox"/>
	b.) Complete all blanks	<input type="checkbox"/>
BF-7	a.) Write out bid total or bid totals in words and figures in the blank form space(s) provided	<input type="checkbox"/>
BF-8	a.) List all subcontractors who are performing work on this project	<input type="checkbox"/>
BF-9 – BF-10	a.) Fully complete List of Proposed Disadvantaged Business Enterprise Bidders, Subcontractors, Suppliers, Manufacturers, or Brokers – check appropriate boxes.	<input type="checkbox"/>
BF-11	a.) Complete all blanks	<input type="checkbox"/>
	b.) If Addenda have been issued, complete bottom section.	<input type="checkbox"/>
BF-12	a.) Complete appropriate sections - signature(s) required.	<input type="checkbox"/>
	b.) If corporation, then corporate seal required.	<input type="checkbox"/>
BF-13	a.) Fully complete Commitment to DBE Participation	<input type="checkbox"/>
BF-14 – BF-15	a) Fully complete Letters of Intent	
	b) Fully complete Letter of Intent Checklist	
BF-16	a.) If applicable, fully complete Joint Venture Affidavit	<input type="checkbox"/>
BF-17 – BF-19	a.) If applicable, fully complete Joint Venture Eligibility Form	<input type="checkbox"/>

BF-20	a.) Fill in all Bid Bond blanks b.) Signatures required c.) Corporate Seal if required d.) Dated e.) Attach Surety Agents Power of Attorney or Certified or cashier's check made out to the Manager of Revenue referencing Bidder's Company and CE Number.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
BF-21- BF-25	Complete all DBE forms, including: a.) Contractors Performance Capability Statement b.) Anti-Collusion Affidavit c.) Assignment of Anti-Trust Claims d.) Underutilized DBE Bid Conditions Assurance	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

BID FORM AND SUBMITTAL PACKAGE ACKNOWLEDGMENT

CONTRACT NO. 201312778
FEDERAL AID PROJECT NOS. : BROM320072
RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

BIDDER: NEW DESIGN CONSTRUCTION CO.

ADDRESS: 2350 EAST 70TH AVE
DENVER, COLO. 80229

The undersigned bidder states that the undersigned bidder has received and had an opportunity to fully and thoroughly examine a complete set of the Contract Documents for **CONTRACT NO. 201312778, RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**, made available to the undersigned bidder pursuant to Notice of Invitation for Bids dated September 3, 2013.

The undersigned bidder acknowledges that a complete and final set of the Contract Documents for the referenced Project, the components of which are identified below, are bound and maintained as the record set of Contract Documents by the Contract Administration Division of the Department of Public Works and that this Record Set is available for examination by the undersigned bidder.

The undersigned bidder, having thoroughly examined each of the components identified below and contained in Contract Documents, HEREBY SUBMITS THIS BID FORM AND SUBMITTAL PACKAGE, fully understanding that the Contract Documents, as defined in Paragraph 1 of the contract, including this executed Bid Form and Submittal Package, constitute all of the terms, conditions and requirements upon which this submission is based and further understanding that, by submission of this Bid Form and Submittal Package, the City shall rely on the representations and commitments of the undersigned bidder contained herein.

The following completed documents comprising this Bid Form and Submittal Package will be included with and, by this reference, are expressly incorporated into the Contract Documents specified at Paragraph 1 of the Contract:

- Bid Form and Submittal Package Acknowledgment Form
- Bid Form
- List of Proposed Disadvantaged Business Enterprise(s)
- Commitment to Disadvantaged Business Enterprise Participation
- DBE Letter(s) of Intent
- Joint Venture Affidavit (if applicable)
- Joint Venture Eligibility Form (if applicable)
- Bid Bond

The following designated documents constitute that portion of the Contract Documents made available by the Notice of Invitation for Bids, but not included in the Bid Form and Submittal Package:

- Notice of Invitation for Bids
- Instructions to Bidders
- Addenda (as applicable)
- Equal Employment Opportunity Provisions (Appendix A and Appendix F)
- Contract Form
- General Contract Conditions
- Special Contract Conditions
- Performance and Payment Bond
- Notice to Apparent Low Bidder
- Notice to Proceed
- Contractor's Certification of Payment Form
- Final/Partial Lien Release Form
- Final Receipt
- Change Orders (as applicable)
- Federal Requirements (as applicable)
- Prevailing Wage Rate Schedule(s)
- Technical Specifications
- Contract Drawings
- Accepted Shop Drawings
- Insurance Provision

The undersigned bidder expressly assumes responsibility for the complete contents of these designated documents as bound together with the Bid Form and Submittal Package submitted herewith and designated the Contract Documents.

IN WITNESS WHEREOF, the undersigned bidder has signed personally or by duly authorized officer or agent and duly attested.

BIDDER:

ATTEST:

Name: NEW DESIGN CONSTRUCTION

By: _____

By: [Signature]

Title: PRESIDENT

[SEAL]

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

BID FORM

CONTRACT NO. 201312778
FEDERAL AID PROJECT NOs. : BROM320072

RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

TO: The Manager of Public Works
City and County of Denver
c/o Contract Administration
201 West Colfax, Dept. 614
Denver, Colorado 80202

BIDDER NEW DESIGN CONSTRUCTION CO.

The Undersigned Bidder, having examined the plans, technical specifications, and remainder of the proposed Contract Documents as designated and enumerated in the General and Special Contract Conditions and any and all addenda thereto; having investigated the location of and conditions affecting the proposed Work; and being acquainted with and fully understanding the extent and character of the Work covered by this bid, and all factors and conditions affecting or which may be affected by Work, HEREBY SUBMITS THIS BID, pursuant to an advertisement of a Notice of Invitation for Bids as published on **September 3, 2013**, to furnish all required materials, tools, appliances, equipment and plant; to perform all necessary labor and to undertake and complete: **BROM320072 CITY OF DENVER CONTRACT NO. 201312778, RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT** in Denver, Colorado, in full accordance with and conformity to the Plans, Technical Specifications, and Contract Documents hereto attached or by reference made a part hereof, at and for the following price(s) set forth on this Bid Form.

The following documents, which taken as a whole constitute the Contract Documents for this Project, and which are incorporated herein, by reference, were made available to the Bidder as provided in the Advertisement of Notice of Invitation for Bids, were received by the bidder, and form the basis for this bid:

Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Bid Bond
Addenda (as applicable)
DBE Documents
Equal Employment Opportunity Provisions
(Appendices A, B, E and F)
Bid Form
Commitment to DBE Participation
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond
Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Final Receipt
Change Orders (as applicable)

Federal Requirements
Contractors Performance Capability Statement
Anti-Collusion Affidavit
Assignment of Anti-Trust Claims
Underutilized DBE Bid Conditions Assurance
On-the-Job Training (where applicable)
Required Contract Provisions Federal Aid
Construction Contracts
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawings
Accepted Shop Drawings
Certificate of Insurance

Item No.	Description and Price	Estimated Quantity	Estimated Cost
201	Clearing and Grubbing at the unit price of \$ <u>5,518⁰⁰</u> per LUM SUM.	1 LS	\$ <u>5,518⁰⁰</u>
202	Removal of Pipe at the unit price of \$ <u>960⁰⁰</u> per EACH.	1 EA	\$ <u>960⁰⁰</u>
202	Remove Ground Sign at the unit price of \$ <u>58⁰⁰</u> per EACH.	10 EA	\$ <u>580⁰⁰</u>
202	Removal of Asphalt Mat at the unit price of \$ <u>5⁰⁰</u> per SQUARE YARD.	1,341 SY	\$ <u>6,705⁰⁰</u>
202	Removal Of Asphalt Mat (Planing) at the unit price of \$ <u>5⁵⁰</u> per SQUARE YARD.	26 SY	\$ <u>143⁰⁰</u>
202	Removal of Bridge at the unit price of \$ <u>22,463⁰⁰</u> per EACH.	1 EA	\$ <u>22,463⁰⁰</u>
202	Removal of Guardrail Type 3 at the unit price of \$ <u>8⁵⁰</u> per LINEAR FOOT.	107 LF	\$ <u>909⁵⁰</u>
203	Embankment Material (Complete In Place) at the unit price of \$ <u>9⁰⁰</u> per CUBIC YARD.	1,483 CY	\$ <u>13,347⁰⁰</u>
206	Structure Excavation at the unit price of \$ <u>10⁵⁰</u> per CUBIC YARD.	1,425 CY	\$ <u>14,962⁵⁰</u>
206	Structure Backfill (Class 1) at the unit price of \$ <u>28⁵⁰</u> per CUBIC YARD.	1,900 CY	\$ <u>54,150⁰⁰</u>
206	Structure Backfill (Class 2) at the unit price of \$ <u>25⁵⁰</u> per CUBIC YARD.	30 CY	\$ <u>765⁰⁰</u>
206	Mechanical Reinforcement of Soil at the unit price of \$ <u>12⁰⁰</u> per CUBIC YARD.	1,300 CY	\$ <u>15,600⁰⁰</u>
206	Filter Material (Class B) at the unit price of \$ <u>18⁰⁰ RCC</u> <u>52⁰⁰</u> per CUBIC YARD.	18 CY	\$ <u>936⁰⁰</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
207	Topsoil at the unit price of \$ <u>7⁵⁰</u> per CUBIC YARD.	300 CY	\$ <u>2,250⁰⁰</u>
207	Stockpile Topsoil at the unit price of \$ <u>6⁵⁰</u> per CUBIC YARD.	300 CY	\$ <u>1,950⁰⁰</u>
207	Sweeping (Sediment Removal) at the unit price of \$ <u>105⁰⁰</u> per HOUR.	30 HR	\$ <u>3,150⁰⁰</u>
208	Removal Of Trash at the unit price of \$ <u>105⁵⁰</u> per HOUR.	30 HR	\$ <u>3,165⁰⁰</u>
208	Erosion Log (12 Inch) at the unit price of \$ <u>6⁰⁰</u> per LINEAR FOOT.	80 LF	\$ <u>480⁰⁰</u>
208	Gravel Bag at the unit price of \$ <u>5⁰⁰</u> per LINEAR FOOT.	100 LF	\$ <u>500⁰⁰</u>
208	Silt Fence at the unit price of \$ <u>3⁵⁰</u> per LINEAR FOOT.	1,400 LF	\$ <u>4,900⁰⁰</u>
208	Concrete Washout Structure at the unit price of \$ <u>1,107⁰⁰</u> per EACH.	1 EA	\$ <u>1,107⁰⁰</u>
208	Vehicle Tracking Pad at the unit price of \$ <u>1,299⁰⁰</u> per EACH.	2 EA	\$ 2,598⁰⁰ ^{RC} <u>2,598⁰⁰</u>
208	Removal and Disposal Of Sediment (Equipment) at the unit price of \$ <u>83⁰⁰</u> per HOUR.	30 HR	\$ <u>2,490⁰⁰</u>
208	Removal and Disposal Of Sediment (Labor) at the unit price of \$ <u>83⁵⁰</u> per HOUR.	30 HR	\$ <u>2,505⁰⁰</u>
210	Reset Light Pole at the unit price of \$ <u>1,980⁰⁰</u> per EACH.	1 EA	\$ <u>1,980⁰⁰</u>
210	Reset Ground Sign at the unit price of \$ <u>145⁵⁰</u> per EACH.	7 EA	\$ <u>1,018⁵⁰</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
210	Reset Fence at the unit price of \$ <u>63⁵⁰</u> per LINEAR FOOT.	45 LF	\$ <u>2,857⁵⁰</u>
210	Reset Structure (Headwall) at the unit price of \$ <u>2,500⁰⁰</u> per EACH.	2 EA	\$ <u>5,000⁰⁰</u>
210	Reset Structure (Red Rocks Sign) at the unit price of \$ <u>2,131⁰⁰</u> per EACH.	2 EA	\$ <u>4,262⁰⁰</u>
211	Dewatering at the unit price of \$ <u>3,228⁰⁰</u> per LUM SUM.	1 LS	\$ <u>3,228⁰⁰</u>
212	Seeding at the unit price of \$ <u>2,725⁰⁰</u> per ACRE.	0.35 AC	\$ <u>953⁷⁵</u>
212	Soil Conditioning at the unit price of \$ <u>7,212⁰⁰</u> per ACRE.	0.35 AC	\$ <u>2,524²⁰</u>
213	Mulching at the unit price of \$ <u>2,520⁰⁰</u> per ACRE.	0.31 AC	\$ <u>781²⁰</u>
213	Mulch Tackifier at the unit price of \$ <u>8⁰⁰</u> per POUND.	58 LB	\$ <u>464⁰⁰</u>
214	Deciduous Tree (1" cal.) at the unit price of \$ <u>329⁰⁰</u> per EACH.	8 EA	\$ <u>2,632⁰⁰</u>
214	Deciduous Shrub (5 gal.) at the unit price of \$ <u>29⁵⁰</u> per EACH.	82 EA	\$ <u>2,419⁰⁰</u>
214	Perennial (1 gal.) at the unit price of \$ <u>14⁰⁰</u> per EACH.	12 EA	\$ <u>168⁰⁰</u>
214	Brush Layer Cutting at the unit price of \$ <u>3⁵⁰</u> per EACH.	65 EA	\$ <u>227⁵⁰</u>
216	Soil Retention Blanket (Straw/Coconut)(Biodegradable Class1) at the unit price of \$ <u>3⁵⁰</u> per SQUARE YARD.	350 SY	\$ <u>1,225⁰⁰</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
217	Herbicide Treatment at the unit price of \$ <u>0.60</u> per SQUARE YARD.	550 SY	\$ <u>330.00</u>
217	Noxious Weed Management at the unit price of \$ <u>1.00</u> per SQUARE YARD.	1,700 SY	\$ <u>1,700.00</u>
250	Materials Sampling and Delivery at the unit price of \$ 400.00 <u>437.50</u> per EACH.	4 EA	\$ <u>1,750.00</u>
250	Coating Lead-Based Paint at the unit price of \$ <u>3,490.00</u> per LUM SUM.	1 LS	\$ <u>3,490.00</u>
304	Aggregate Base Course (Class 6) at the unit price of \$ <u>21.00</u> per TON.	442 TON	\$ <u>9,282.00</u>
403	Stone Matrix Asphalt at the unit price of \$ <u>200.00</u> per TON.	41 TON	\$ <u>8,200.00</u>
403	Hot Mix Asphalt (Grading S) at the unit price of \$ <u>71.00</u> per TON.	185 TON	\$ <u>13,135.00</u>
403	Hot Mix Asphalt (Grading SX) at the unit price of \$ <u>82.50</u> per TON.	228 TON	\$ <u>18,810.00</u>
411	Emulsified Asphalt (Slow-Setting) at the unit price of \$ <u>4.50</u> per GALLON.	74 GAL	\$ <u>333.00</u>
420	Geotextile (Erosion Control) (Class 1) at the unit price of \$ <u>2.50</u> per SQUARE YARD.	459 SY	\$ <u>1,147.50</u>
420	Geotextile (Drainage) (Class 2) at the unit price of \$ <u>4.00</u> per SQUARE YARD.	26 SY	\$ <u>104.00</u>
503	Drilled Caisson (30 inch) at the unit price of \$ <u>160.00</u> per LINEAR FOOT.	384 LF	\$ <u>61,440.00</u>
506	Riprap (6 Inch) at the unit price of \$ <u>50.50</u> per CUBIC YARD.	16 CY	\$ <u>808.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
506	Riprap (9 Inch) at the unit price of \$ <u>72.00</u> per CUBIC YARD.	4 CY	\$ <u>288.00</u>
506	Soil Riprap (18 Inch) at the unit price of \$ <u>62.00</u> per CUBIC YARD.	266 CY	\$ <u>16,492.00</u>
514	Pipe Railing at the unit price of \$ <u>117.00</u> per LINEAR FOOT.	66 LF	\$ <u>7,722.00</u>
515	Waterproofing Membrane at the unit price of \$ <u>23.00</u> per SQUARE YARD.	280 SY	\$ <u>6,440.00</u>
515	Concrete Sealer at the unit price of \$ <u>8.50</u> per SQUARE YARD.	132 SY	\$ <u>1,122.00</u>
518	Bridge Expansion Device (0-4 inch) at the unit price of \$ <u>131.50</u> per LINEAR FOOT.	37 LF	\$ <u>4,865.50</u>
601	Concrete Class D (Bridge) at the unit price of \$ <u>520.50</u> per CUBIC YARD.	372 CY	\$ <u>193,626.00</u>
602	Reinforcing Steel (Epoxy Coated) at the unit price of \$ <u>2.00</u> per POUND.	36,100 LB	\$ <u>72,200.00</u>
603	24" Storm Drain Pipe (RCP) (Complete In Place) at the unit price of \$ <u>67.50</u> per LINEAR FOOT.	62 LF	\$ <u>4,185.00</u>
606	Transition Type 3L at the unit price of \$ <u>1,250.00</u> per EACH.	4 EA	\$ <u>5,000.00</u>
606	Guardrail Type 3 (6-3 Post Spacing) at the unit price of \$ <u>57.00</u> per LINEAR FOOT.	62 LF	\$ <u>3,534.00</u>
606	End Anchorage (Flared) at the unit price of \$ <u>2,168.00</u> per EACH.	4 EA	\$ <u>8,672.00</u>
606	Bridge Rail Type 3 at the unit price of \$ <u>186.50</u> per LINEAR FOOT.	190 LF	\$ <u>35,435.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
607	Fence (Plastic) at the unit price of \$ <u>4.00</u> per LINEAR FOOT.	1,400 LF	\$ <u>5,600.00</u>
608	Concrete Curb Ramp at the unit price of \$ <u>174.00</u> per SQUARE YARD.	14 SY	\$ <u>2,436.00</u>
609	Concrete Curb and Gutter (Type 2) (Section IM) at the unit price of \$ <u>28.00</u> per LINEAR FOOT.	205 LF	\$ <u>5,740.00</u>
609	Concrete Sidewalk at the unit price of \$ <u>63.00</u> per SQUARE YARD.	16 SY	\$ <u>1,008.00</u>
610	Median Cover Material (Patterned Concrete) at the unit price of \$ <u>8.00</u> per SQUARE FOOT.	624 SF	\$ <u>4,992.00</u>
612	Delineator Type I (Flexible) Crystal at the unit price of \$ <u>44.50</u> per EACH.	8 EA	\$ <u>356.00</u>
612	Delineator Type I Crystal at the unit price of \$ <u>37.50</u> per EACH.	3 EA	\$ <u>112.50</u>
612	Delineator Type III Yellow at the unit price of \$ <u>35.50</u> per EACH.	7 EA	\$ <u>248.50</u>
613	2 Inch Electrical Conduit (Plastic) at the unit price of \$ <u>29.50</u> per LINEAR FOOT.	50 LF	\$ <u>1,475.00</u>
614	Post Type 2 IN. Telspar Tubing at the unit price of \$ <u>24.50</u> per LINEAR FOOT.	116 LF	\$ <u>2,842.00</u>
614	Sign Panel Class I at the unit price of \$ <u>27.50</u> per SQUARE FOOT.	67 SF	\$ <u>1,842.50</u>
625	Construction Surveying at the unit price of \$ <u>12,100.00</u> per LUM SUM.	1 LS	\$ <u>12,100.00</u>
626	Mobilization at the unit price of \$ <u>100,000.00</u> per LUM SUM.	1 LS	\$ <u>100,000.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
627	Epoxy Pavement Marking (Permanent)(Yellow) at the unit price of \$ <u>110.00</u> per GALLON.	12 GAL	\$ <u>1,320.00</u>
627	Epoxy Pavement Marking (Permanent)(White) at the unit price of \$ <u>110.00</u> per GALLON.	17 GAL	\$ <u>1,870.00</u>
627	Preformed Thermoplastic Pavement Marking (Stopline - Yield Line) at the unit price of \$ <u>20.00</u> per SQUARE FOOT.	254 SF	\$ <u>5,080.00</u>
628	Structural Steel Unit (Through Truss) at the unit price of \$ <u>214,296.00</u> per EACH.	1 EA	\$ <u>214,296.00</u>
630	Traffic Control Inspection (2 HR Per Work Day) at the unit price of \$ <u>143.50</u> per DAY.	132 DAY	\$ <u>18,942.00</u>
630	Traffic Control Management (2 HR Per Work Day) at the unit price of \$ <u>243.50</u> per DAY.	52 DAY	\$ <u>12,662.00</u>
630	Construction Traffic Sign (Panel Size A) at the unit price of \$ <u>31.50</u> per EACH.	48 EA	\$ <u>1,512.00</u>
630	Construction Traffic Sign (Panel Size B) at the unit price of \$ <u>38.00</u> per EACH.	5 EA	\$ <u>190.00</u>
630	Construction Traffic Sign (Special) at the unit price of \$ <u>23.00</u> per SQUARE FOOT.	78 SF	\$ <u>1,794.00</u>
630	Barricade (Type II) (Temporary) at the unit price of \$ <u>190.00</u> per EACH.	4 EA	\$ <u>760.00</u>
630	Barricade (Type III M-B) (Temporary) at the unit price of \$ <u>88.00</u> per EACH.	6 EA	\$ <u>528.00</u>
700	Erosion Control at the unit price of \$ _____ per FORCE ACCOUNT.	1 F/A	\$ <u>5,000.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
700.2	Fuel Cost Adjustment at the unit price of \$ _____ per FORCE ACCOUNT.	1 F/A	\$ 1,500.00 _____
700.3	On The Job Training at the unit price of \$ _____ per FORCE ACCOUNT.	1 F/A	\$ 640.00 _____
TOTAL BID AMOUNT			\$ <u>1,076,832¹⁵</u>

Total Bid Amount of:

one million Seventy Six thousand Eight hundred Forty two
dollars and Eighteen cents
Dollars (\$ 1,076,832¹⁵)

[Total bid amount equals the sum of each estimated cost for item numbers 201 through 700.3 - total bid items (92) Ninety-Two]

If the Manager mails a written Notice of Apparent Low Bidder, addressed to the Bidder's business address stated on this Bid Form, the Undersigned Bidder shall, in accordance with the Contract Documents, be ready to, and shall, within five (5) days after the date of the Notice: (i) execute the attached form of Contract in conformity with this bid; (ii) furnish the required proofs of insurance; and (iii) furnish the required bond in the sum of the full amount of this bid, executed by a surety company acceptable to the Manager.

The TRAVELERS CASUALTY SURETY, a corporation of the State of CT, is hereby offered as Surety on said bond. If such surety is not approved by the Manager, another and satisfactory surety company shall be furnished.

Enclosed with this bid is a bid guarantee, as defined in the attached Instructions to Bidders, in the amount of 5%. The Undersigned Bidder agrees that the entire amount of this bid guarantee is to be paid to and become the property of the City as liquidated damages, and not as a penalty, if: (i) the bid is considered to be the best by the City; (ii) the City notifies the Undersigned Bidder that it is the Apparent Low Bidder; and (iii) the Undersigned Bidder fails to execute the Contract in the form prescribed or to furnish the required bond and proofs of insurance, within five (5) days after the date of such notification.

The following persons, firms or corporations are interested with the Undersigned Bidder in this bid:

Name: _____ Name: _____

Address: _____ Address: _____

If there are no such persons, firms, or corporations, please so state in the following space:


NONE
THERE ARE NO PERSONS, FIRMS, OR CORPORATIONS INTERESTED
WITH THE BIDDER ON THIS B.I.D.

The Undersigned Bidder proposes to subcontract the following Work in accordance with General Contract Conditions, Title 5, SUBCONTRACTS, and represents that, to the greatest degree practical, all subcontractors known at the time of bid submittal have been identified.

Item of Work	Percent (%) of Total Work	Proposed Subcontractor and Address
CAISSON CAISSON DRILLING	1.86 %	LMS Drilling, Inc. 10420 E 107th Place Brighton, CO 80601
Waterproofing Membrane	0.64 %	MPW 444 Santa Fe Drive Denver, CO 80204
Reinforcing Steel (Headwall)		AP Fountain Company, Inc 14556 Grand Street Littleton, CO 80120 KCC
Reinforcing Steel / Structural Steel	18.0 %	Rocky Mountain Rebar Inc 80 Inverness Circle E 4-107 Englewood CO 80112
Electrical	.03 %	WJ Contractors 4475 W 57th Ave Arvada, CO 80002
Land Scaping Western States Rec	1.19 %	Western States Reclamation 3756 Imperial St. Frontier, CO 80516
Striping	1.03 %	RKM Platting, Inc 6901 W. 117th Ave, Suite 114 Denver, CO 80220
Fence / Guard Rail Tablet Fence Corp	1.63 %	Ideal Fence Corp 8119 Indian Peaks Ave Eng, CO 80516
Reinforcing Steel (Headwall)	0.37 %	Rock : CO 12157 Brighton CO.

(Copy this page if additional room is required.)

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
 Engineering Division

 DENVER <small>THE MILE HIGH CITY</small>	List of Proposed MWBE or DBE Bidders, Subcontractors, Suppliers (Manufacturers) or Brokers		Office of Economic Development Division of Small Business Opportunity Compliance Unit 201 West Colfax Avenue, Dept. 907 Denver, CO 80202 Phone: 720-913-1999 Fax: 720-913-1803 DSB0@denvergov.org	
	City and County of Denver Contract No.: <u>2013 12778</u>			
The undersigned Bidder proposes to utilize the following MWBE or DBE for the project. All listed firms are CURRENTLY certified by the City and County of Denver. Only the level of MWBE or DBE participation listed at the bid opening will count toward satisfaction of the project goal. Only bona fide commissions may be counted for Brokers. MWBE or DBE prime bidders must detail their bid information below. Please copy and attach this page to list additional MWBE or DBE.				
Address:		Contact Person:		
Type of Service:		Dollar Amount: \$:	Percent of Project:	
MWBE or DBE Prime Bidder				
Business Name:				
Address:		Contact Person:		
Type of Service:		Dollar Amount: \$:	Percent of Project:	
Subcontractors, Suppliers Manufacturers or Brokers (check one box)				
<input checked="" type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>		Broker (√)
Business Name: <u>Rocky Mountain Rebar Inc</u>				
Address: <u>98 Inverness Circle E. H-107 Englewood CO, 80112</u>		Type of Service: <u>Reinforcing Steel/Structural Steel</u>		
Contact Person: <u>Pete</u>		Dollar Amount: \$: <u>203,505.00</u>	Percent of Project: <u>18</u>	
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>		Broker (√)
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>		Broker (√)
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	

Subcontractors, Suppliers Manufacturers or Brokers (check one box)				
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				
Business Name:				
Address:			Type of Service:	
Contact Person:			Dollar Amount: \$:	Percent of Project:
<input type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>
Manufacturer (√)				
Broker (√)				

COMP-FRM-011

The undersigned Bidder hereby certifies that the aforementioned subcontractors and suppliers have full knowledge that their names have been offered as subcontractors and suppliers for the work, and the Bidder further certifies that the dollar amount of work to be performed by the aforementioned DBE(s) was furnished to the Bidder prior to the bid opening. The undersigned Bidder agrees that after the bid opening, it shall submit to the City an executed and completed DBE "Letter of Intent" in five working days (5), on each of its DBE or DBE subcontractors. The "Letter of Intent" form is contained in the Contract Documents.

The undersigned Bidder acknowledges the right of the City to reject any or all bids submitted, to waive informalities in bids and to re-advertise this Project for bids.

The undersigned certifies that it has carefully checked all words and figures and all statements made in these Bid Forms.

This bid is submitted upon the declaration that neither, I (we), nor, to the best of my (our) knowledge, none of the members of my (our) firm or company have either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

Business Address of Bidder: 2350 EAST 70TH AVENUE

City, State, Zip Code: DENVER, COLORADO 80229

Telephone Number of Bidder: (303) 286-8500 Fax No. (303) 286-9958

Contact Name for this Project: ROBERT CLINE

Social Security or Federal Employer ID Number of Bidder: 84-0988-540

Name and location of the last work of this kind herein contemplated upon which the Bidder was engaged:

MATTERHON BRIDGE REPLACEMENT OVER GORE CREEK
TOWN OF VAIL, COLORADO

For information relative thereto, please refer to:

Name: CHAD SALLI

Title: PROJECT ENGINEER, TOWN OF VAIL, COLORADO

Address: 1309 ELKHORN DRIVE, VAIL, COLORADO 81657

The undersigned acknowledges receipt, understanding, and full consideration of the following addenda to the Contract Documents:

Addenda Number 1 Date 9/19/2013

Addenda Number _____ Date _____

Addenda Number _____ Date _____

Dated this 27th day of SEPTEMBER, 2013

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

CONTRACT NO. 201312778
PROJECT NAME: RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

ADDENDUM NO. 1 TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

TECHNICAL SPECS/DRAWING

Q1. The specifications call for welded connections, would all-bolted connections be acceptable?

A1. The contractor may use bolted connections for truss fabrication and shall be in accordance with 628.07 (d).

For a welded steel truss, welded connections should be used to the maximum extent possible during shop fabrication. The Contractor may use bolted connections to accommodate shipping limitations and field erection.

Section 628.04 specifies types of bolts to be used in field connections.

Section 628.07 (d) specifies requirements for welded and bolted connections.

Q & A's

Q1. Is a 404 permit needed on this project?

A1. No, a 404 permit is not needed on this project.

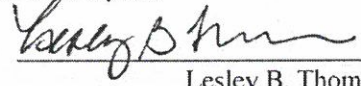
Q2. Are there any as-built drawings available for the existing bridge?

A2. No, we were not able to find any.

Q3. Where can the steel be recycled, given the presence of lead paint?

A3. Iron and Metals, Inc.
Attn: Mike Cohen
5555 Franklin St
Denver, CO 80216
(303) 292-5555

This ADDENDUM shall be attached to, become a part of, and be returned with the Bid Proposal.



Lesley B. Thomas
City Engineer

9.19.13

Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.

New Design Construction Co
Contractor

ADDENDUM NO. 1

DATE: 9/19/2013

Signature of Bidder:

If an Individual: _____ doing business
as _____

If a Partnership: _____
by: _____, General Partner.

If a Corporation: NEW DESIGN CONSTRUCTION COMPANY
a COLORADO, Corporation,
by: STEVEN SMITH, its President.

Attest: 

Secretary (Corporate Seal)

If a Joint Venture, signature of all Joint Venture participants.

Firm: _____

Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Secretary (Corporate Seal)

Firm: _____

Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Secretary (Corporate Seal)

Firm: _____

Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Secretary (Corporate Seal)

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division



DENVER
THE MILE HIGH CITY

**COMMITMENT TO DBE
 PARTICIPATION**

Office of Economic Development
 Division of Small Business Opportunity
 Compliance Unit
 201 West Colfax Avenue, Dept. 907
 Denver, CO 80202
 Phone: 720-913-1999
 Fax: 720-913-1803
 DSBO@denvergov.org

**The undersigned has satisfied the DBE participant requirements in the following manner
 (Please check the appropriate box):**

The Bidder/Proposer is committed to a minimum of 18 % DBE utilization on the project, and will submit Letters of Intent (LOI) for each subcontractor/subconsultant listed in the Bid Forms as follows:
Hard Bids: Five (5) business days after the bid opening
Request for Proposals: With the proposal when due

The Bidder/Proposer is unable to meet the project goal of _____% DBE, but is committed to a minimum of _____% DBE utilization on the project. The Bidder/Proposer understands that they must submit a detailed statement of their good faith effort in accordance with DRMC Section 28-62 and 28-67 of Ordinance 760 and must submit Letters of Intent for each DBE listed in the Bid Forms, within five (5) business days after the bid opening or at time proposal is submitted.

The Bidder/Proposer is a certified DBE in good standing with the City and is committed to self-perform a minimum of _____% of the work on the contract.

Bidder/Proposer (Name of Firm): NEW DESIGN CONSTRUCTION

Firm's Representative (Please print): STEVEN S. MCWILLIAMS

Signature (Firm's Representative): Steven S. McWilliams

Title: President

Address: 2350 E. 70TH AVENUE

City: DENVER

State: CO.

Zip: 80229

Phone: 3/286-8500

Fax: 3/286-9958

Email: SMCWILLIAMS@NEWDESIGNCONSTRUCTION.COM

A copy of the DBE Certification must be attached.



DENVER
THE MILE HIGH CITY

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 West Colfax Ave., Dept. 907
Denver, CO 80202
Phone: 720-913-1999 Fax: 720-913-1803

LETTER OF INTENT (LOI)

INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All lines must be completed or marked N/A for Not Applicable
- Submit the attached completed checklist with this letter
 - Email to dsbo@denvergov.org, OR
 - Fax: 720-913-1803, OR
 - Hand-Delivery: Office Economic Dev. 1st Fl., "Business Assistance Center (BAC)"
- FOR RFPs: LOIs should be submitted with Proposal.

Contract No.:		Project Name:					
A. The Following Section Is To Be Completed by the Bidder/Consultant This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE							
Name of Bidder/Consultant:				Self-Performing: <input type="checkbox"/> Yes <input type="checkbox"/> No		Phone:	
Contact Person:			Email:			Fax:	
Address:			City:			State:	Zip:
B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant							
Name of Certified Firm:					Phone:		
Contact Person:			Email:			Fax:	
Address:			City:			State:	Zip:
Please check the designation which applies to the certified firm.		<input type="checkbox"/>	MBE/WBE (✓)	<input type="checkbox"/>	SBE (✓)	<input type="checkbox"/>	DBE (✓)
		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	Self-Performing (✓)
Indirect Utilization: If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/ Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm: _____							
A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached							
Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. <u>On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.</u>							
<input type="checkbox"/>		Subcontractor/Subconsultant (✓)		<input type="checkbox"/>		Supplier (✓)	
<input type="checkbox"/>				<input type="checkbox"/>		Broker (✓)	
Bidder intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:							
\$ _____				%			
Consultant intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is:							
				%			
If the fee amount of the work to be performed is requested, the fee amount, is:							
				\$ _____			
Bidder/Consultant's Signature:					Date:		
Title:							
M/WBE, SBE or DBE or Self-Performing Firm's Signature:					Date:		
Title:							
If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.							

Letter of Intent (LOI) Checklist

*All lines must be completed or marked N/A for Not Applicable
Submit the attached completed checklist with this letter.*

Completed ✓	
<input type="checkbox"/>	Project Number & Project Name
<input type="checkbox"/>	Section A: Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
<input type="checkbox"/>	Section B: Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
<input type="checkbox"/>	Designation checked for MBE/WBE, SBE or DBE
<input type="checkbox"/>	Indirect Utilization: Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2 nd tier subcontractor/subconsultant, supplier or broker.
<input type="checkbox"/>	Scope of work performed or item supplied by M/WBE, SBE or DBE
<input type="checkbox"/>	Line items performed, if line-item bid.
<input type="checkbox"/>	Copy of M/WBE, SBE or DBE Letter of Certification Attached
<input type="checkbox"/>	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	If project is a hard bid...
<input type="checkbox"/>	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
<input type="checkbox"/>	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	If project is an RFP/RFQ...
<input type="checkbox"/>	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
<input type="checkbox"/>	Fee amount if fee amount of work to be performed is requested.
<input type="checkbox"/>	Bidder/Consultant's Signature, Title & Date
<input type="checkbox"/>	M/WBE, SBE or DBE Firm's Signature, Title and Date

Select One ✓	SUBMITTED VIA... (Bidder/Consultant is strongly urged to deliver the LOI via one of the methods below. Delivery to any other point cannot be guaranteed timely delivery.)
<input type="checkbox"/>	Email to DSBO@denvergov.org
<input type="checkbox"/>	Fax to 720-913-1803
<input type="checkbox"/>	Hand Delivery to Office of Economic Development, 1 st Floor, "Business Assistance Center"

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.

COMP-FRM-012 Revised 04/12/13



DENVER
THE MILE HIGH CITY

JOINT VENTURE AFFIDAVIT

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 West Colfax Avenue, Dept. 907
Denver, CO 80202
Phone: 720-913-1999
Fax: 720-913-1803
DSBO@denvergov.org

The Undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the Undersigned covenant and agree to provide the City current, complete, and accurate information regarding actual joint venture work and the payment thereof and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records, and files of the joint venture, by authorized representatives of the City or Federal funding agency, if applicable. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements.

Name of Firm: _____

Print Name: _____

Title _____

Signature: _____

Date: _____

Notary Public

County of _____

State of _____

My Commission Expires: _____

Subscribed and sworn before me this

_____ day of _____, 20_____

Notary Signature: _____

Address: _____

Notary Seal

Name of Firm: _____

Print Name: _____

Title _____

Signature: _____

Date: _____

Notary Public

County of _____

State of _____

My Commission Expires: _____

Subscribed and sworn before me this

_____ day of _____, 20_____

Notary Signature: _____

Address: _____

Notary Seal

Name of Firm: _____

Print Name: _____

Title _____

Signature: _____

Date: _____

Notary Public

County of _____

State of _____

My Commission Expires: _____

Subscribed and sworn before me this

_____ day of _____, 20_____

Notary Signature: _____

Address: _____

Notary Seal



JOINT VENTURE ELIGIBILITY FORM

Office of Economic Development
 Division of Small Business Opportunity
 Compliance Unit
 201 West Colfax Avenue, Dept. 907
 Denver, CO 80202
 Phone: 720-913-1999
 Fax: 720-913-1803
 DSBO@denvergov.org

Joint Venture means an association of two (2) or more business enterprises to constitute a single business enterprise to perform a City construction or professional design and construction services contract for which purpose they combine their property, capital, efforts, skills and knowledge, and in which each joint venturer is responsible for a distinct, clearly defined portion of the work of the contract, performs a commercially useful function, and whose share in the capital contribution, control, management responsibilities, risks and profits of the joint venture are equal to its ownership interest. Joint ventures must have an agreement in writing specifying the terms and conditions of the relationships between the joint venturers and their relationship and responsibility to the contract.

The Division of Small Business Opportunity (DSBO) requires the following information be provided from participants of a prospective joint venture, to assist DSBO in evaluating the proposed joint venture. This Joint Venture Eligibility form and the Joint Venture Affidavit apply if SBEs, MBEs, WBEs or DBEs participate in this joint venture.

Please return this form, the Joint Venture Affidavit, and a copy of your Joint Venture Agreement to: Division of Small Business Opportunity, 201 West Colfax Avenue, Denver, CO 80202, at least **ten (10) working days** prior to bid opening or proposal.

If you have questions regarding this process, please contact DSBO at 720-913-1999.

Joint Venture Information

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:

Joint Venture Participants

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:
% Ownership:	Certifying Entity:	Type Certification & Date: (S/M/W or DBE)	
Type of Work for which Certification was granted:			

Name:		Contact Person:	
Address:			
City:	State:	Zip:	Phone:
% Ownership:	Certifying Entity:	Type Certification & Date: (S/M/W or DBE)	
Type of Work for which Certification was granted:			

General Information

SBE/MBE/WBE/DBE Initial Capital Contributions: \$	%
Future capital contributions (explain requirements) (attach additional sheets if necessary):	
Source of Funds for the SBE/MBE/WBE/DBE Capital Contributions:	
Describe the portion of the work or elements of the business controlled by the SBE/MBE/WBE or DBE: (attach additional sheets if necessary)	
Describe the portion of the work or elements of the business controlled by non-SBE/MBE/WBE or DBE: (attach additional sheets if necessary)	

JOINT VENTURE ELIGIBILITY FORM

General information

Describe the SBE/MBE/WBE or DBE's involvement in the overall management of the joint venture (e.g., participation on a management committee or managing board voting rights, etc.) (attach additional sheets if necessary)

Describe the SBE/MBE/WBE or DBE's share in the profits of the joint venture:

Describe the SBE/MBE/WBE or DBE's share in the risks of the joint venture:

Describe the roles and responsibilities of each joint venture participant with respect to managing the joint venture (use additional sheets if necessary):

a. SBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/MBE/WBE or DBE joint venture participant:

Describe the roles and responsibilities of each joint venture participant with respect to operation of the joint venture (use additional sheets if necessary):

a. SBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/MBE/WBE or DBE joint venture participant:

Which firm will be responsible for accounting functions relative to the joint venture's business?

Explain what authority each party will have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties?

Please provide information relating to the approximate **number** of management, administrative, support and non-management employees that will be required to operate the business and indicate whether they will be employees of the SMWBE, non-SMWBE or joint venture:

	Non- SBE/MBE/WBE/DBE	SBE/MBE/WBE/DBE	Joint Venture
Management			
Administrative			
Support			
Hourly Employees			

JOINT VENTURE ELIGIBILITY FORM

General Information

Please provide the name of the person who will be responsible for hiring employees for the joint venture.

Who will they be employed by?

Are any of the proposed joint venture employees currently employees of any of the joint venture partners?	<input type="checkbox"/>	Yes (✓)	<input type="checkbox"/>	No (✓)
---	--------------------------	------------	--------------------------	-----------

If yes, please list the number and positions and indicate which firm currently employs the individual(s), (use additional sheets if necessary)

Number of employees		Position	Employed By

Attach a copy of the proposed joint venture agreement, promissory note or loan agreement (if applicable), and any and all written agreements between the joint venture partners.

List all other business relationships between the joint venture participants, including other joint venture agreements in which the parties are jointly involved.

If there are any significant changes in or pertaining to this submittal, the joint venture members must immediately notify the Division of Small Business Opportunity.

COMP-FRM-015

COLORADO DEPARTMENT OF TRANSPORTATION – Form 605
**CONTRACTORS PERFORMANCE CAPABILITY
STATEMENT**

Project #
BROM320-072

1. List names of partnerships or joint ventures none

List decreases in the contractors fiscal or workmanship qualifications compared to the last prequalification statement submitted to CDOT. (Attach additional sheets if necessary)

a. Key personnel changes none

b. Key equipment changes none

c. Fiscal capability changes (legal actions, etc.) none

d. Other changes that may affect the contractors ability to perform work none

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS, THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE

Contractor's firm or company name
NEW DESIGN CONSTRUCTION COMPANY

By **STANISLAW** Date
Title **PRESIDENT** **9/27/13**

2nd Contractor's firm or company name (if joint venture)

By _____ Date
Title _____

**COLORADO DEPARTMENT OF TRANSPORTATION
ANTI-COLLUSION AFFIDAVIT**


Project No.: BR0M320-072
Location: City: COUNTY OF DENVER

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf and on behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a bidder or potential prime bidder.
- 2A. Neither the price(s) nor the amount of this bid have been disclosed to any other firm or person who is a bidder or potential prime bidder on this project, and will not be so disclosed prior to bid opening.
- 2B. Neither the prices nor the amount of the bid of any other firm or person who is a bidder or potential prime bidder on this project have been disclosed to me or my firm.
- 3A. No attempt has been made to solicit, cause or induce any firm or person who is a bidder or potential prime bidder to refrain from bidding on this project, or to submit a bid higher than the bid of this firm, or any intentionally high or non-competitive bid or other form of complementary bid.
- 3B. No agreement has been promised or solicited for any other firm or person who is a bidder or potential prime bidder on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.
4. The bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complimentary bid.
5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.
6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.
7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.
8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the Colorado Department of Transportation, of the true facts relating to the submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS, THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

Contractors firm or company name: <u>NEW DESIGN CONSTRUCTION COMPANY</u>	By: <u>[Signature]</u> Title: <u>PRESIDENT</u>	Date: <u>9/27/13</u>
2 nd Contractors firm or company name:	By:	Date:
Sworn to before me this <u>Tuesday-Seven</u> day of <u>September</u> 20 <u>13</u>		
Notary Public <u>[Signature]</u>		
My commission expires: <u>6/1/14</u>		
NOTE: THIS DOCUMENT MUST BE SIGNED IN INK		

COLORADO DEPARTMENT OF TRANSPORTATION
ASSIGNMENT OF ANTITRUST CLAIMS

Project No.:
BROM320-072

Contractor and Colorado Department of Transportation (CDOT) recognize that in actual economic practice antitrust violations ultimately impact CDOT. Therefore, for good cause and as consideration for executing this contract and for receiving payments hereunder:

1. Contractor hereby irrevocably assigns to CDOT any and all claims it may now have or which may hereafter accrues to it under federal or state antitrust laws in connection with the particular project, goods or services purchased or acquired by CDOT pursuant to this contract.
2. Contractor hereby expressly agrees:
 - a. That, upon becoming aware that a third party has commenced a civil action asserting on Contractor's behalf an antitrust claim which has been assigned to CDOT hereunder, Contractor shall immediately advise in writing:
 - (1) Such third party that the antitrust claim has been assigned to CDOT, and
 - (2) CDOT that such civil action is pending and the date on which, in accordance with subparagraph a.(1) above, Contractor notified such third party that the antitrust claim had been assigned to CDOT.
 - b. To take no action which will in any way diminish the value of the claims or rights assigned or dedicated to CDOT hereunder; and
 - c. Promptly to pay over to CDOT its proper share of any payment under an antitrust claim brought on Contractor's behalf by any third party and which claim has been assigned to CDOT hereunder.
3. Further, Contractor agrees that in the event it hires one or more subcontractors to perform any of its duties under the contract, Contractor shall require that each such subcontractor:
 - a. Irrevocably assign to CDOT (as a third party beneficiary) any and all claims that such subcontractor may have or which may thereafter accrue to the subcontractor under federal or state antitrust laws in connection with any goods or services provided by the subcontractor in carrying out the subcontractor's obligations to Contractor;
 - b. Upon becoming aware that a third party has commenced a civil action on the subcontractor's behalf asserting an antitrust claim which has been assigned to CDOT hereunder, shall immediately advise in writing:
 - (1) Such third party that the antitrust claim has been assigned to CDOT, and
 - (2) Contractor and CDOT that such civil action is pending and the date on which, in accordance with subparagraph b.(1) above, the subcontractor notified such third party that the antitrust claim had been assigned to CDOT;
 - c. Take no action which will in any way diminish the value of the claims or rights assigned or dedicated to CDOT hereunder; and
 - d. Promptly pay over to CDOT its proper share of any payment under an antitrust claim brought on the subcontractor's behalf by any third party and which claim has been assigned or dedicated to CDOT pursuant hereto.

I, acting in my capacity as officer of a bidder (bidders if a joint venture) do agree to the above assignment of antitrust claims.

Contractors firm or company name: NEW DESIGN CONSTRUCTION COMPANY	By: [Signature]	Date: 9/27/13
	Title: PRESIDENT	
2 ND Contractors firm or company name:	By:	Date:
	Title:	

**COLORADO DEPARTMENT OF TRANSPORTATION
 BIDDERS LIST DATA and UNDERUTILIZED
 DBE (UDBE) BID CONDITIONS ASSURANCE**

Project #: BR0 M 320-072
 Location: DENVER CO

Prime Contractor Instructions: This form has two sections, both must be completed and submitted with your bid. Complete **Section I** to list *all* subcontract quotes received (non-DBE *and* DBE). Complete **Section II** to report only Underutilized DBE (UDBE) participation percentages which qualify under the contract goal specification for this project. **Please review CDOT Form #715 instructions before completing Section II.** Attach additional sheets as necessary.

POLICY

It is the policy of the Colorado Department of Transportation that underutilized disadvantaged business enterprises have equal opportunity to participate on projects financed with federal, state or local entity funds. Consistent with 49 Code of Federal Regulations (CFR) Part 26.11, the Bidders List data provided by the Contractors will provide CDOT as accurate data as possible about the universe of DBE and non-DBE firms actively seeking work on its highway construction contracts, for use in setting overall DBE goals.

SECTION I: CDOT BIDDERS LIST INFORMATION (Non-DBEs and DBEs)

- 1) Are all subcontract bids (quotes) received by your firm for this project listed below? Yes No
- 2) *If No*, make certain any additional subcontract bidding information is submitted to the CDOT Business Programs Office before 4:00 pm on the day after bids are opened to ensure CDOT has the best data possible for setting future DBE goals (use the same table format as below):
 CDOT Business Programs Office
 4201 E. Arkansas Ave., Room 200
 Denver, Colorado 80222 **FAX: 303-757-9019** **EMAIL: eo@dot.state.co.us**
- 3) The most recent CDOT Bidders List will be posted online at: www.dot.state.co.us/EEO/DBEProgramPage.htm

Name of firm submitting Bid/Quote	Certified DBE firm?		Work item(s) description	Firm being used?		
	Yes	No		Yes	No	Maybe
1. LMS Drilling		X	Caissons			X
2. Smith Enviro & Eng		X	Environment health & Safety			X
3. Sierra Rebar	X		Reinforcing Steel Placing			X
4. Apeberlein Co, Inc		X	Masonry			X
5. Luchetti Surveying		X	Surveying			X
6. P&H Equipment	X		Asphalt Paving			X
7. Western States Rec		X	Landscaping			X
8. Kolbe Striping		X	Striping			X
9. Ideal Fence Corp		X	Fence / Guardrail			X
10. Rocky Mountain Rebar	X		Rebar Placing/material			X
11. Sturgeon Electric		X	Electric			X
12. Rocky Mt Signing	X		Traffic Control			X
13. WL Contractors		X	Electric			X
14. New West Paving	X		Asphalt Paving			X

Name of firm submitting Bid/Quote	Certified DBE firm?		Work item(s) description	Firm being used?		
	Yes	No		Yes	No	Maybe
15. RKM Striping	X		Striping			X
16. Weed Wranglers		X	Noxious Weed Management			X
17. Zylstra Bikes		X	Surveying			X
18. Les Makson		X	Structural Steel			X
19. IFSHA	X		Surveying			X
20. ALPITA Milling		X	Milling			X

SECTION II: UNDERUTILIZED DBE (UDBE) PARTICIPATION COMMITMENT

- Total eligible Underutilized DBE (UDBE) percentage amount from **Box A** below: **18.00%**
- Will your company's Underutilized DBE (UDBE) participation commitment meet the contract goal? Yes No
- List the UDBE firms, committed work items, and eligible UDBE percentage of your bid committed to each.

UDBE Firm name	Certification #	Committed work item(s)	% Commitment toward DBE Goal*
1. Rocky Mountain Beton		Reinforcing Steel Structural Steel mat	18.00%
2.			.%
3.			.%
4.			.%
5.			.%

BOX A: TOTAL ELIGIBLE UDBE PERCENTAGE AMOUNT (Round to nearest hundredth) → **18.00%**

* Detailed instructions on how to calculate DBE commitment amounts are available on CDOT Form #715 and in the "Counting DBE Participation Toward Contract Goals and CDOT's annual DBE goal" section of the "DBE - Definitions and Requirements" in the *Standard Special Provisions*.

I understand that, if my company is determined to be the low bidder for the contract on this project, I must submit a completed CDOT Form #715 CERTIFICATION OF UNDERUTILIZED DBE PARTICIPATION for each firm listed in **Section II** of this form to the Transportation Department by 4:00 pm on the **third** work day after the day bids are opened. **The actual amounts submitted on each CDOT Form #715 must equal or exceed the DBE percentage commitments documented on this form.** In addition, if my company does not meet the DBE/UDBE goal for this project, I must submit a completed CDOT Form #718 DBE GOOD FAITH EFFORT DOCUMENTATION before 4:00 pm on the **day after** bids are opened. CDOT Form #715s submitted for firms not included on this form, OR for amounts exceeding those listed on this form, will be accepted but **NOT** counted as Good Faith Efforts. Only the efforts the contractor made **prior** to the bid opening will count as Good Faith Efforts.

I understand my obligation to abide by the **Policy** stated above **Section I**. I shall not discriminate on the basis of race, color, age, sex, national origin, or handicap in the bidding process or the performance of contracts.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS, THAT THE STATEMENTS MADE IN THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

Company Name: <i>NEW DESIGN CONSTRUCTION Co.</i>	Date: <i>9 / 27 / 13</i>
Company Officer Signature: <i>[Signature]</i>	Title: <i>V.P.</i>

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

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**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

**CONTRACT NO. 201312778
RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
201	Clearing and Grubbing	1	LS
202	Removal of Pipe	1	EA
202	Remove Ground Sign	10	EA
202	Removal of Asphalt Mat	1,341	SY
202	Removal Of Asphalt Mat (Planing)	26	SY
202	Removal of Bridge	1	EA
202	Removal of Guardrail Type 3	107	LF
203	Embankment Material (Complete In Place)	1,483	CY
206	Structure Excavation	1,425	CY
206	Structure Backfill (Class 1)	1,900	CY
206	Structure Backfill (Class 2)	30	CY
206	Mechanical Reinforcement of Soil	1,300	CY
206	Filter Material (Class B)	18	CY
207	Topsoil	300	CY
207	Stockpile Topsoil	300	CY
207	Sweeping (Sediment Removal)	30	HR
208	Removal Of Trash	30	HR
208	Erosion Log (12 Inch)	80	LF
208	Gravel Bag	100	LF
208	Silt Fence	1,400	LF
208	Concrete Washout Structure	1	EA
208	Vehicle Tracking Pad	2	EA
208	Removal and Disposal Of Sediment (Equipment)	30	HR
208	Removal and Disposal Of Sediment (Labor)	30	HR
210	Reset Light Pole	1	EA
210	Reset Ground Sign	7	EA
210	Reset Fence	45	LF
210	Reset Structure (Headwall)	2	EA
210	Reset Structure (Red Rocks Sign)	2	EA
211	Dewatering	1	LS



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

**CONTRACT NO. 201312778
RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
212	Seeding	0.35	AC
212	Soil Conditioning	0.35	AC
213	Mulching	0.31	AC
213	Mulch Tackifier	58	LB
214	Deciduous Tree (1" cal.)	8	EA
214	Deciduous Shrub (5 gal.)	82	EA
214	Perennial (1 gal.)	12	EA
214	Brush Layer Cutting	65	EA
216	Soil Retention Blanket (Straw/Coconut)(Biodegradable Class1)	350	SY
217	Herbicide Treatment	550	SY
217	Noxious Weed Management	1,700	SY
250	Materials Sampling and Delivery	4	EA
250	Coating Lead-Based Paint	1	LS
304	Aggregate Base Course (Class 6)	442	TON
403	Stone Matrix Asphalt	41	TON
403	Hot Mix Asphalt (Grading S)	185	TON
403	Hot Mix Asphalt (Grading SX)	228	TON
411	Emulsified Asphalt (Slow-Setting)	74	GAL
420	Geotextile (Erosion Control) (Class 1)	459	SY
420	Geotextile (Drainage) (Class 2)	26	SY
503	Drilled Caisson (30 inch)	384	LF
506	Riprap (6 Inch)	16	CY
506	Riprap (9 Inch)	4	CY
506	Soil Riprap (18 Inch)	266	CY
514	Pipe Railing	66	LF
515	Waterproofing Membrane	280	SY
515	Concrete Sealer	132	SY
518	Bridge Expansion Device (0-4 inch)	37	LF
601	Concrete Class D (Bridge)	372	CY



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

**CONTRACT NO. 201312778
RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
602	Reinforcing Steel (Epoxy Coated)	36,100	LB
603	24" Storm Drain Pipe (RCP) (Complete In Place)	62	LF
606	Transition Type 3L	4	EA
606	Guardrail Type 3 (6-3 Post Spacing)	62	LF
606	End Anchorage (Flared)	4	EA
606	Bridge Rail Type 3	190	LF
607	Fence (Plastic)	1,400	LF
608	Concrete Curb Ramp	14	SY
609	Concrete Curb and Gutter (Type 2) (Section IM)	205	LF
609	Concrete Sidewalk	16	SY
610	Median Cover Material (Patterned Concrete)	624	SF
612	Delineator Type I (Flexible) Crystal	8	EA
612	Delineator Type I Crystal	3	EA
612	Delineator Type III Yellow	7	EA
613	2 Inch Electrical Conduit (Plastic)	50	LF
614	Post Type 2 IN. Telspar Tubing	116	LF
614	Sign Panel Class I	67	SF
625	Construction Surveying	1	LS
626	Mobilization	1	LS
627	Epoxy Pavement Marking (Permanent)(Yellow)	12	GAL
627	Epoxy Pavement Marking (Permanent)(White)	17	GAL
627	Preformed Thermoplastic Pavement Marking (Stopline - Yield Line)	254	SF
628	Structural Steel Unit (Through Truss)	1	EA
630	Traffic Control Inspection (2 HR Per Work Day)	132	DAY
630	Traffic Control Management (2 HR Per Work Day)	52	DAY
630	Construction Traffic Sign (Panel Size A)	48	EA
630	Construction Traffic Sign (Panel Size B)	5	EA
630	Construction Traffic Sign (Special)	78	SF
630	Barricade (Type II) (Temporary)	4	EA



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

**CONTRACT NO. 201312778
RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
630	Barricade (Type III M-B) (Temporary)	6	EA
700	Erosion Control	1	F/A
700.2	Fuel Cost Adjustment	1	F/A
700.3	On The Job Training	1	F/A

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

**NOTICE OF INVITATION FOR BIDS
FEDERAL AID PROJECT NOS. : BROM320072
CITY OF DENVER CONTRACT NO. 201312778**

RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

**BID SCHEDULE:
11:00 AM, Local Time
SEPTEMBER 27th, 2013**

Sealed bids will be received at the Development Permits Counter Station #22, located on the 2nd floor at 201 West Colfax, Denver, CO 80202, beginning at 10:30 a.m., no later than 11:00 a.m., on bid day.

Bids submitted prior to 10:30 a.m. on the specified bid opening date/time shall be presented at the Office of Contract Administration, Attention: Public Works Contract Administration, 201 West Colfax Avenue, Department 614, Denver, Colorado 80202. All properly delivered bids will then be publicly opened and read aloud in Room 4.I.2 on the 4th floor at 201 West Colfax, Denver, Colorado 80202.

Prior to submitting a bid, the bidder shall consult the Contractor's Bulletin Board located at 201 W. Colfax, 2nd Floor, Denver, Colorado, 80202 and/or www.work4denver.com.

GENERAL STATEMENT OF WORK:

Replace existing Bridge at Red Rocks Park entrance #2 and improving the intersections of Red Rocks Park Road at CR 93.

ESTIMATED CONSTRUCTION COST:

The estimated cost of construction for this project is between \$922,628.00 and \$1,127,657.00.

TEXTURA CONSTRUCTION PAYMENT MANAGEMENT:

Bidders are urged, when preparing a bid, to contact the Textura ® Corporation 866-TEXTURA www.texturacorp.com for pricing schedule and fees, as all fees associated with the CPM System are to be paid by the Contractor and subcontractors for billings for work performed.

DOCUMENTS AND BID INFORMATION AVAILABLE:

Contract Documents complete with Technical Specifications and, if applicable, construction drawings will be available on the first day of publication at: www.work4denver.com. To download digital Contract Documents at a cost of \$10.00 per download, reference eBid Document Number #2897094. Contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance.

PRE-BID CONFERENCE:

A pre-bid conference will be held for this Project at 9:00 AM, local time, on SEPTEMBER 09, 2013. This meeting will take place at: 201 W Colfax Ave, 4th Floor Conference Room 4.I.2., Denver, CO 80202.

DEADLINE TO SUBMIT QUESTIONS: SEPTEMBER 18th, 2013 by 3:00 P.M. local time.

PREQUALIFICATION REQUIREMENTS:

Each bidder must be prequalified as a 1G(1) BRIDGES in the \$1,500,000.00 monetary level in accordance with the City's Rules and Regulations Governing Prequalification of Contractors. Each bidder must have submitted a prequalification application a minimum of ten (10) calendar days prior to the bid opening date. Applications must be submitted to the Department of Public Works, Prequalification Section, 201 West Colfax Avenue, Department 506, Denver, Colorado 80202. To view the Rules and Regulations and to obtain a prequalification application, please visit our website at www.denvergov.org/prequalification or call 720-865-2539 for prequalification information ONLY.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION:

Federally-funded construction, reconstruction, remodeling, and professional design services contracts made and entered into by the City and County of Denver are subject to Federal Statutes and Regulations regarding Disadvantaged Business Enterprise participation and all Disadvantaged Business Enterprises Utilization.

The Director of the Division of Small Business Opportunity is authorized to establish project goals for expenditures on construction, reconstruction and remodeling and professional design services work let by the City and County of Denver. The specific goal for this project is:

18% Disadvantaged Business Enterprise (DBE)

The project goal must be met with certified participants as set forth in 49 CFR Part 26. For compliance with good faith effort requirements, as set forth in Part 26, the DBE solicitation level required for this project is 100% of the City and Denver's certified DBE's and 100% of the State of Colorado's Department of Transportation (CDOT's) certified DBE's.

The Director of the Division of Small Business Opportunity urges all participants in the construction, reconstruction, remodeling, and professional design services projects not to discriminate against women and minorities or any other persons and to assist in achieving these goals.

The CDOT Form 347, Certification of EEO Compliance, is no longer required to be submitted in the bid package. This form certified that the contractor/proposed subcontractors were in compliance with the Joint Reporting Committee EEO-1 form requirements. The EEO-1 Report must still be submitted to the Joint Reporting Committee if the contractors and subcontractors meet the eligibility requirements (29CRF 1602.7); CDOT will, however, no longer require certification.

MISCELLANEOUS:

Contractor will need to have the bridge and roadway open for 2-way traffic for the Easter Sunrise Celebration and spring programs.

Contracts for construction, reconstruction, and remodeling are subject to the City prevailing wage rate requirements established pursuant to Section 20-76, D.R.M.C.

As its best interest may appear, the City and County of Denver reserves the right to reject any or all bids and to waive informalities in bids.

Publication Dates: September 3, 4, 5, 2013

Published In: The Daily Journal

If applicable, a shortened version of this Notice of Invitation for Bids and the Statement of Quantities can be viewed on the City and County of Denver website at: www.work4denver.com

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

INSTRUCTIONS TO BIDDERS

IB-1 INSTRUCTION TO BIDDERS

These Instructions to Bidders are a part of the Contract Documents and are intended to serve as a guide to bidders. They are general in nature and may be amended or supplemented as needed to support any one specific invitation to bid. Each bidder shall prepare its bid in strict compliance with all requirements of the Contract Documents and by careful application of these instructions.

IB-2 BIDDING

The copy of the Contract Documents contains the Bid Form and Submittal Package for this Project, which must be used to submit a bid hereunder. The bidder must fully complete, execute and submit this Bid Form and Submittal Package, along with any other specified components of the Contract Documents, as its bid for the referenced Project.

A bidder is not required to submit as part of its bid the entire set of Contract Documents distributed by the City pursuant to the Notice of Invitation for Bids, if the bidder executes and submits the Bidder Acknowledgment Form included with the Bid Form and Submittal Package as part of its bid. However, each bidder, by submitting its bid, shall be conclusively presumed to have received and reviewed all of the information contained in the Contract Documents as this term is further defined herein.

Each bid must be enclosed in a sealed envelope, must be addressed to the Manager and must show on the face of the envelope the full name of the bidder, the City Project number, and descriptive title of the Project for which the bid is made.

The advertisement for Notice of Invitation for Bids will identify where and when the bid must be delivered.

IB-3 CONTRACT DOCUMENTS AS PUBLISHED BY CITY

Each bidder shall be responsible for, and shall be deemed to have received, all the information contained in the Contract Documents as distributed by the City pursuant to the Notice of Invitation for Bids, including addenda, whether or not such bidder has reviewed all or part of the Contract Documents in either its hard copy form or in any other format. If organizations or companies other than the City or its design professional distribute the City's Contract Documents for review by prospective bidders, whether in hard copy or via electronic or other media, neither the City nor its design professional shall be responsible for the content, completeness or accuracy of any information distributed or transmitted by any such organization or company.

IB-4 COMPLETING AND SIGNING THE BID FORMS

The bidder must complete the Bid Form by legibly writing or printing in ink, in words and figures as required, all the bidder's prices offered for the Work to be performed. All blank spaces, which require a response of the bidder, must be properly completed in full. If in the process of evaluating a bid, words and figures, as written on the Bid Form by the bidder, do not agree, the written words will govern.

For Bid Forms requiring unit price bids, the bidder shall write in the Bid Form spaces provided a unit price for each item for which a quantity is given and shall also write the product of each unit price and the quantity specified in the "Amount" or "Total" space provided.

Each bidder must sign the Bid Form and give the bidder's current business address. If an individual, the signature must be of the individual offering the bid; if a partnership, the signature must be that of a general partner; and if a corporation, both the president and the secretary must sign and the seal of the corporation must be affixed. Signatures of other persons may be acceptable if the bid contains sufficient evidence, satisfactory to the City in its sole discretion, to indicate that the other persons are authorized to bind the bidder.

IB-5 UNACCEPTABLE BIDS

The City will not accept bids from Bidders not prequalified with the Department of Public Works (if prequalification is required for this project), in arrears to the City upon debt or contract, or which are defaulters (as surety or otherwise) upon any obligation to the City.

IB-6 INFORMAL AND UNBALANCED BIDS

Any alteration, interlineation, erasure, omission, deletion or addition by the bidder to the Bid Form and Submittal Package or other parts of the Contract Documents submitted with the Bid Form and Submittal Package, as originally issued to the bidder, shall render the accompanying bid informal and may constitute cause for rejection.

Any unauthorized addition, conditional or alternate bids, failure to provide a unit price, lump sum amount or authorized alternate item specified or other irregularities of any kind which tend to render the bid incomplete, indefinite or ambiguous shall render the bid informal and may constitute cause for rejection.

Bids that are unbalanced so that each item does not reasonably carry its own proportion of cost or that contain inadequate or unreasonable prices for any item may be rejected. Bids which have not acknowledged all addenda to the Contract Documents issued for this bid may also be rejected.

The right is reserved by the City to reject any or all bids and to waive any informalities where it is deemed by the City to be in the best interests of the City to do so.

IB-7 ONLY ONE BID ACCEPTED

The City will accept only one bid for the same work from any one bidder. This includes bids that may be submitted under different names by one business enterprise.

IB-8 BID GUARANTEE

As a guarantee of good faith on the part of the bidder, each bid must be accompanied by a bid guarantee, consisting of either a certified or cashier's check made payable without condition to the order of the City and County of Denver or a bid bond written by an approved corporate surety in favor of the City and County of Denver. If the bid of a bidder is acceptable and the bidder is notified by the Manager that it is considered to be the Apparent Low Bidder and said bidder fails to execute a contract in the form prescribed or to furnish a performance and payment bond with a legally responsible and approved surety or to furnish the required evidence of insurance or satisfy all conditions precedent to contract execution within five (5) days after such notice is made by the City, said bid guarantee shall be forfeited to the City as liquidated damages and not as a penalty.

The bid guarantee shall be in the amount of **five percent (5%)** of the total bid unless otherwise specified in the Notice of Invitation for Bids and on the form appearing in the Contract Documents in the Bid Form and Submittal Package. Failure to submit a proper bid guarantee, satisfying all of the requirements specified herein and on the form provided herein shall render the bid non-responsive and may constitute cause for rejection.

Following award and execution of the Contract by the Apparent Low Bidder, or earlier in the sole discretion of the City, bid guarantees of all but the Apparent Low Bidder will be returned. When the Apparent Low Bidder executes the Contract and delivers to the City satisfactory performance and payment bonds, required insurance documentation, and has satisfied all conditions precedent to contract execution by the City, and after approval, if any, by the Council of the City of the proposed Contract with the Apparent Low Bidder, the bid guarantee of the Apparent Low Bidder shall be returned. Such return shall be made within one hundred twenty (120) days from date bids are opened unless otherwise specified in the Special Contract Conditions.

IB-9 SITE INSPECTION AND INVESTIGATIONS

Prior to submitting a bid, the bidder is invited to inspect the work site and its surroundings. Although the bidder is not required to make such an inspection before bidding, for purposes of the Contract it shall be conclusively presumed that by failing to make such an inspection, the bidder has waived the right to later claim additional compensation or time extensions for conditions which would have been evident had the site been inspected.

Drawings and Technical Specifications, defining the Work to be done, were prepared on the basis of interpretation by the design professionals of information derived from investigations of the work site. Such information and data are subject to sampling errors, and the interpretation of the information and data depends to a degree on the judgment of the design professional. In view of this, the bidder is invited to make such additional investigations as the bidder's judgment dictates the need for such investigations. Information about the degree of difficulty of the Work to be done cannot totally be derived from either the Drawings or Technical Specifications or from the Manager or his representatives.

Since the bid information cannot be guaranteed, the Contractor shall have assumed the risks attendant to successful performance of the Work and shall never make claim for additional compensation or time extensions on the grounds that the nature or amount of work to be done was not understood by the bidder at the time of the bidding.

IB-10 INCONSISTENCIES

Any seeming inconsistencies or ambiguities between different provisions of the Contract Documents or any point which the bidder believes requires a decision or interpretation by the City must be inquired into by the bidder by addressing a formal written communication to the Manager of Public Works and sending or delivering it to the offices of the Division of Public Works advertising this Project for bid at least forty-eight (48) hours, excluding Saturdays, Sundays, and holidays, before the time set for the opening of bids.

Information about the decision or interpretation made in response to any inquiry will be posted on the Contractor's Bulletin Board (refer to IB-12 CONTRACTOR'S BULLETIN BOARD, for the location of the Contractor's Bulletin Board). If the matter raised requires, in the sole discretion of the Manager, that an addendum to the bid documents be issued, such addendum will be published and each bidder shall be required to acknowledge the addendum by signing and identifying it in the Bid Form when submitting the bid.

After bids are opened, all bidders must abide by the formal response of the Manager, as to any interpretation. The City shall not be bound and the bidder shall not rely on any oral communication, interpretation clarification or determination of the Contract Documents prior to bid opening.

IB-11 WITHDRAWAL OF BID

A bidder may withdraw its bid at any time prior to the time for receipt of bids set forth in the Notice of Invitation for Bids by making written request upon the Manager of Public Works. After such time, no bid may be withdrawn or modified.

Such request must be signed by the persons authorized to bind the bidder as defined in IB-3, COMPLETING AND SIGNING BID FORMS.

IB-12 CONTRACTOR'S BULLETIN BOARD

It shall be conclusively presumed that the bidder has, before submitting any bid, read and shall take full responsibility for all addenda, posted decisions, and other information relevant to the bid posted by the City on the Contractor's Bulletin Board. The Contractor's Bulletin Board is located on the 2nd floor at 201 W. Colfax Avenue, Denver, CO 80202.

IB-13 PRE-BID MEETING

Bidders are urged to attend the pre-bid meeting(s) scheduled for this Project. Attendance is not mandatory; however, bidders will be held responsible for all information presented at such meeting(s).

IB-14 ADDENDA

As its best interests may require, the City may issue addenda to the Contract Documents. Such addenda shall be posted on the Contractor's Bulletin Board and made available to all persons having purchased a set of Contract Documents as set forth in the Notice of Invitation for Bids contained herein. All bidders must acknowledge receipt of all addenda on the Bid Form at the time of submission of the bid.

IB-15 BID OPENING

Bidders are invited to be present at the bid opening. Unless otherwise suspended, delayed or canceled by posted notice from the Manager, bid opening will occur at the time and place designated in the Notice of Invitation for Bid.

IB-16 EVALUATION OF BIDS AND BASIS OF BID SELECTION

Bids will be evaluated after being read in open meeting at the place designated for such bid opening. All low bidders' bids will be reviewed for responsiveness to the requirements of the Contract Documents and whether or not the bids contain irregularities which could give any bidder an unfair advantage.

Selection will be made on the basis of the lowest, total, responsible, responsive, qualified bid, which bid shall include the total base bid set forth on the Bid Form, plus the total of any alternates set forth on the Bid Form and selected by the City during evaluation. Alternates, if any are included in the bid, will be selected in the priority shown on the Bid Form, subject to the limits of available funds. Bid selection will be subject to all requirements and special bidder qualifications contained herein and subject to approval of such resulting Contract in accordance with the Charter and Revised Municipal Code of the City and County of Denver. In addition to all other specified requirements, the City will correct arithmetical errors in all bids and corrected totals only will be considered as the basis of selection.

Upon concluding that the bid is, in fact, the lowest, total, responsive bid to the bidding conditions and that of a responsible, qualified bidder, the City will notify the Apparent Low Bidder.

As its best interests may appear, the City and County of Denver reserves the right to waive informalities in bids, to reject any and all bids and to re-bid the Project.

IB-17 NOTICE TO APPARENT LOW BIDDER

The Notice to Apparent Low Bidder, a form of which is included in the Contract Special Conditions Section of the Contract Documents, is issued by the City directly to the selected bidder and informs the bidder that the Manager intends to seek approval of the execution of the Contract by the City in accordance with the Charter and Revised Municipal Code of the City and County of Denver. Specifically, it informs the bidder of its obligations with respect to execution of the Contract and instructs the bidder on how to proceed toward execution of the Contract. The City reserves the right to notify the Apparent Low Bidder, at any time within one hundred twenty (120) days from the date of the opening of the bids, that approval to contract with the Apparent Low Bidder shall be sought in accordance with the Charter and Revised Municipal Code of the City and County of Denver.

In accordance with the terms and conditions contained in the Bid Form and Submittal Package and any additional requirements set forth in the Notice to Apparent Low Bidder or elsewhere in the Contract Documents, the Apparent Low Bidder shall execute the Contract Form contained in the Contract Documents made available by the City for execution in the appropriate number of counterparts. The Apparent Low Bidder shall return the fully executed Contract Document sets, along with any supplemental documents required herein, to the City and shall comply with all other conditions precedent to Contract execution within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City. Failure to comply with each of these requirements within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City shall render the bid non-responsive and may constitute cause for rejection.

Issuance of such Notice shall not, however, constitute a commitment on the part of the City or create any rights in the Apparent Low Bidder to any contract with the City.

IB-18 EXECUTION OF CONTRACT

The process of executing a contract requires action by both the apparent low bidder and the City. After it notifies the Apparent Low Bidder, the City will prepare the Contract Documents by incorporating all of the documents submitted by the Apparent Low Bidder into one or more executable copies. Upon notification that contract documents are ready for execution the Apparent Low Bidder who shall execute the contract documents. At this time, the successful bidder shall also provide certain supplemental documents for incorporation into the Contract Documents. These supplemental documents shall include: the properly executed Certificate of Insurance Forms evidencing the apparent low bidder's satisfactory compliance with the insurance requirements set forth in the Contract Documents; a properly executed Payment and Performance Bond Form and appropriate Power of Attorney evidencing the Apparent Low Bidder's satisfactory compliance with the bonding requirements set forth in the Contract Documents; and documentation of compliance with any other conditions precedent to execution of the Contract by the City set forth in the Contract Documents. The insurance and bond forms contained in the Contract Special

Conditions Section of the Contract Documents must be used in satisfying these supplemental document requirements.

These documents are then delivered to the City within the prescribed time period for examination of the documents to determine whether or not the Contractor has correctly executed the Contract and has correctly provided the required supplemental documents and that these documents are satisfactorily and properly completed. From here, all of the documents are forwarded to the City Attorney who will, if the insurance and bonding offered is acceptable and if all other elements of the Contract Documents are in order, recommend that the Manager and the Mayor approve the documents and, when required by the City Charter, prepare an ordinance for submittal to City Council authorizing the execution of the Contract. The City Attorney shall in all applicable instances submit the proposed contract and ordinance to City Council. After City Council approval, the Contract shall be reviewed by the City Attorney and routed for execution by the Mayor, the Clerk for attestation and the Auditor for countersignature and registration. When the total process of contract execution is complete, a Notice to Proceed will be issued and a single executed copy of the Contract will be delivered to the Contractor. Any work performed or materials purchased prior to the issuance of the Notice to Proceed, is at the Contractor's risk.

IB-19 BONDING REQUIREMENTS

In accordance with the provisions of General Contract Conditions, Title 15, PERFORMANCE AND PAYMENT BONDS, the minimum bonding requirements for this Contract are set forth in the form **CITY AND COUNTY OF DENVER PERFORMANCE AND PAYMENT BOND** contained in the Special Conditions Section of the Contract Documents. Upon receipt of Notice to Apparent Low Bidder, the apparent low bidder must cause this form bond to be purchased, executed and furnished, along with appropriate Powers of Attorney and a surety authorization letter (in form similar to the one attached), to the City.

IB-20 INSURANCE REQUIREMENTS

The minimum insurance requirements for this Contract are set forth in the Special Conditions Section of the Contract Documents. Bidders are urged to consider, in preparing a bid hereunder, that each condition, requirement or specification set forth in the form certificate must be complied with by the Contractor and all subcontractors performing Work on the Project, unless such requirements are specifically accepted in writing by the City's Risk Management Office. The Contractor must either include all subcontractors performing work hereunder as insureds under each required policy or furnish a separate certificate for each subcontractor. In either case, the Contractor shall insure that each subcontractor complies with all of the coverage requirements.

IB-21 PERMITS AND LICENSES

All permits, licenses and approvals required in the prosecution of the work shall be obtained and paid for by the Contractor.

IB-22 WAGE RATE REQUIREMENTS

In preparing any bid hereunder, the Contractor must comply with and should carefully consider all requirements and conditions of the City's Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. and any determinations made by the City pursuant thereto.

At the time of the preparation of the Contract Documents, the then-current prevailing wage rates applicable to this Project shall be bound within the Contract Documents made available to potential bidders for the Project. If, more than ten (10) days prior to the actual date of bid opening, the Career Service Board determines that prevailing wages rates different from those bound in the Contract Documents are applicable to one or more of the various classes of laborers, mechanics and workers encompassed by this Project, such different prevailing wage rates shall be provided in an addendum. If different prevailing wage rates are determined by the Career Service Board ten (10) or less days prior to the actual date of bid opening, the City will determine on a case by case basis in its sole discretion whether such different prevailing wage rates are to be included in an addendum. In conjunction with such determination, the City may elect, in its sole discretion, to postpone the date of bid opening on the Project. In any event, the bidder will be held, at the actual date of bid opening, to those prevailing wage rates incorporated into the Contract Documents and as modified by any such addenda.

These prevailing wage rates shall be considered the **minimum** City prevailing wage rates to be paid by all contractors or subcontractors for a period not to exceed one (1) year from the date of the Contract.

Increases in prevailing wages subsequent to the date of the Contract for a period not to exceed one (1) year shall not be mandatory on either the contractor or subcontractors. Future increases in prevailing wages on contracts whose period of performance exceeds one (1) year shall be mandatory for the contractor and subcontractors only on the yearly anniversary date of the Contract. The **minimum** City prevailing wage rate for any such subsequent yearly period or portion thereof shall be the wage rates in effect on the yearly anniversary date of the contract which begins such subsequent period. In no event shall any increases in prevailing wages over the amounts thereof as stated in such Technical Specifications and addenda thereto result in any increased liability on the part of the City and the possibility and risk of any such increase is assumed by all contractors entering into any such contract with the City. Decreases in prevailing wages subsequent to the date of the contract for a period not to exceed one year (1) shall not be permitted. Decreases in prevailing wages on contracts whose period of performance exceeds one (1) year shall not be effective except on the yearly anniversary date of the contract.

IB-23 TAX REQUIREMENTS

General. Bidders are referred to the General Contract Condition 323, TAXES, as to taxes to which they may be subject in performing the Work under this Contract, including but not limited to sales and use taxes and the Denver Occupational Privilege Tax. The following instructions are to be considered along with the General Contract Conditions and not in lieu of them.

Sales and Use Tax. Construction and building materials sold to contractors and subcontractors for use on structures, roads, streets, highways, and other public works owned by the City and County of Denver are exempt from state, RTD, and Cultural Facilities District sales and use taxes. However, such materials will be subject to sales and use taxes imposed by the City and County of Denver.

It is the responsibility of the Contractor and its subcontractors to apply to the Colorado Department of Revenue (“CDOR”) for a certificate, or certificates, of exemption indicating that their purchase of construction or building materials is for a public project, and to deliver to the City copies of such applications as soon as possible after approval by the CDOR. Bidders shall not include in their bid amounts the exempt state, RTD, and Cultural Facilities District Sales and Use Taxes.

Denver Occupational Privilege Tax. Any employee working for a contractor, or a subcontractor, who earns over \$500 working in Denver during a calendar month, is subject to the payment of the Employee Occupational Privilege Tax. The Contractor and any subcontractor must pay the Business Occupational Privilege Tax for each of its employees who is subject to such tax.

IB-24 RESERVED

IB-25 DISADVANTAGED BUSINESS ENTERPRISE (DBE) REQUIREMENTS

Department of Transportation (DOT) 49 CFR Part 26 (“Part 26”) applies to this Project and will be incorporated into any agreement entered into by the City and contained in County of Denver Bid Documents. It is the policy of DOT and the City and County of Denver that DBEs to ensure non-discrimination in the award and administration of DOT-assisted contracts financed in whole or in part with Federal funds. Consequently, the Bidders must fully comply with the DBE requirements of Part 26 in bidding and performing hereunder.

The contractor, sub recipient or subcontractor shall not discriminate on the basis or race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deemed appropriate. Each contract signed by the contractor with a subcontractor must include this paragraph.

Part 26 provides for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO). As such, each bidder must comply with the terms and conditions of the Part 26 in making its bid and, if awarded the Contract, in performing all Work thereunder. A bidder’s failure to comply with Part 26, any Rules or Regulations promulgated pursuant thereto, or any additional requirements contained herein may render a bid non-responsive and may constitute cause for rejection.

In order to comply with the bid requirements of Part 26, a Bidder shall either meet the established DBE Project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet

the goal. In preparing a bid to meet the established DBE Project goal, bidders should consider the following instructions relating to compliance with Part 26:

1. Under Part 26, the Director of the Division of Small Business Opportunity establishes a project goal for this project. The specific goal for this project is stated in the Notice of Invitation for Bids bound herein.
2. In preparing its bid, each Bidder shall list on the Bid Form pages entitled "List of Proposed Disadvantage Business Enterprise Bidders, Sub-contractors, Suppliers, Manufacturers, or Brokers" the name, address, work description/supply, committed level of participation and other required information for each DBE of any tier which the bidder intends to use in performing the Work on this Project. Only DBEs identified and the levels of participation listed for each on this Bid Form page at the time of bid opening will be considered in determining whether the bidder has met the designated participation goal. Additional, revised or corrected participation submitted after bid opening will not be considered in determining responsiveness.
3. All DBE firms listed on the Bid Form must be properly certified under guidelines of the Department of Transportation 49 CFR Part 26 by the City of Denver DSBO's Office or the State of Colorado Department of Transportation (CDOT's) Office in order to count towards meeting the designated goals. Both DSBO and CDOT maintain a current listing of certified DBE firms. The DBE Directory is located at www.dot.state.co.us/app_ucp/. Bidders are encouraged to utilize these directories to assist them in locating DBEs for the work/supply required on the project. The most current directories must be utilized in preparing a bid. DBE certification does not, however, constitute a representation or warranty by the City as to the qualification of any listed firm.
4. In accordance with the requirements of Part 26, DSBO will evaluate each bid to determine the responsiveness of the bid to Part 26 requirements. In determining if a Bidder's committed levels of participation meet or exceed the stated DBE goal, DSBO will base its calculation of applicable amounts and percentages on the total base bid amount, not including any listed alternates, of each bid as follows:
 - a. The bid information provided by the agency will be used to determine the total base bid amount of each bid. Each Bidder's total base bid amount will be multiplied by the DBE percentage goal established for the project to determine the exact dollar amounts of required DBE participation for the Project. These amounts will then be compared against the dollar amounts for the DBE firm(s) committed for participation by the Bidder. If the total dollar amount of participation listed meets or exceeds the established DBE dollar amount goal listed, then the DSBO will determine that goals have been met.
 - b. In addition, DSBO will determine the exact commitment percentage for each listed DBE firm by dividing the dollar amount listed for each firm by the total base bid dollar amount submitted by the bidder. These individual percentages, when totaled for all listed DBEs, will establish the total committed percentage level of DBE participation that the bidder must comply with during the life of the Contract. In all cases, the committed percentage level of DBE participation must equal or exceed the assigned DBE goal for the Project.
 - c. In providing the exact dollar amount of participation for each listed DBE firm a bidder should take care never to round up in determining whether or not the total of these amounts meets or exceeds the established percentage goal. The goal must be met or exceeded by both dollar amounts and percentage for DSBO to determine that the bidder has met or exceeded the applicable DBE goal.
 - d. As previously mentioned compliance with the DBE goal will be determined on the base bid alone. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the Project goals. However, should any designated alternate be selected by the City for inclusion in the Contract ultimately

awarded, the DBE goal percentage level submitted at bid time, on the base bid, will also apply to the selected alternates and must be maintained for the life of the Contract on the total contract amount, including any alternate work. Thus, even though such participation will not be considered in evaluating bids, Bidders are urged to consider participation in preparing bids for designated alternates.

- e. On projects where force account or allowance bid items have been included, bidders must meet the DBE goal percentage based upon the total base bid, including all such items that he submitted to the City. However, when a force account or allowance is designated by the City to be either performed or purchased from a specific company, the bidder may back out the dollar amount of the force account or allowance from the total base bid and meet the DBE goal on the remaining reduced amount.

5. In accordance with Part 26 the City and County of Denver will require the total DBE participation commitment to be achieved in accordance with the following:

DBE bidders can count themselves for self-performance toward meeting the DBE goal, but only for the scope of work and at a percentage level they will be actually performing themselves.

DBE credit will be counted only for work actually performed by the DBEs own forces.

Work actually performed by DBEs is deemed to include the cost of materials and supplies purchased and equipment leased by the DBE from non-DBE sources. Work subcontracted can only count if the subcontractor is another DBE.

The entire fee or commission charged by a DBE, if reasonable and not excessive, will be counted.

Under Joint Ventures, the total value of distinct and clearly defined portions of the work of the contract that the DBE performs with its own workforce will be counted.

Each DBE must perform a "commercially useful function" to be counted toward the goal and at least 30% of the work must be performed by a DBE of the total cost of its contract for the DBE to be presumed to be performing a "commercially useful function".

Supplies or materials can be only counted for 60% of the total cost of the materials or supplies toward meeting the DBE goal and a DBE manufacture can count 100% of the cost of the materials or supplies toward the goal. Manufactures' representatives and packagers shall be counted in the same manner as brokers.

In utilizing the DBE participation of a Broker, only the bona fide fees and commissions earned by them for their performance of a commercially useful function will count toward meeting the project goals. The Bidder must separate the bona fide brokerage fees and commissions from the actual cost of the supplies or materials provided to determine the actual dollar amount of participation that can be counted towards meeting the goal.

6. On or before the fifth (5th) working day after bid opening, all of the Bidders are required to submit an executed "DBE Letter of Intent" for each DBE listed on the Bid Form as a subcontractor, supplier, manufacturer, or broker of any tier. Each Letter of Intent shall be submitted only for the DBEs listed at the time of bid opening, since this is the only participation that will be counted toward satisfaction of the project goals. A form for the DBE Letter of Intent is included with the Bid Form. The DBE Letter of Intent is a written communication from the Bidder to the City evidencing an understanding that the Bidder has or will enter into a contractual relationship with the DBE and/or that its subcontractor(s) and supplier(s), manufacturer(s), and broker(s) will do so. Each DBE Letter of Intent shall be accompanied by either a copy of the City and County of Denver's (DSBO) DBE certification letter or the State of Colorado's (CDOT) DBE certification letter and DBE Work Codes Sheet for each proposed DBE firm identified at bid time. Bidders are urged to carefully review these

Letters before submission to the City to ensure that they are properly completed and executed by the appropriate parties.

In preparing a bid to demonstrate a good faith effort, Bidders should consider the following instructions relating to compliance with Part 26:

1. If any Bidder is unable to meet the designated project DBE goal at the time the bids are opened or elects to present a good faith effort in lieu of or in addition to attempting to satisfy the designated project goals, that Bidder shall submit on or before the fifth (5th) working day after the bid opening a detailed statement, with supporting documentation, setting forth its good faith efforts made prior to bid opening. The different kinds of efforts as well as the quantity and intensity of the efforts will be considered in determining whether the Bidder has made a good faith effort. A Bidder who fails to meet the project goal and cannot show, to the Director's satisfaction, that it made a good faith effort to meet the DBE goal shall be considered non-responsive.
2. For compliance with good faith effort requirements as set forth in Part 26, the DBE solicitation level required for this project is 100% of the City and County of Denver's certified DBE's and 100% of the State of Colorado's Colorado Department of Transportation (CDOT's) certified DBE's. Therefore, both DBE certified lists must be utilized in solicitation effort in order to meet the good faith effort requirement. The statement of good faith efforts shall include a specific response to each of the following as further defined by rule or regulation. The Bidder must identify the portions of the project that it will self-perform and the Bidder must solicit DBE participation in every category in which it will not self perform. The required level of DBE participation is set forth in the Notice of Invitation for Bids, which is also contained within the project Contract documents. A Bidder may include any additional information the Bidder believes may be relevant. Failure of a Bidder to show good faith efforts as to any one of the following categories shall render its overall good faith showing insufficient and its bid non-responsive. Item (1) through (4) of the D.R.M.C. Section 28-208, Subsection (b) are set forth below:
 - a. If pre-bid meetings are scheduled by the City at which DBEs may be informed of subcontracting opportunities under a proposed contract to be bid, attendance at such pre-bid meetings is not mandatory; however, bidders are responsible for the information provided at these meetings. The good faith effort statement must reflect the bidder's knowledge of the information provided at these meetings.
 - b. Written verification of the placing of an advertisement soliciting bids from DBEs for three (3) consecutive days in general or construction-related publications approved by the Director. All such advertisements must expressly advertise a given project and expressly state that DBE participation on that project is being sought; other incidental references to the project or listing of the bidder as a plan holder are not sufficient. All such advertisements shall begin at least fifteen (15) days prior to bid opening. If the City publishes notice for bids on a project less than fifteen (15) days prior to bid opening, verification of advertisements for at least four (4) consecutive days shall be provided.
 - c. Verification of efforts made by the Bidder to contact, by written notice, all certified DBEs who have the capability to perform the work of the contract, that their interest in the contract is being solicited, in sufficient time to allow the DBEs to participate effectively is required. The notice shall expressly describe the potential subcontracting, supplier or broker opportunities for all applicable certification categories for the particular project.
 - d. Verification that, reasonably consistent with industry practice and the Bidder's past practices on similar projects, the Bidder analyzed the needs of the project in light of such industry practice and past practice, together with the goal of facilitating DBE participation on the project, and identified portions of the work to be performed by DBEs in order to achieve the project goal.

- d. For each DBE which contacted the Bidder or which the Bidder contacted or attempted to subcontract with, consistent with industry practice, a statement giving the reasons why the Bidder and the DBE did not succeed in reaching a subcontracting, supplier, manufacturer or broker agreement.
- e. Verification that the Bidder rejected DBEs because they did not submit the lowest bid or they were not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential subcontractors, suppliers, manufacturers or brokers on the project and a verified statement that the Bidder rejected DBEs because they did not submit the lowest bid from among such bids or were not qualified.
- f. Verification that the Bidder made efforts to assist DBEs in obtaining bonds, if any are required.

In accordance with Part 26 the Bidder agrees that it is committed to meeting either the DBE participation goal or the DBE participation set forth in its statement of good faith efforts. This commitment must be expressly indicated on the "Commitment to Disadvantaged Business Enterprise Participation" form included with the Bid Form. This commitment includes the following understandings:

1. The Bidder understands it must maintain the committed DBE participation goal level throughout the life of the Contract and as required in 49 CFR Section 26.53 (f) (1) & (2) which states: A prime may not terminate for convenience a DBE subcontractor (or an approved substitute DBE firm) and then perform the work of the terminated subcontract with its own forces or those of an affiliate, without prior written consent. When a DBE subcontractor is terminated, or fails to complete its work on the contract for any reason, the prime contractor is required to make good faith efforts to find other DBE subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal.
2. The Bidder understands that it must establish and maintain records and submit regular reports, as required, which will allow the City to assess progress toward satisfying the DBE participation goal and other affirmative action efforts.
3. The Bidder understands that if Change Orders or any other Contract modifications are issued under the Contract, the Bidder shall have a continuing obligation to immediately inform DSBO in writing of any agreed upon increase or decrease in the scope of work of such Contract, regardless of whether such increase or decrease in scope of work has been reduced to writing at the time of notification.
4. The Bidder understands that if Change Orders or other Contract modifications are issued under the Contract that include an increase in the scope of work of a contract for construction, reconstruction, or remodeling, whether by amendment, change order, force account or otherwise which increases the dollar value of the contract, whether or not such change is within the scope of work designated for performance by a DBE at the time of Contract award, then such amendment, change order or other modification shall be contemporaneously submitted to the DSBO. Those amendments, change orders, force accounts or other Contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors or by the Bidder shall be subject to goals for DBEs equal to the original goal on the Contract which were included in the bid or showing of a good faith efforts.

Prime Contractor agree to pay each subcontractor under this prime contract for satisfactory performance on a contract no later than seven (7) days from the receipt of each payment the prime contractor receives from the City and County of Denver. The prime contractor agrees further to return retainage payments to each subcontractor within thirty (30) days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for a good cause following written approval of the City and County of Denver. This clause applies both to DBE and non-DBE subcontractors.

All Bidders are charged with knowledge of and are solely responsible for complying with each requirement of Part 26 in making a bid and, if awarded, in performing the Work described in the Contract Documents. These instructions are intended only to generally assist the Bidder in preparing and submitting a compliant bid. Should any questions arise regarding specific circumstances, Bidders must consult 49 CFR Part 26, appropriate DOT Rules and Regulations, or contact the Project's designated DSBO representative at (720) 913-1700.

INSTRUCTIONS TO BIDDERS - All bidders must submit an DSBO "Bidder's List Data Form" for themselves, as well as any subcontractor/supplier/manufacture/manufacture representative/broker that contacted the bidder or that the bidder contacted who provided a bid or quote, regardless if the firm is a DBE or a non-DBE firm. DSBO is required by DOT 49 CFR Part 26 Regulations to create and maintain a bidders list on DOT-assisted projects. Therefore, bidders need to provide these completed forms at the time of bid as a part of their "Bid Form & Submittal Document".

IB-26 DISCLOSURE OF INFORMATION

All submissions and other materials provided or produced pursuant to this Invitation for Bids may be subject to the Colorado Open Records Law, C.R.S. 24-72-201, et seq. As such, bidders are urged to review these disclosure requirements and any exceptions to disclosure of information furnished by another party and, prior to submission of a bid to the City, appropriately identify materials that are not subject to disclosure. In the event of a request to the City for disclosure of such information, the City shall advise the bidder of such request to give the bidder an opportunity to object to the disclosure of designated confidential materials furnished to the City. In the event of the filing of a lawsuit to compel such disclosure, the City will tender all such material to the court for judicial determination of the issue of disclosure and each bidder agrees to intervene in such lawsuit to protect and assert its claims of privilege against disclosure of such material. Each bidder further agrees to defend, indemnify and save and hold harmless the City, its officers, agents and employees, from any claim, damages, expense, loss or costs arising out of the bidder's intervention to protect and assert its claims of privilege against disclosure under the Open Records Law including, but not limited to, prompt reimbursement to the City of all reasonable attorney fees, costs and damages that the City may incur directly or may be ordered to pay by such court.

IB-27 GENERAL BIDDING INFORMATION

Bidders are instructed to contact the Contract Administrator designated below for this Project for pre-bid, post-bid and general City bidding information. Bidders can also visit DenverGov.com for information, both general and project specific. The Contract Administrator assigned to this project is Diane Urbina who can be reached via email at diane.urbina@denvergov.org.

IB-28 FEDERAL REQUIREMENTS

This project is funded, in whole or in part, by federal funding made available through the Federal Highway Administration ("FHWA") and administered by the Colorado Department of Transportation ("CDOT"). As such, each bidder must comply review and comply with certain bid requirements (the "Federal Forms") in formulating and submitting its bid for the Project, and, if awarded a contract pursuant to this bid, must comply with certain "Federal Requirements." The required Federal Forms are included in the Bid Package at pages BF-21 through BF-25. The Federal Requirements are attached to the Bid Document Package, pages at BDP-58 through BDP-75. The Contractor shall be presumed to have considered and completed all Federal Requirements and Forms as part of its bid and shall be presumed to have carefully considered and accounted for all costs of complying with the Federal Requirements in formulating and submitting a bid hereunder.

IB-29 PAYMENT PROCEDURE REQUIREMENTS

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. Bidders are urged, when preparing a bid, to contact the Textura® Corporation for pricing schedule and fees, as all fees associated with the CPM System are to be paid by the Contractor and subcontractor for billings for work performed.

**RULES AND REGULATIONS
REGARDING**

EQUAL EMPLOYMENT OPPORTUNITY

Promulgated and adopted by the Manager of Public Works pursuant to and by authority of Article III, Division 2, Chapter 28 of the Revised Municipal Code of the City and County of Denver, and for the purpose of insuring that contractors, subcontractors and suppliers soliciting and receiving compensation for contract work from or through the City and County of Denver provide equal opportunity in employment without regard to race, color, creed, sex, national origin, age, religion, marital status, political opinion or affiliation or mental or physical handicap and meet certain requirements for the hiring, training, promotion, and treatment during employment of members of ethnic groups subject to differential treatment, including persons of African descent (Black), Spanish-surnamed (Hispanic), Asian-American and American Indian Groups.

RULE I - DEFINITIONS

- A. "City" means the City and County of Denver.
- B. "Manager" shall mean the Manager of Public Works for the City and County of Denver.
- C. "Contract" means a contract entered into with the City and County of Denver, financed in whole or in part by local resources or funds of the City and County of Denver, for the construction of any public building or prosecution or completion of any public work.
- D. "Contractor" means the original party to a contract with the City and County of Denver, also referred to as the "general" or "prime" contractor.
- E. "Director" means the Director of the Division of Small Business Opportunity.
- F. "Subcontractor" means any person, company, association, partnership, corporation, or other entity which assumes by subordinate agreement some or all of the obligations of the general or prime contractor.
- G. The phrase "Bidding Specifications" as used in Article III, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITION, INVITATION TO BID, and NOTICE OF PROPOSAL.
- H. "Affirmative Action Program" means a set of specific and result-oriented procedures or steps to which a contractor commits himself to apply every good faith effort to employ members of ethnic minority groups, to include persons of African descent (Black), Spanish surnamed (Hispanic), Asian-American, American Indians, and persons with mental or physical handicap.
- I. "Division of Small Business Opportunity" means the City agency established pursuant to Article III, Division 1 of Chapter 28 of the Denver Revised Municipal Code.

RULE II - NOTICE OF HEARING

When results of conciliation efforts are unsatisfactory to the Manager and he is informed in accordance with Article III, Division 2 of Chapter 28 of the Revised Municipal code that a contractor or subcontractor has apparently failed to meet affirmative action and equal employment opportunity requirements after a reasonable period of notice to correct deficiencies, the Manager will , prior to imposition of any sanctions, afford the general contractor a hearing in order to determine whether the contractor or his subcontractors have failed to comply with the affirmative action and equal employment opportunity requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or of the contract. Written notice of such hearing shall be delivered personally or sent by certified mail, return receipt requested, to the contractor and to any subcontractor involved, at least ten (10) days prior to the date scheduled for the hearing.

RULE III - HEARING

- A. Contractors will appear at hearings and may be represented by counsel, and may present testimony orally and other evidence.
- B. Hearings shall be conducted by one or more hearing examiners designated as such by the Manager.
- C. The Director of the Division of Small Business Opportunity may participate in hearings as a witness.
- D. Hearings shall be held at the place specified in the notice of hearing.
- E. All oral testimony shall be given under oath or affirmation and a record of such proceedings shall be made.
- F. All hearings shall be open to the public.
- G. The hearing officer shall make recommendations to the Manager who shall make a final decision.

REGULATIONS

REGULATION NO. 1 - ORDINANCE:

The Rules and Regulations of the Manager shall be inserted in the bidding specifications for every contract for which bidding is required.

REGULATION NO. 2 - EXEMPTIONS:

Each contract and subcontract, regardless of the dollar amount, shall be subject to affirmative action requirements unless specifically exempted in writing individually by the Manager. Exemptions apply only to "affirmative action" in equal employment opportunity, and are not to be construed as condonation in any manner of "discrimination" or "discriminatory practices" in employment because of race, color, creed, sex, age, national origin, religion, marital status, political opinion or mental or physical handicap.

REGULATION NO. 3 - DIRECTOR OF CONTRACT COMPLIANCE:

The Director of the Division of Small Business Opportunity shall perform the duties assigned to such official by Article III, Division 2 Chapter 28 of the Revised Municipal Code and by the Manager. (1) The Director of the Division of Small Business Opportunity or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the Ordinance at pre-bid and pre-construction conference; (2) make regular on-site inspections; (3) supply contractors and subcontractors with report forms to be completed by them when requested, and furnished to the Director of the Division of Small Business Opportunity; and (4) review payroll records, employment records and practices of general contractors and their subcontractors and suppliers during the performance of any contract. The Director of the Division of Small Business Opportunity shall promptly report apparent affirmative action deficiencies to the Manager.

REGULATION NO. 4 - GOALS AND TIMETABLES:

In general, goals and timetables should take into account anticipated vacancies and the availability of skills in the market place from which employees should be drawn. In addition, where discrimination in employment by a general contractor or any of his subcontractors is indicated, a corrective action program will take into account the need by the general contractor and his subcontractors to correct past discriminatory practices and reach goals of minority manpower utilization on a timely basis through such recruiting and advertising efforts as are necessary and appropriate.

REGULATION NO. 5 - AWARD OF CONTRACTS:

It shall be the responsibility of the Director of the Division of Small Business Opportunity to determine the affirmative action capability of bidders, contractors and subcontractors and to recommend to the Manager the award of contracts to those bidders, contractors and subcontractors and suppliers who demonstrate the ability and willingness to comply with the terms of their contract.

REGULATION NO. 6 - PUBLICATION AND DUPLICATION:

Copies of these Rules and Regulations as amended by the Manager from time to time, shall as soon as practicable and after Notice being published will be made a part of all City Contracts.

REGULATION NO. 7 - NOTICE TO PROCEED:

Prior to issuance of the Notice to Proceed a sign-off will be required of the Director of the Division of Small Business Opportunity or his designee.

REGULATION NO. 8 - CONTRACTS WITH SUBCONTRACTORS:

To the greatest extent possible, the contractor shall make a good faith effort to contract with minority contractors, subcontractors and suppliers for services and supplies by taking affirmative actions which include but are not limited to the following:

1. Advertise invitations for subcontractor bids in minority community news media.
2. Contact minority contractor organizations for referral of prospective subcontractors.
3. Purchase materials and supplies from minority material suppliers.

REGULATION NO. 9 - AGENCY REFERRALS:

It shall be no excuse that the union with which the contractor or subcontractor has an agreement providing for referral, exclusive or otherwise, failed to refer minority employees.

REGULATION NO. 10 - CLAUSES:

The Manager shall include the appropriate clauses in every contract and the contractor shall cause to be inserted in every subcontract the appropriate clauses:

1. APPENDIX A: City and County of Denver Equal Opportunity Clause - ALL CONTRACTS funded only with City and County of Denver monies.
2. APPENDIX B: Equal Opportunity Clause (11246) - ALL FEDERAL ASSISTED.
3. APPENDIX C: Section 3 - Assurance of Compliance - HUD ASSISTED PROJECTS.
4. APPENDIX D: Section 3 - Clause - HUD ASSISTED PROJECTS.

All amendments to the appendices shall be included by reference.

REGULATION NO. 11 - SHOW CAUSE NOTICES:

When the Manager has reasonable cause to believe that a contractor has violated Article III, Division 2 of Chapter 28 of the Denver Revised Municipal Code, he may issue a notice requiring the contractor to show cause, within fifteen (15) days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

REGULATION NO. 12 - BID CONDITIONS - AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY:

1. APPENDIX E: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as amended and published by the U.S. Department of Labor Employment Standards Administration, Office of Federal Contract Compliance, shall be inserted verbatim for bidding specification for every non-exempt contract involving the use of Federal funds.
2. APPENDIX F: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as published by the Department of Public Works, City and County of Denver, shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

APPENDIX A

**CITY AND COUNTY OF DENVER EQUAL OPPORTUNITY CLAUSE -
ALL CONTRACTS**

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. Each Contractor will comply with all provisions of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager and the Director.
5. The Contractor will furnish all information and reports required by Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to his books, records, and accounts by the Manager, Director, or their designee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts in accordance with procedures authorized in Article III, Division 2, Chapter 28 of the Revised Municipal Code, or by rules, regulations, or order of the Manager.
7. The Contractor will include Regulation 12, Paragraph 2 and the provisions of paragraphs (1) through (6) in every subcontract of purchase order unless exempted by rules, regulations, or orders of the Manager issued pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, so that such provisions will be binding on each subcontractor or supplier. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

The applicant further agrees to be bound by the above equal opportunity clauses with respect to its own employment practices when it participates in City contracts. The Contractor agrees to assist and cooperate actively with the Manager and the Director in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager, and will furnish the Manager and the Director such information as they may require for the supervision of compliance, and will otherwise assist the Manager and Director in the discharge of the City's primary responsibility for securing compliance. The Contractor further agrees to refrain from entering into any contract or contract

modification subject to Article III, Division 2 of Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who has not demonstrated eligibility for, City contracts.

The Contractor will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the Manager and Director. In addition, the Contractor agrees that failure or refusal to comply with these undertakings the Manager may take any or all of the following actions:

- A. Cancellation, termination, or suspension in whole or in part of this contract.
- B. Refrain from extending any further assistance to the applicant under the program with respect to which the failure occurred until satisfactory assurance of future compliance has been received from such applicant.
- C. Refer the case to the City Attorney for appropriate legal proceedings.

SUBCONTRACTS: Each prime Contractor or Subcontractor shall include the equal opportunity clause in each of its subcontracts.

APPENDIX B

EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

NOTICES TO BE POSTED PER PARAGRAPH (1) AND (3) OF THE EEO CLAUSE

EQUAL EMPLOYMENT OPPORTUNITY IS THE LAW

**Discrimination is Prohibited by
the Civil Rights Act of 1964
and by Executive Order No. 11246**

Title VII of the Civil Rights Act of 1964

Administered by: The Equal Employment Opportunity Commission

Prohibits discrimination because of Race, Color, Religion, sex, or National Origin by Employers with 25 or more employees, by Labor Organizations with a hiring hall of 25 or more members, by Employment Agencies, and b Joint Labor-Management Committees for Apprenticeship or Training.

ANY PERSON who believes that he or she has been discriminated against SHOULD CONTACT:

The Equal Employment Opportunity Commission (EEOC)
2401 E Street, NW
Washington, D.C. 20506

Executive Order No. 11256

Administered by: The Office of Federal Contract Compliance Programs

Prohibits discrimination because of Race, Color, Religion, Sex, or National Origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment, by all Federal Government Contractors and Subcontractors, and by Contractors Performing Work Under a Federal Assisted Construction Contract, regardless of the number of employees in either case.

ANY PERSON who believes that he or she has been discriminated against SHOULD CONTACT:

The Office of Federal Contract Compliance Programs
U. S. Department of Labor
Washington, D.C. 20210

APPENDIX E

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246, as amended)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area are as follows:

Timetables: Until Further Notice

Goals:

- (a) Minority Participation in Each Trade: 13.8 percent
- (b) Female Participation in Each Trade: 6.9 percent

These goals are applicable to all the contractor's construction work (whether or not it is Federal or Federally-assisted) performed in the covered area. If the contractor performs construction work in a geographic area located outside of the covered area, it shall apply the goal established for such geographic area where the work is actually performed. With regard to this second area, the contractor also is subject to the goal for both its Federally involved and non-Federally involved construction.

The contractor's compliance with the executive order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goal. The hours of minority employment and training must be substantially uniform throughout the length of the contract, and in each grade, and the contract shall make a good faith effort to employ minorities evenly on each of its projects. The transfer of minority employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor's goal, shall be a violation of the contract, the executive order, and the regulations in 41 CFR Part 60-4. Compliance with the goal will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employee identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographic area in which the contract is performed.
4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is the City and County of Denver, Colorado.

STANDARD FEDERAL ASSURANCES

NOTE: As used below the term "contractor" shall mean and include the "Party of the Second Part," and the term "sponsor" shall mean the "City".

During the term of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

2. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, creed or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontractors, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiations made by the contractor for work to be performed under a subcontract, including procurements or materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

4. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it may determine to be appropriate, including, but not limited to:

- a. Withholding of payments to the contractor under the contract until the contractor complies, and/or
- b. Cancellation, termination, or suspension of the contract, in whole or in part.

6. Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION
CONTRACT SPECIFICATIONS (41 CFR 60-4.3)
(VERSION 2, 4/23/90)**

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.
 - f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

APPENDIX F

AFFIRMATIVE ACTION REQUIREMENTS

EQUAL EMPLOYMENT OPPORTUNITY

For All Non-Exempt Construction Contracts to Be Awarded by the
City and County of Denver, Department of Public Works.

NOTICE

EACH BIDDER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE BID CONDITIONS AS TO EACH CONSTRUCTION TRADE IT INTENDS TO USE ON THIS CONSTRUCTION CONTRACT, AND ALL OTHER CONSTRUCTION WORK (BOTH CITY AND NON-CITY) IN THE DENVER AREA DURING THE PERFORMANCE OF THIS CONTRACT OR SUBCONTRACT. THE CONTRACTOR COMMITS ITSELF TO THE GOALS FOR MINORITY MANPOWER UTILIZATION, AS APPLICABLE, AND ALL OTHER REQUIREMENTS, TERMS AND CONDITION OF THESE BID CONDITIONS BY SUBMITTING A PROPERLY SIGNED BID.

THE CONTRACTOR SHALL APPOINT A COMPANY EXECUTIVE TO ASSUME THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE REQUIREMENTS, TERMS AND CONDITIONS OF THESE BID CONDITIONS.

/s/

Manager of Public Works
City and County of Denver

EQUAL OPPORTUNITY PROVISIONS (Cont'd)

A. REQUIREMENTS - AN AFFIRMATIVE ACTION PLAN:

Contractors shall be subject to the provisions and requirements of these bid conditions including the goals and timetables for minority* and female utilization, and specific affirmative action steps set forth by the Office of Contract Compliance. The contractor's commitment to the goals for minority, and female utilization as required constitutes a commitment that it will make every good faith effort to meet such goals.

1. GOALS AND TIMETABLES:

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade are as follows:

GOALS FOR MINORITY PARTICIPATION FOR EACH TRADE	GOALS FOR FEMALE PARTICIPATION FOR EACH TRADE
From January 1, 1982 to Until Further Notice	From January 1, 1982 to Until Further Notice
21.7% - 23.5%	6.9%

The goals for minority and female utilization above are expressed in terms of hours of training and employment as a proportion of the total number of hours to be worked by the contractor's aggregate workforce, which includes all supervisory personnel, in each trade, on all projects for the City and County of Denver during the performance of its contract (i.e., The period beginning with the first day of work on the City and County of Denver funded construction contract and ending with the last day of work).

The hours of minority and female employment and training must be substantially uniform throughout the length of the contract in each trade and minorities and females must be employed evenly on each of a contractor's projects. Therefore, the transfer of minority or female employees from contractor to contractor or from project to project for the purpose of meeting the contractor's goals shall be a violation of these Bid Conditions.

If the Contractor counts the nonworking hours of apprentices they must be employed by the Contractor during the training period; the Contractor must have made a commitment to employ apprentices at the completion of their training subject to the availability of employment opportunities; and the apprentices must be trained pursuant to training programs approved by the Bureau of Apprenticeship and Training.

* "Minority" is defined as including, Blacks, Spanish Surname Americans, Asian-Americans, and American Indians, and includes both men and minority women.

2. SPECIFIC AFFIRMATIVE ACTION STEPS:

No contractor shall be found to be in noncompliance solely on account of its failure to meet its goals, but will be given an opportunity to demonstrate that the contractor has instituted all the specific affirmative action steps specified and has made every good faith effort to make these steps work toward the attainment of its goals within the timetables, all to the purpose of expanding minority and female utilization in its aggregate workforce. A contractor, who fails to comply with its obligation under the Equal Opportunity Clause of its contract and fails to achieve its commitments to the goals for minority and female utilization has the burden of proving that it has engaged in an Affirmative Action Program directed at increasing minority and female utilization and that such efforts were at least as extensive and as specific as the following:

- a. The Contractor should have notified minority and female organizations when employment opportunities were available and should have maintained records of the organization's response.

- b. The Contractor should have maintained a file of the names and addresses of each minority and female referred to it by any individual or organization and what action was taken with respect to each such referred individual, and if the individual was not employed by the Contractor, the reasons. If such individual was sent to the union hiring hall for referral and not referred back by the union or if referred, not employed by the Contractor, the file should have documented this and their reasons.
- c. The Contractor should have promptly notified the Department of Public Works, and the Division of Small Business Opportunity when the union or unions with which the Contractor has collective bargaining agreements did not refer to the contractor a minority or female sent by the contractor, or when the Contractor has other information that the union referral process has impeded efforts to meet its goals.
- d. The Contractor should have disseminated its EEO policy within its organization by including it in any employee handbook or policy manual; by publicizing it in company newspapers and annual reports and by advertising such policy at reasonable intervals in union publications. The EEO policy should be further disseminated by conducting staff meetings to explain and discuss the policy; by posting of the policy; and by review of the policy with minority and female employees.
- e. The Contractor should have disseminated its EEO policy externally by informing and discussing it with all recruitment sources; by advertising in news media, specifically including minority and female news media; and by notifying and discussing it with all subcontractors.
- f. The Contractor should have made both specific and reasonably recurrent written and oral recruitment efforts. Such efforts should have been directed at minority and female organizations, schools with substantial minority and female enrollment, and minority and female recruitment and training organizations within the Contractor's recruitment area.
- g. The Contractor should have evidence available for inspection that all tests and other selection techniques used to select from among candidates for hire, transfer, promotion, training, or retention are being used in a manner that does not violate the OFCCP Testing Guidelines in 41 CFR Part 60-3.
- h. The Contractor should have made sure that seniority practices and job classifications do not have a discriminatory effect.
- i. The Contractor should have made certain that all facilities are not segregated by race.
- j. The Contractor should have continually monitored all personnel activities to ensure that its EEO policy was being carried out including the evaluation of minority and female employees for promotional opportunities on a quarterly basis and the encouragement of such employees to seek those opportunities.
- k. The Contractor should have solicited bids for subcontracts from available minority and female subcontractors engaged in the trades covered by these Bid Conditions, including circulation of minority and female contractor associations.

NOTE: The Director and the Division of Small Business Opportunity will provide technical assistance on questions pertaining to minority and female recruitment sources, minority and female community organizations, and minority and female news media upon receipt of a request for assistance from a contractor.

3. NON - DISCRIMINATION:

In no event may a contractor utilize the goals and affirmative action steps required in such a manner as to cause or result in discrimination against any person on account of race, color, religion, sex, marital status, national origin, age, mental or physical handicap, political opinion or affiliation.

4. COMPLIANCE AND ENFORCEMENT:

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these Bid

Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

A. CONTRACTORS SUBJECT TO THESE BID CONDITIONS:

In regard to these Bid Conditions, if the Contractor meets the goals set forth therein or can demonstrate that it has made every good faith effort to meet these goals, the Contractor shall be presumed to be in compliance with Article III, Division 2 of Chapter 28 of the Revised Municipal Code, the implementing regulations and its obligations under these Bid Conditions. In the event, no formal sanctions or proceedings leading toward sanctions shall be instituted unless the contracting or administering agency otherwise determines that the contractor is violating the Equal Opportunity Clause.

1. Where the Division of Small Business Opportunity finds that a contractor failed to comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or the implementing regulations and the obligations under these Bid Conditions, and so informs the Manager, the Manager shall take such action and impose such sanctions, which include suspension, termination, cancellation, and debarment, as may be appropriate under the Ordinance and its regulations. When the Manager proceeds with such formal action it has the burden of proving that the Contractor has not met the goals contained in these Bid Conditions. The Contractor's failure to meet its goals shall shift to it the requirement to come forward with evidence to show that it has met the good faith requirements of these Bid Conditions.
2. The pendency of such proceedings shall be taken into consideration by the Department of Public Works in determining whether such contractor can comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and is therefore a "responsible prospective contractor".
3. The Division of Small Business Opportunity shall review the Contractor's employment practices during the performance of the contract, if the Division of Small Business Opportunity determines that the Contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

B. OBLIGATIONS APPLICABLE TO CONTRACTORS:

It shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority or female employees. Discrimination in referral for employment, even if pursuant to provisions of a collective bargaining agreement, is prohibited by the National Labor Relations Act, as amended, Title VI of the Civil Rights Act of 1964, as amended, and Article III, Division 2 of Chapter 28 of the Revised Municipal Code. It is the policy of the Department of Public Works that contractors have a responsibility to provide equal employment opportunity, if they wish to participate in City and County of Denver contracts. To the extent they have delegated the responsibility for some of their employment practices to a labor organization and, as a result, are prevented from meeting their obligations pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, or its implementing rules and regulations.

C. GENERAL REQUIREMENTS:

Contractors are responsible for informing their subcontractors in writing regardless of tier, as to their respective obligations. Whenever a Contractor subcontracts a portion of work in any trade covered by these Bid Conditions, it shall include these Bid Conditions in such subcontracts and each subcontractor shall be bound by these Bid Conditions to the full extent as if it were the prime contractor. The Contractor shall not, however, be held accountable for the failure of its subcontractors to fulfill their obligations under these Bid Conditions. However, the prime contractor shall give notice to the Director of any refusal or failure of any subcontractor to fulfill the obligations under these Bid Conditions. A subcontractor's failure to comply will be treated in the same manner as such failure by a prime contractor.

1. Contractors hereby agree to refrain from entering into any contract or contract modification subject to Article III, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who is determined not to be a "responsive" bidder for the City and County of Denver contracts pursuant to the Ordinance.
2. The Contractor shall carry out such sanctions and penalties for violation of these Bid Conditions and the Equal Opportunity Clause including suspension, termination and cancellation of existing subcontracts and debarment from future contracts as may be ordered by the Manager pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code and its implementing regulations.
3. Nothing herein is intended to relieve any contractor during the term of its contract from compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the Equal Opportunity Clause of its contract with respect to matters not covered in these Bid Conditions.
4. Contractors must keep such records and file such reports relating to the provisions of these Bid Conditions as shall be required by the Office of Contract Compliance.
5. Requests for exemptions from these Bid Conditions must be made in writing, with justification, to the Manager of Public Works, 201 W. Colfax, Dept. 608, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director.

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

**FEDERAL AID PROJECT NO. BROM320072
CITY OF DENVER CONTRACT NO. 201312778**

RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

CONTRACT

THIS CONTRACT AND AGREEMENT, made and entered into, by and between the City and County of Denver, a municipal corporation of the State of Colorado, hereinafter referred to as the "City," party of the first part, and

**New Design Construction Company
2350 East 70th Avenue
Denver, CO 80229**

hereinafter referred to as the "Contractor," party of the second part,

WITNESSETH, Commencing on **September 3, 2013**, and for at least three (3) days the City advertised that sealed bids would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the following:

<p>FEDERAL AID PROJECT NO. BROM320072 CITY OF DENVER CONTRACT NO. 201312778</p>
--

WHEREAS, bids pursuant to said advertisement have been received by the Manager of Public Works, who has recommended that a Contract for said work be made and entered into with the above named Contractor who was the lowest, responsive, qualified bidder therefore, and

WHEREAS, said Contractor is now willing and able to perform all of said work in accordance with said advertisement and its bid.

NOW THEREFORE, in consideration of the compensation to be paid the Contractor, the mutual agreements hereinafter contained, and subject to the terms hereinafter stated, it is mutually agreed as follows:

1. CONTRACT DOCUMENTS

It is agreed by the parties hereto that the following list of documents, instruments, technical specifications, plans, drawings and other materials which are attached hereto and bound herewith, incorporated herein by reference or otherwise referenced in these documents constitute and shall be referred to either as the "Contract Documents" or the "Contract," and all of said documents, instruments, technical specifications, Plans, Drawings and other materials taken together as a whole constitute the Contract between the parties hereto, and they are as fully a part of this agreement as if they were set out verbatim and in full herein:

*Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Bid Bond
Addenda (as applicable)
DBE Documents
Equal Employment Opportunity Provisions (Appendices A, B, E and F)
Bid Form
Commitment to DBE Participation
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond*

Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Certificate of Contract Release
Change Orders (as applicable)
Federal Requirements (as applicable)
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawings
Accepted Shop Drawings

2. SCOPE OF WORK

The Contractor agrees to and shall furnish all labor, tools, supplies, equipment, materials and everything necessary for and required to do, perform and complete all of the Work described, drawn, set forth, shown and included in said Contract Documents.

3. TERMS OF PERFORMANCE

The Contractor agrees to undertake the performance of the Work under this Contract within ten (10) days after being notified to commence work by issuance of a Notice to Proceed in substantially the form contained herein from the Manager and agrees to fully complete said Work within **180 (One Hundred Eighty Days)** consecutive calendar days from the effective date of said Notice, plus such extension or extensions of time as may be granted in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

4. TERMS OF PAYMENT

The City agrees to pay the Contractor for the performance of all of the Work required under this Contract, and the Contractor agrees to accept as the Contractor's full and only compensation therefore, such sum or sums of money as may be proper in accordance with the price or prices set forth in the Contractor's Bid Form hereto attached and made a part hereof for **bid item numbers 201 through 700.3 - total bid items (92) Ninety-Two, the total estimated cost thereof being One Million Seventy-Six Thousand Eight Hundred Thirty-Two Dollars and Fifteen cents (\$1,076,832.15).**

Adjustments to said Contract Amount and payment of amounts due hereunder shall be made in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

5. NO DISCRIMINATION IN EMPLOYMENT

In connection with the performance of the Work under this Contract, the Contractor agrees not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, marital status, or physical or mental disability; and the Contractor further agrees to insert the foregoing provision in all subcontracts hereunder.

6. DBE AND EQUAL OPPORTUNITY REQUIREMENTS

The Contractor agrees to comply with all requirements of the City's Equal Employment Opportunity program and the Federal Disadvantaged Business Enterprise Participation program as set out in Article III, Division 2, Chapter 28 of the Denver Revised Municipal Code, and any rules, regulations and guidelines set forth thereunder for such programs. This compliance shall include the obligation to maintain throughout the term of the contract that level of DBE participation upon which the Contract was initially awarded, unless otherwise authorized by the law or any rules, regulations or guidelines.

7. WAGE RATE REQUIREMENTS

In performance of all Work hereunder, the Contractor agrees to comply with and be bound by all requirements and conditions of the City's Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. and any determinations made by the City pursuant thereto.

8. APPLICABILITY OF LAWS

The Agreement between the Contractor and the City shall be deemed to have been made in the City and County of Denver, State of Colorado and shall be subject to, governed by, and interpreted and construed by or in accordance with the laws of the State of Colorado and the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City. As such, the Contractor shall at all times

comply with the provisions of the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City, and those State of Colorado and Federal Laws, Rules and Regulations, which in any manner limit, control or apply to the actions or operations of the Contractor, any subcontractors, employees, agents or servants of the Contractor engaged in the Work or affecting the materials and equipment used in the performance of the Work, as the same may be, from time to time, promulgated, revised or amended. The Charter and Revised Municipal Code of the City and County of Denver, as the same may be amended from time to time, are hereby expressly incorporated into this Agreement as if fully set out herein by this reference.

9. APPROPRIATION

The amount of money which has been appropriated and encumbered for the purpose of this contract, to date, is equal to or in excess of the Contract Amount. The Manager, upon reasonable written request, will advise the Contractor in writing of the total amount of appropriated and encumbered funds which remain available for payment for all Work under the Contract.

The issuance of any change order or other form or order or directive by the City which would cause the aggregate payable under the contract to exceed the amount appropriated for the contract is expressly prohibited. In no event shall the issuance of any change order or other form of order or directive by the City be considered valid or binding if it requires additional compensable work to be performed, which work will cause the aggregate amount available under the Contract to exceed the amount appropriated and encumbered for this Contract, unless and until such time as the Contractor has been advised in writing by the Manager that a lawful appropriation, sufficient to cover the entire cost of such additional work, has been made.

It shall be the responsibility of the Contractor to verify that the amounts already appropriated for this Contract are sufficient to cover the entire cost of such work, and any work undertaken or performed in excess of the amount appropriated is undertaken or performed in violation of the terms of this contract, without the proper authorization for such work, and at the Contractor's own risk.

10. APPROVALS

In the event this Contract calls for the payment by the City of five hundred thousand dollars (\$500,000.00) or more, approval by the Board of Councilmen of the City and County of Denver, acting by ordinance, in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and effect and performance of this contract.

11. ASSIGNMENT

The Contractor shall not assign any of its rights, benefits, obligations or duties under this Contract except upon the prior written consent and approval of the Manager City to such assignment.

12. DISPUTES RESOLUTION PROCESS

It is the express intention of the parties to this Contract that all disputes of any nature whatsoever regarding the Contract including, but not limited to, any claims for compensation or damages arising out of breach or default under this Contract, shall be resolved by administrative hearing pursuant to the provisions of Section 56-106, D.R.M.C. The Contractor expressly agrees that this dispute resolution process is the only dispute resolution mechanism that will be recognized by the parties for any claims put forward by the Contractor, notwithstanding any other claimed theory of entitlement on the part of the Contractor or its subcontractors or suppliers.

13. CONTRACT BINDING

It is agreed that this Contract shall be binding on and inure to the benefit of the parties hereto, their heirs, executors, administrators, assigns and successors.

14. PARAGRAPH HEADINGS

The captions and headings set forth herein are for convenience of reference only and shall not be construed so as to define or limit the terms and provisions hereof.

15. SEVERABILITY

It is understood and agreed by the parties hereto that, if any part, term, or provision of this Contract, except for the provisions of this Contract requiring prior appropriation and limiting the total amount to be paid by the City, is by the courts held to be illegal or in conflict with any law of the State of Colorado, the validity

of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular part, term or provision held to be invalid.

16. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:

Contractor consents to the use of electronic signatures by the City. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

IN WITNESS WHEREOF, the parties have executed this agreement and affixed their seals at Denver, Colorado as of the day first above written.

Contract Control Number: 201312778

Vendor Name: New Design Construction Compnay

By: Steven S. McWilliams

Name: STEVEN S. MCWILLIAMS
(please print)

Title: PRESIDENT
(please print)

ATTEST: [if required]

By: Richard D Suer

Name: RICHARD D SUEE
(please print)

Title: VICE PRESIDENT
(please print)

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IN WITNESS WHEREOF, the parties have executed this agreement and affixed their seals at Denver, Colorado as of the day first above written.

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By: Richard D Suer

Name: RICHARD D SUEE
(please print)

Title: VICE PRESIDENT
(please print)

<<insert generated bar code here>>



Contract Control Number:

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of

SEAL

CITY AND COUNTY OF DENVER

ATTEST:

By _____

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

By _____

By _____

By _____



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

Construction Contract General Conditions

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**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

SPECIAL CONTRACT CONDITIONS

SC-1 CONSTRUCTION SPECIFICATIONS

Except as amended herein or in the attached Technical Specifications, all Work performed under the terms of this Contract shall be governed by the applicable provisions of the following latest editions:

City and County of Denver:

Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS,
(2011 Edition) ****General Contract Conditions 1801 and 1802 concerning warranties and guarantees are hereby deleted in their entirety****

Transportation Standards and Details for the Engineering Division

City and County of Denver Traffic Standard Drawings

Wastewater Management Division

– *Standard Detail Drawings*

– *Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications*

Colorado Department of Transportation:

Standard Specifications for Road and Bridge Construction
(Sections 200 through 700 of the 2011 Edition)

Federal Highway Administration:

Manual on Uniform Traffic Control Devices for Streets & Highways (MUTCD)

Building & Fire Codes:

Building Code of the City and County of Denver
(International Building Code 2009 Series, City and County of Denver Amendments 2011)

National Fire Protection Association Standards

(As referenced in the Building Code of the City and County of Denver)

The aforementioned City and County of Denver documents are available for review at the Capital Projects Management Office, 201 W. Colfax Ave., Dept. 506, (5th floor), Denver, CO 80202. The *Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS* is available at http://www.denvergov.org/dpw_contract_admin/ContractAdministration/ContractorReferenceDocuments/t/abid/440535/Default.aspx. *Transportation Standards and Details for the Engineering Division* and the Wastewater Management Division – *Standard Detail Drawings*, are available at <http://www.denvergov.org>.

The “*Colorado Department of Transportation Standard Specifications for Road and Bridge Construction*” is available for review on CDOT’s website at <http://www.coloradodot.info/> and can be purchased from the Colorado Department of Transportation.

The *Manual on Uniform Traffic Control Devices for Streets & Highways* is available for review at the Federal Highway Administration Website at: www.fhwa.dot.gov. The FHWA website also contains purchasing information.

SC-2 ENGINEERING DIVISION / CITY ENGINEER

The Engineering Division is a unit of the Department of Public Works and is supervised by the City Engineer, who is subordinate to the Manager of Public Works. This Division is responsible for the planning, design, construction, operation and maintenance of all of the City’s transportation facilities and the planning, design and construction of all of the City’s wastewater facilities, except for the City’s Municipal Airport System. All references to the Transportation Division or the Deputy Manager of Public Works for Transportation are deleted and replaced with references to the Engineering Division and City Engineer, respectively.

SC-3 CITY DELEGATION OF AUTHORITY

With reference to General Contract Condition 109, DEPUTY MANAGER and General Contract Condition 212, CITY’S CONTRACT ADMINISTRATION LINE OF AUTHORITY, the Manager hereby designates the City Engineer (the “Director”) as the City official responsible for those certain actions and decisions designated as the responsibility of the Deputy Manager under the General Conditions and delegates to the Director the authority necessary to undertake those responsibilities under this Contract. The Director shall have supervisory responsibility over the Project Manager. Additionally, Contractor questions concerning the Plans and Technical Specifications shall be directed to:

Denver Department of Public Works /Engineering Division,

<u>Project Manager</u>		<u>Telephone</u>
Marco Cabanillas		(720) 865-3149
<u>Consultant</u>	<u>Name</u>	<u>Telephone</u>
Jacobs	Beth Tosti	(303) 820-5266

SC-4 LIQUIDATED DAMAGES

Should the Contractor fail to complete all Work within the Contract Time allocated under the Contract Form at Paragraph 3, TERMS OF PERFORMANCE, the Contractor shall become liable to the City and County of Denver for liquidated damages, and not as a penalty, at the rate of **\$500.00** for each Day that the Contractor exceeds the time limits herein specified, all in accordance with provisions of General Contract Condition 602, LIQUIDATED DAMAGES; ADMINISTRATIVE COSTS; ACTUAL DAMAGES.

Representative hourly rates for the City administrative costs described in General Contract Condition 602.2 shall be as follows for this Project:

Project Manager	\$69 per hour
Project Engineer	\$63 per hour
Inspector	\$49 per hour
Surveying, if necessary	\$100 per hour

SC-5 SUBCONTRACTS

In accordance with General Contract Condition 501, SUBCONTRACTS no limit shall apply to that percentage of the Work which may be sublet providing that the subcontractors receive prior approval in accordance with General Contract Condition 502, SUBCONTRACTOR ACCEPTANCE.

SC-6 RESERVED

SC-7 PAYMENTS TO CONTRACTORS

The application for payment shall be submitted through Textura® Corporations Construction Management Website. Contractor recognizes and agrees that it shall be required to use the Textura Construction Payment Management System for this Project. Contractor further agrees that, to the fullest extent possible within the CPM System, the City shall be entitled to all non-Confidential records, reports, data and other information related to the project that are available to Contractor through the CPM System, including, but not limited to, information related to Contractor and subcontractor billings. To that end, Contractor agrees that it will activate any available settings within the CPM System that are necessary to grant the City access to such non-Confidential information related to the contract and the project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1

In accordance with General Contract Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for review of all Pay Applications shall be:

<u>Agency/Firm</u>	<u>Name</u>	<u>Telephone</u>
Public Works/Engineering Division	Marco Cabanillas	(720) 865-3149

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

1. The estimate of Work completed shall be based on the approved schedule of values or unit prices, as applicable, and the percent of the Work complete.
2. Each Application for Payment shall include each and every independent subcontractor's payroll information including pay dates and pay amounts.
3. The Contractor shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.

In accordance with General Contract condition 907, RELEASES AND CONTRACTORS CERTIFICATION OF PAYMENT, Applications for Payment must be accompanied by completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, **AND/OR** the Contractors' Certification of Payment Form. The forms, Final/Partial Release and Certificate of Payment (Subcontractor/Supplier) and the Contractor's Certification of Payment, both of which must be used are attached hereto.

SC-8 CONSTRUCTION INSPECTION BY THE CITY

General Condition 1701, AUTHORITY OF INSPECTORS, is modified as follows:

1701.1 Persons who are employees of the City or who are under contract to the City or the City as lessee will be assigned to inspect and test the Work. These persons may perform any tests and observe the Work to determine whether or not designs, materials used, manufacturing and construction processes and methods applied, and equipment installed satisfy the requirements of the drawings and specifications, accepted Shop Drawings, Product Data and Samples, and the General Contractor's warranties and guarantees. The General Contractor shall permit these inspectors unlimited access to the Work and provide means of safe access to the Work, which cost shall be included as a Cost of the Work without any increase to the Guaranteed Maximum Price. In addition, General Contractor shall provide whatever access and means of access are needed to off-site facilities used to store or manufacture materials and equipment to be incorporated into the Work and shall respond to any other reasonable request to further the inspector's ability to observe or complete any tests. Such inspections shall not relieve the General Contractor of any of its quality control responsibilities or any other obligations under the Contract. All inspections and all tests conducted by the City are for the convenience and benefit of the City. These inspections and tests do not constitute acceptance of the materials or Work tested or inspected, and the City may reject or accept any Work or materials at any time prior to the inspections pursuant to G.C. 2002, whether or not previous inspections or tests were conducted by the inspector or a City representative.

.2 Building Inspection will perform building code compliance inspections for structures designed for human occupancy. It is the General Contractor's responsibility to schedule and obtain these inspections. If a code compliance inspection results in identification of a condition which will be at variance to the Contract Documents, the General Contractor shall immediately notify the Project Manager and confirm such notification with formal correspondence no later than forty-eight (48) hours after the occurrence.

.3 When any unit of government or political subdivision, utility or railroad corporation is to pay a portion of the cost of the Work, its respective representatives shall have the right to inspect the Work. This inspection shall not make any unit of government or political subdivision, utility or railroad corporation a party to the Contract, and shall not interfere with the rights of either party.

SC-9 DISPOSAL OF NON-HAZARDOUS WASTE AT DADS

In accordance with the Landfill Agreement made between the City and Waste Management of Colorado, Inc., bidders will be required to haul dedicated loads (non-hazardous entire loads of waste) to the Denver-Arapahoe Disposal Site ("DADS") for disposal. DADS is located at Highway 30 and Hampden Avenue in

Arapahoe County, Colorado. The City will pay all fees associated with such disposal but the bidder shall be responsible for the costs of transporting the loads. Non-hazardous waste is defined as those substances and materials not defined or classified as hazardous by the Colorado Hazardous Waste Commission pursuant to C.R.S. §25-15-101(6), as amended from time to time, and includes construction debris, soil and asbestos. Bidders shall not use Gun Club Road between I-70 and Mississippi Avenue as a means of access to DADS.

SC-10 PROHIBITION ON USE OF CCA-TREATED WOOD PRODUCTS

The use of any wood products pressure-treated with chromated copper arsenate (CCA) is prohibited. Examples of CCA-treated wood products include wood used in play structures, decks, picnic tables, landscaping timbers, fencing, patios, walkways and boardwalks.

SC-11 TERMINOLOGY

Terminology used in Colorado Department of Transportation (CDOT) Standards and Specifications and City and County of Denver (CCD) Standards and Specifications may differ but shall be considered interchangeable where appropriate. Examples are Department of Public Works (CCD) and Department (CDOT), Project Manager (CCD) and Engineer (CDOT), Traffic Maintenance Plan (CCD) and Traffic Control Plan (CDOT).

SC-12 TECHNICAL SPECIFICATIONS

Section 106 of the CDOT Standard Specifications is hereby incorporated into this contract except where conflicts exist between Section 106 and the General Contract Conditions or Special Contract Conditions. Where conflicts exist, the General Contract Conditions or Special Contract Conditions shall govern.

SC-13 MODIFICATION TO GENERAL CONTRACT CONDITION 405

General Contract Condition 405 is hereby revised for this project as follows:

G.C. 405.2 shall include the following:

Shop Drawings shall be submitted in accordance with Section 105.02 of the CDOT Standard Specifications. Any work performed by the Contractor prior to receipt of approved shop drawings is at the sole risk of the Contractor.

SC-14 MODIFICATION TO GENERAL CONTRACT CONDITION 809

General Contract Condition 809 is hereby revised for this project as follows:

Add G.C. 809.3 as follows:

.3 Fossils may be uncovered during excavation for the project. The Colorado Department of Transportation will furnish a paleontologist to monitor project excavations. The Contractor shall notify the Engineer at least five working days prior to the start of excavation operations to allow for scheduling of the monitor. The paleontologist, Mr. Steve Wallace, can be contacted at (303) 757-9632.

If fossils are encountered, they will be evaluated and, if deemed important, removed prior to further excavation. When directed, the Contractor shall excavate the site in such manner as to preserve the fossils uncovered and shall remove them as directed by the Engineer.

SC-15 FEDERAL REQUIREMENTS

This Project is funded, in whole or in part, by federal funding made available through the Federal Highway Administration ("FHWA") and administered by the Colorado Department of Transportation ("CDOT"). As such, performance under this contract is subject to certain "Federal Requirements" contained or referenced in Attachment A to this contract, attached hereto and incorporated herein by this reference. The Contractor shall thoroughly review and shall strictly comply with all Federal Requirements in performing its Work under this contract.

SC-16 ATTORNEY'S FEES

Colorado Revised Statute 38-26-107 requires that in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City and County of Denver be made a party to any lawsuit to enforce such

unpaid claims or any lawsuit arising out of or relating to such withheld funds, the Contractor agrees to pay to the City its costs and a reasonable attorney's fee which cost shall be included as a Cost of the Work.

Because the City Attorney Staff does not bill the City for legal services on an hourly basis, the Contractor agrees a reasonable fee shall be computed at the rate of one hundred dollars per hour of City Attorney time.

SC-17 CONTRACT FORMS

In accordance with the terms and conditions of the Contract Documents, the City requires the use of certain form documents in complying with or satisfying various obligations, notifications and conditions in contracting with the City or performing Work hereunder. These form documents are referenced by title throughout the Contract Documents for mandatory use as directed. The following are the forms that shall be detached and utilized in accordance with the Contract Documents:

1. Performance and Payment Bond
2. Performance and Payment Bond Surety Authorization Letter (Sample)

The following are forms that will be issued by the City during construction:

1. Notice to Apparent Low Bidder (Sample)
2. Notice to Proceed (Sample)
3. Certificate of Contract Release (Sample)

SC 18: INSURANCE

General Condition 1601 is hereby deleted in its entirety and replaced with the following:

(1) **General Conditions:** Contractor agrees to secure, at or before the time of execution of this Agreement, the following insurance covering all operations, goods or services provided pursuant to this Agreement. Contractor shall keep the required insurance coverage in force at all times during the term of the Agreement, or any extension thereof, during any warranty period, and for eight (8) years after termination of the Agreement. The required insurance shall be underwritten by an insurer licensed or authorized to do business in Colorado and rated by A.M. Best Company as "A-"VIII or better. Each policy shall contain a valid provision or endorsement requiring notification to the City in the event any of the required policies be canceled or non-renewed before the expiration date thereof. Such written notice shall be sent to the parties identified in the Notices section of this Agreement. Such notice shall reference the City contract number listed on the signature page of this Agreement. Said notice shall be sent thirty (30) days prior to such cancellation or non-renewal unless due to non-payment of premiums for which notice shall be sent ten (10) days prior. If such written notice is unavailable from the insurer, contractor shall provide written notice of cancellation, non-renewal and any reduction in coverage to the parties identified in the Notices section by certified mail, return receipt requested within three (3) business days of such notice by its insurer(s) and referencing the City's contract number. If any policy is in excess of a deductible or self-insured retention, the City must be notified by the Contractor. Contractor shall be responsible for the payment of any deductible or self-insured retention. The insurance coverages specified in this Agreement are the minimum requirements, and these requirements do not lessen or limit the liability of the Contractor. The Contractor shall maintain, at its own expense, any additional kinds or amounts of insurance that it may deem necessary to cover its obligations and liabilities under this Agreement.

(2) **Proof of Insurance:** Contractor shall provide a copy of this Agreement to its insurance agent or broker. Contractor may not commence services or work relating to the Agreement prior to placement of coverage. Contractor certifies that the certificate of insurance attached as part of the Contract Documents, preferably an ACORD certificate, complies with all insurance requirements of this Agreement. The City requests that the City's contract number be referenced on the Certificate. The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements set forth in this Agreement shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. The City's Risk Management Office may require additional proof of insurance, including but not limited to policies and endorsements.

(3) **Additional Insureds:** For Commercial General Liability and Auto Liability, Contractor and subcontractor's insurer(s) shall name the City and County of Denver, its elected and appointed officials, employees and volunteers as additional insured.

(4) **Waiver of Subrogation:** For all coverages, Contractor's insurer shall waive subrogation rights against the City.

(5) **Subcontractors and Subconsultants:** All subcontractors and subconsultants (including independent contractors, suppliers or other entities providing goods or services required by this Agreement) shall be subject to all of the requirements herein and shall procure and maintain the same coverages required of the Contractor. Contractor shall include all such subcontractors as additional insured under its policies (with the exception of Workers' Compensation) or shall ensure that all such subcontractors and subconsultants maintain the required coverages. Contractor agrees to provide proof of insurance for all such subcontractors and subconsultants upon request by the City.

(6) **Workers' Compensation/Employer's Liability Insurance:** Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits of \$100,000 per occurrence for each bodily injury claim, \$100,000 per occurrence for each bodily injury caused by disease claim, and \$500,000 aggregate for all bodily injuries caused by disease claims. Contractor expressly represents to the City, as a material representation upon which the City is relying in entering into this Agreement, that none of the Contractor's officers or employees who may be eligible under any statute or law to reject Workers' Compensation Insurance shall effect such rejection during any part of the term of this Agreement, and that any such rejections previously effected, have been revoked as of the date Contractor executes this Agreement.

(7) **Commercial General Liability:** Contractor shall maintain a Commercial General Liability insurance policy with limits of \$1,000,000 for each occurrence, \$1,000,000 for each personal and advertising injury claim, \$2,000,000 products and completed operations aggregate, and \$2,000,000 policy aggregate.

(8) **Business Automobile Liability:** Contractor shall maintain Business Automobile Liability with limits of \$1,000,000 combined single limit applicable to all owned, hired and non-owned vehicles used in performing services under this Agreement

(9) **Builders' Risk or Installation Floater:** Contractor shall maintain limits equal to the completed value of the project. Coverage shall be written on an all risk, replacement cost basis including coverage for soft costs, flood and earth movement, if in a flood or quake zone, and, if applicable, equipment breakdown including testing. The City and County of Denver, Contractor, and sub-contractors shall be Additional Named Insureds under the policy. Policy shall remain in force until acceptance of the project by the City.

(10) **Additional Provisions:**

(a) For Commercial General Liability, the policies must provide the following:

- (i) That this Agreement is an Insured Contract under the policy;
- (ii) Defense costs in excess of policy limits;
- (iii) A severability of interests or separation of insureds provision (no insured vs. insured exclusion); and
- (iv) A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City.

(b) For claims-made coverage:

- (i) The retroactive date must be on or before the contract date or the first date when any goods or services were provided to the City, whichever is earlier

(c) Contractor shall advise the City in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limits. At their own expense, and where such general aggregate or other aggregate limits have been reduced below the required per occurrence limit, the Contractor will procure such per occurrence limits and furnish a new certificate of insurance showing such coverage is in force.

SC-19 GREENPRINT DENVER REQUIREMENTS

In accordance with the City and County of Denver Executive Order 123: Greenprint Denver Office and Sustainability Policy, as amended, Contractor shall adhere to sections of Executive Order 123 pertinent to the construction of the built environment. This includes but is not limited to: all construction and renovation of buildings shall follow instructions and memorandum for high performance buildings; horizontal projects shall include the use of fly ash concrete and recycled aggregate where possible; and, all projects shall recycle construction and demolition waste, and install materials that contain recycled content whenever possible using the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) as guidance. Non-hazardous solid waste that is eligible for reuse or recycling is not subject to the DADS disposal requirement defined in SC-12.

A completed "Greenprint Denver Closeout Form for Construction Projects" shall be delivered to the Project Manager as a submittal requirement of Final Acceptance.

<http://www.denvergov.org/constructioncontracts/Home/ContractorResources/tabid/443154/Default.aspx>

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned New Design Construction Company 2350 East 70th Avenue Denver, CO 80229, a corporation organized and existing under and by virtue of the laws of the State of Colorado, hereafter referred to as the "Contractor", and Travelers Casualty and Surety Company of America, One Tower, a corporation organized and existing under and by virtue of the laws of the State of CT, and authorized to transact business in the State of Colorado, as Surety, are held and firmly bound unto the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado, hereinafter referred to as the "City", in the penal sum of One Million Seventy-Six Thousand Eight Hundred Thirty-Two Dollars and Fifteen Cents (\$1,076,832.15), lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents;

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT:

WHEREAS, the above bounden Contractor has entered into a written contract with the aforesaid City for furnishing all labor and tools, supplies, equipment, superintendence, materials and everything necessary for and required to do, perform and complete the construction of **CONTRACT NO. 201312778, FEDERAL PROJECT NO: BROM320072, RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT**, Denver, Colorado, and has bound itself to complete the project within the time or times specified or pay liquidated damages, all as designated, defined and described in the said Contract and Conditions thereof, and in accordance with the Plans and Technical Specifications therefore, a copy of said Contract being made a part hereof;

NOW, THEREFORE, if the said Contractor shall and will, in all particulars well and truly and faithfully observe, perform and abide by each and every Covenant, Condition and part of said Contract, and the Conditions, Technical Specifications, Plans, and other Contract Documents thereto attached, or by reference made a part thereof and any alterations in and additions thereto, according to the true intent and meaning in such case, then this obligation shall be and become null and void; otherwise, it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor shall satisfy all claims and demands incurred by the Contractor in the performance of said Contract, and shall fully indemnify and save harmless the City from all damages, claims, demands, expense and charge of every kind (including claims of patent infringement) arising from any act, omission, or neglect of said Contractor, its agents, or employees with relation to said work; and shall fully reimburse and repay to the City all costs, damages, and expenses which it may incur in making good any default based upon the failure of the Contractor to fulfill its obligation to furnish maintenance, repairs or replacements for the full guarantee period provided in the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if said Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools or equipment used or performed in the prosecution of work provided for in the above Contract and that if the Contractor will indemnify and save harmless the City for the extent of any and all payments in connection with the carrying out of such Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, gasoline, lubricating oils, fuel oils, grease, coal, or any other supplies or materials used or consumed by said Contractor or its subcontractors in performance of the work contracted to be done, or fails to pay any person who supplies rental machinery, tools or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the work, the Surety will pay the same in any amount not exceeding the amount of this obligation, together with interest as provided by law;

*Square, Hartford, CT 016183

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to contracts with others in connection with this project, or the work to be performed thereunder, or the Technical Specifications and Plans accompanying the same, shall in any way affect its obligation on this bond and it does hereby waive notice of any change, extension of time, alteration or addition to the terms of the Contract, or contracts, or to the work, or to the Technical Specifications and Plans.

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this 14th day of November, 2013.

Attest:

Richard P. Dun
Secretary V.P.

New Design Construction Company
Contractor

By: [Signature]
President

Travelers Casualty and Surety Company of America
Surety

By: [Signature]
Attorney-In-Fact Florietta Acosta

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond).

APPROVED AS TO FORM:
Attorney for the City and County of Denver

By: [Signature]
Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY OF DENVER

By: [Signature]
MAYOR

By: [Signature]
MANAGER OF PUBLIC WORKS



POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 226474

Certificate No. 005643107

KNOW ALL MEN BY THESE PRESENTS: That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

J. R. Trojan, Susan J. Lattarulo, DiLynn Guern, Kevin W. McMahon, Mark Sweigart, Florietta Acosta, Donald E. Appleby, Sarah Brown, Todd Bengford, and Lindsey Knickerbocker

of the City of Denver, State of Colorado, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 17th day of September, 2013

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company



State of Connecticut
City of Hartford ss.

By: [Signature]
Robert L. Raney, Senior Vice President

On this the 17th day of September, 2013, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.
My Commission expires the 30th day of June, 2016.



[Signature]
Marie C. Tetreault, Notary Public

FAX NUMBER: 720-913-3183
TELEPHONE NUMBER: 720-913-3267

Assistant City Attorney
City and County of Denver
201 West Colfax Avenue, Dept. 1207
Denver, Colorado 80202

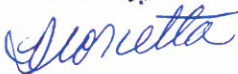
RE: New Design Construction Company
Federal Project No. BROM320072
Project Name: Red Rocks Road Bridge and Roadway Project
Contract Amount: \$1,076,832.15
Performance and Payment bond No.: 105995509

The Performance and Payment Bonds covering the above captioned project were executed by this agency through Travelers Casualty and Surety Company of America, on November 8, 2013.

We hereby authorize the City and County of Denver, Department of Public Works, to date all bonds and powers of attorney to coincide with the date of the contract.

If you should have any additional questions or concerns, please don't hesitate to give me a call.

Sincerely,



Florietta Acosta
Client Services Manager



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
11/6/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Moody Insurance Agency, Inc. 8055 East Tufts Avenue Suite 1000 Denver CO 80237	CONTACT NAME: Nick Siakotos, ARM, CRIS PHONE (A/C No. Ext): (303) 824-6600 E-MAIL ADDRESS: nsiakotos@moodyins.com	FAX (A/C. No): (303) 370-0118
	INSURER(S) AFFORDING COVERAGE	
INSURED New Design Construction Company 2350 East 70th Avenue Denver CO 80621	INSURER A: Travelers	
	INSURER B: Pinnacle Assurance	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 13-14 All Lines - ND **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY						EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR	X	Y	DTCO6D86251APHX13	10/1/2013	10/1/2014	MED EXP (Any one person) \$ 5,000
							PERSONAL & ADV INJURY \$ 1,000,000
							GENERAL AGGREGATE \$ 2,000,000
							PRODUCTS - COMP/OP AGG \$ 2,000,000
		GEN'L AGGREGATE LIMIT APPLIES PER:					\$
A	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS						PROPERTY DAMAGE (Per accident) \$
							\$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB						EACH OCCURRENCE \$ 2,000,000
	<input type="checkbox"/> EXCESS LIAB						AGGREGATE \$ 2,000,000
	<input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			DTSMCUP6D86251ATIL13	10/1/2013	10/1/2014	\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY		Y				<input checked="" type="checkbox"/> WC STATUTORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)			4058123	10/1/2013	10/1/2014	E.L. EACH ACCIDENT \$ 500,000
	If yes, describe under DESCRIPTION OF OPERATIONS below	N	N/A				E.L. DISEASE - EA EMPLOYEE \$ 500,000
							E.L. DISEASE - POLICY LIMIT \$ 500,000
A	Leased/Rented Equipment			QT6606D881800TIA13	10/1/2013	10/1/2014	Limit \$500,000 Deductible \$1,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

RE: Red Rocks Road Bridge and Roadway Project

The City and County of Denver, its elected and appointed officials, employees, and volunteers are included as additional insured with respect to General Liability as required by written contract, and Automobile Liability. A Waiver of Subrogation in favor of the additional insureds applies with respect to General and Automobile Liability and Workers Compensation.

CERTIFICATE HOLDER**CANCELLATION**

City and County of Denver
 201 W Colfax Ave; Dept 205
 Denver, CO 80202

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

N Siakotos, ARM, CRIS



Denver Public Works

Engineering Division
Capital Projects Management – Dept. 506
Right-of-Way Services – Dept 507
Traffic Engineering Services – Dept 508
Policy and Planning – Dept. 509

201 West Colfax Ave, Dept 614
Denver, CO 80202
www.work4denver.com

NOTICE OF APPARENT LOW BIDDER
(SAMPLE)

Date

To:

Gentlemen:

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on October 07, 2013 for work to be done and materials to be furnished in and for:

PROJECT No. 201312778 RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to execution of the Contract Documents and your furnishing the items specified below, the total cost thereof (Contract Amount Written), (Contract Amount Numeric).

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Finance and Administration, 201 W. Colfax Ave., Dept 506, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Engineering Division, Project Management Office within the time limit set forth in the Bid Proposal.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. One original plus four copies of the Power of Attorney relative to Performance and/or Payment Bond; and,
- b. One copy of listing of subcontractors showing items of work each sub-contractor will perform and the percent of total work.
- c. Accurate ACORD Certificate of Insurance

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720-913-1700).

NOTICE OF APPARENT LOW BIDDER
(SAMPLE)

PROJECT NO. 201312778
Page 2

The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this _____ day of _____ 20_____.

CITY AND COUNTY OF DENVER

By _____
Manager of Public Works



Denver Public Works

Engineering Division
Capital Projects Management – Dept. 506
Right-of-Way Services – Dept 507
Traffic Engineering Services – Dept 508
Policy and Planning – Dept. 509

201 West Colfax Ave, Dept 614
Denver, CO 80202
www.work4denver.com

Current Date

(S A M P L E)

Name
Company
Street
City/State/Zip

**FEDERAL AID PROJECT NO. BROM320072
CITY OF DENVER CONTRACT NO. 201312778, RED ROCKS ROAD BRIDGE AND ROADWAY
PROJECT**

NOTICE TO PROCEED

In accordance with General Contract Condition 302 of the Standard Specifications for Construction, General Contract Conditions, 2011 Edition, you are hereby authorized and directed to proceed on **201312778 RED ROCKS ROAD BRIDGE AND ROADWAY PROJECT** with the work of constructing contract number, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of 180 (One Hundred Eighty Days) calendar days, the project must be complete on or before .

If you have not already done so, you must submit your construction schedule, in accordance with General Contract Condition 306.2.B, to the Project Manager within 10 days. Additionally, you must submit your tax exempt certificate, and copies of your subcontractors' certificates, in accordance with General Contract Condition 323.5, to the Project Manager as soon as possible. Failure to submit these certificates will delay processing of payment applications.

Very truly yours,

Lesley B. Thomas
City Engineer

By:

FOR CITY SERVICES VISIT | CALL
DenverGov.org | 311

Protecting the Present & Building the Future
Accountability, Innovation, Empowerment, Performance, Integrity,
Diversity, Teamwork, Respect, Excellence, Safety

**DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION**

**FINAL/PARTIAL RELEASE AND CERTIFICATE OF PAYMENT
(SUBCONTRACTOR/SUPPLIER)**

(CITY PROJECT NAME AND NUMBER)	Date: _____, 20__.
(NAME OF CONTRACTOR)	Subcontract #: _____.
(NAME OF SUBCONTRACTOR/SUPPLIER)	Subcontract Value: \$ _____.
Check Applicable Box:	Last Progress Payment: \$ _____.
<input type="checkbox"/> DBE	Date: _____.
	Total Paid to Date: \$ _____.
	Date of Last Work: _____.

The Undersigned hereby certifies that all costs, charges or expenses incurred by the undersigned or on behalf of the undersigned for any work, labor or services performed and for any materials, supplies or equipment provided on the above referenced Project or used in connection with the above referenced Subcontract (the "Work Effort") have been duly paid in full.

The Undersigned further certifies that each of the undersigned's subcontractors and suppliers that incurred or caused to be incurred, on their behalf, costs, charges or expenses in connection with the undersigned's Work Effort on the above referenced Project have been duly paid in full.

In consideration of \$_____ representing the Last Progress Payment referenced above and in further consideration of the Total Paid to Date, also referenced above, and other good and valuable consideration received and accepted by the undersigned this ____ day of _____, 20__, the Undersigned hereby releases and discharges the City and County of Denver (the "City"), the above referenced City Project, the City's premises and property and the above referenced Contractor from all claims, liens, rights, liabilities, demands and obligations, whether known or unknown, of every nature arising out of or in connection with the performance of the work effort.

As additional consideration for the payments referenced above, the undersigned agrees to defend, indemnify and hold harmless the City, its officers, employees, agents and assigns and the above-referenced Contractor from and against all costs, losses, damages, causes of action, judgments under the subcontract and expenses arising out of or in connection with any claim or claims against the City or the Contractor which arise out of the Undersigned's performance of the Work Effort and which may be asserted by the Undersigned or any of its suppliers or subcontractors of any tier or any of their representatives, officers, agents, or employees.

It is acknowledged that this release is for the benefit of and may be relied upon by the City and the referenced Contractor.

The foregoing shall not relieve the undersigned of any obligation under the provisions of the Undersigned's subcontract, as the subcontract may have been amended, which by their nature survive completion of the Undersigned's work effort including, without limitation, warranties, guarantees, insurance requirements and indemnities.

STATE OF COLORADO) s. CITY OF _____)	(Name of Subcontractor)
Signed and sworn before me this day of _____, 20__.	By: _____
Notary Public/Commissioner of Oaths My Commission Expires _____	Title: _____



Instructions for Completing the Contractor/Consultant Certification of Payment Form

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave., Dept. 907
Denver, CO 80202
Phone: 720-913-1999
Fax: 720-913-1803
dsbo@denvergov.org

Note: The attached Contractor/Consultant Certification of Payment form must be completed by the Contractor/ Subconsultant and all subcontractors/subconsultant or suppliers used on the project at any tier and submitted with each pay application. The Contractor/Consultant is responsible for the accuracy of all information provided and is required to have each subcontractor/subconsultant or supplier fill out the appropriate forms. Please be sure to complete all information requested at the top of the form, including the name of the person who prepared this form.

If you reproduce this form, you must continue to list each of the originally listed firms, as well as any additional firms used during the performance period of the contract.

If you have any questions, please call the Compliance Unit of DSBO at 720.913.1999.

Instructions for Completing the Contractor/Consultant Certification of Payment Form, per Column

Contractor/Subcontractor or Subconsultant/Supplier Name: In the space provided, list all subcontractors/ subconsultants and suppliers used on the project. For all M/W/S/DBEs use the exact name listed in the DSBO Directory.

M/W/S/DBE/NON: For each name listed, indicate whether the entity is a certified M/W/S/DBE.

- Column A:** Provide the contract amount, as listed at bid time, for the Contractor/Consultant and each subcontractor/subconsultant or supplier.
- Column B:** Provide the percentage portion of each listed subcontractor/subconsultant or supplier contract amount (Column A) compared to the total original contract amount in (I).
- Column C:** Provide the original contract amount (Column A) for each subcontractor/subconsultant or supplier plus any awarded alternate and/or change order amounts applicable. If an alternate/change order does not apply to the listed firm, re-enter the original contract amount (Column A).
- Column D:** Provide the percent portion of each listed subcontractor/subconsultant or supplier contract amount (Column C) compare to the current total contract amount in (II).
- Column E:** Provide the amount requested for work performed or materials supplied by each listed subcontractor/subconsultant or supplier for this pay application. The sum of the items in this column should equal the estimated amount requested for this pay application.
- Column F:** Provide the amount paid to each subcontractor/subconsultant or supplier on the previous pay application. Enter the previous pay application number in the column heading. The sum of the items listed in this column should equal the warrant amount paid to the Contractor/Consultant on the previous pay application. The amounts paid to the subcontractor/subcontractor or suppliers should be the actual amount of each check issued.
- Column G:** Provide the net paid to date for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier.
- Column H:** Provide the percent portion of the net paid to date (Column G) for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier of the current total contract amount in (II).

COMP-REF-031

Rev 032211 JG



Denver Public Works

Engineering Division
Capital Projects Management – Dept. 506
Right-of-Way Services – Dept 507
Traffic Engineering Services – Dept 508
Policy and Planning – Dept. 509

201 West Colfax Ave, Dept 614
Denver, CO 80202
www.work4denver.com

Date

Name
Company
Street
City/State/Zip

(SAMPLE)
RE: Certificate of Contract Release for
FEDERAL AID PROJECT NO. [REDACTED]
CITY OF DENVER CONTRACT NO. 201312778, RED ROCKS ROAD BRIDGE AND ROADWAY
PROJECT

Certificate of Contract Release

Received this date of the City and County of Denver, as full and final payment of the cost of the improvements provided for in the foregoing contract, _____ dollars and _____ cents (\$_____), in cash, being the remainder of the full amount accruing to the undersigned by virtue of said contract; said cash also covering and including full payment for the cost of all extra work and material furnished by the undersigned in the construction of said improvements, and all incidentals thereto, and the undersigned hereby releases said City and County of Denver from any and all claims or demands whatsoever, regardless of how denominated, growing out of said contract.

And these presents are to certify that all persons performing work upon or furnishing materials for said improvements under the foregoing contract have been paid in full and this payment to be made is the last or final payment.

Contractor's Signature

Date Signed

If there are any questions, please contact me by telephone at (720) 913-XXXX. Please return this document via facsimile at (720) 913-1805 and mail to original to the above address.



Protecting the Present & Building the Future
Accountability, Innovation, Empowerment, Performance, Integrity,
Diversity, Teamwork, Respect, Excellence, Safety

Required Contract Provisions Federal-Aid Construction Contracts

- I. [General](#)
- II. [Nondiscrimination](#)
- III. [Nonsegregated Facilities](#)
- IV. [Payment of Predetermined Minimum Wage](#)
- V. [Statements and Payrolls](#)
- VI. [Record of Materials, Supplies, and Labor](#)
- VII. [Subletting or Assigning the Contract](#)
- VIII. [Safety: Accident Prevention](#)
- IX. [False Statements Concerning Highway Projects](#)
- X. [Implementation of Clean Air Act and Federal Water Pollution Control Act](#)
- XI. [Certification Regarding Debarment, Suspension Ineligibility, and Voluntary Exclusion](#)
- XII. [Certification Regarding Use of Contract Funds for Lobbying](#)

Attachments

- A. [Employment Preference for Appalachian Contracts \(included in Appalachian contracts only\)](#)

I. GENERAL

- 1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
- 2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.
- 3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.
- 4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:
 - Section I, paragraph 2;
 - Section IV, paragraphs 1, 2, 3, 4, and 7;
 - Section V, paragraphs 1 and 2a through 2g.
- 5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.
- 6. **Selection of Labor:** During the performance of this contract, the contractor shall not:
 - a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

- b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. **NONDISCRIMINATION**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
 - a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.
 - b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
 - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

- e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
- 4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
 - c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.
- 5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
- a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

- a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
 - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.
 - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
 - d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.
- 7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:
- a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
 - b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
 - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.
 - d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.
- 8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

- a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.
- b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.
- c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

- a. The records kept by the contractor shall document the following:
 - 1. The number of minority and non-minority group members and women employed in each work classification on the project;
 - 2. The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;
 - 3. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
 - 4. The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.
- b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

- a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability

- b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).
- c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

- a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.
- b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.
- c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

- a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.
- b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:
 - 1. the work to be performed by the additional classification requested is not performed by a classification in the wage determination;
 - 2. the additional classification is utilized in the area by the construction industry;
 - 3. the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
 - 4. with respect to helpers, when such a classification prevails in the area in which the work is performed.
- c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

- a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

- b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

1. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.
2. The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.
3. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
4. In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less

than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

1. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.
2. The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.
3. Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.
4. In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

1. Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the

particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

- a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.
- b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.
- c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.
- d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 1. that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;
 2. that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

3. that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.
- f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.
- g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:
 - a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.
 - b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.
 - c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.
2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price

before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

- a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
 - b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
 3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.
 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq.*, as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 *et seq.*, as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.
3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
- d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not

debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

- i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Primary Covered Transactions

- 1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
 - d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- 2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

**Certification Regarding Debarment, Suspension, Ineligibility
and Voluntary Exclusion--Lower Tier Covered Transactions:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

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United States Department of Transportation - Federal Highway Administration – Infrastructure



PREVAILING WAGE RATES

Contract No. 201312778

**RED ROCKS ROAD BRIDGE AND ROADWAY
PROJECT**

SEPTEMBER 3, 2013

July 26, 2013

U.S. DEPT. OF LABOR,
DAVIS BACON MINIMUM WAGES, COLORADO
GENERAL DECISION NUMBERS
CO130016, CO130017, CO130018, CO130019, CO130020,
CO130021, CO130022, CO130023 and CO130024
HIGHWAY CONSTRUCTION

NOTICE

This is a standard special provision that revises or modifies CDOT's *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT's Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions, unless such use is first approved by the Standards and Specification Unit of the Project Development Branch. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

Instructions for use on CDOT construction projects:

Use this standard special provision on all federal-aid projects with contracts exceeding \$2000, except for non-ARRA projects on roadways classified as local roads or rural minor collectors, which are exempt. Projects on local roads, rural minor collectors, and enhancement projects funded with ARRA funds are not exempt.

Decision Nos. CO130016, 17, 18, 19, 20, 21, 22, 23 and 24 dated January 04, 2013 supersedes Decision Nos. CO100016, 17, 18, 19, 20, 21, 22, 23 and 24 dated September 30, 2011.		Modifications			ID 1
		MOD Number 1	Date 07/26/13	Page Number(s) 1 & 14	
When work within a project is located in two or more counties and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.					
General Decision No. CO130019 applies to the following counties: Denver and Douglas counties.					
General Decision No. CO130019 The wage and fringe benefits listed below reflect collectively bargained rates.					
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod	
1279	CARPENTER (Form Work Only)	24.00	11.28		
	TRAFFIC SIGNALIZATION:				
	Traffic Signal Installation				
1280	Zone 1	26.42	4.75% + 8.68		
1281	Zone 2	29.42	4.75% + 8.68		
	<u>Traffic Installer Zone Definitions</u> Zone 1 – Within a 35 mile radius measured from the addresses of the following cities: Colorado Springs - Nevada & Bijou Denver - Ellsworth Avenue & Broadway Ft. Collins - Prospect & College Grand Junction - 12th & North Avenue Pueblo - I-25 & Highway 50 Zone 2 - All work outside these areas.				
	POWER EQUIPMENT OPERATOR:				
	Hydraulic Backhoe				
1282	Wheel Mounted, under ¾ yds.	24.27	8.62		
1283	Backhoe/Loader combination	24.27	8.62		
	Drill Rig Caisson				
1284	Smaller than Watson 2500 and similar	24.27	8.62		
1285	Watson 2500 similar or larger	24.57	8.62		
	Loader				
1286	Up to and including 6 cubic yards	24.27	8.62		
1287	Denver County - Under 6 cubic yards	24.27	8.62		
1288	Denver County - Over 6 cubic yards	24.42	8.62		

General Decision No. CO130019

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't.):			
	Motor Grader			
1289	Douglas county - Blade Rough	24.27	8.62	4
1290	Douglas county - Blade Finish	24.57	8.62	4
	Crane			
1291	50 tons and under	24.42	8.62	4
1292	51 to 90 tons	24.57	8.62	4
1293	91 to 140 tons	24.72	8.62	4
	Scraper			
1294	Single bowl under 40 cubic yards	24.42	8.62	4
1295	40 cubic yards and over	24.57	8.62	4

General Decision No. CO130019

The wage and fringe benefits listed below do not reflect collectively bargained rates.

1296	CARPENTER (Excludes Form Work)	19.27	5.08	
	CEMENT MASON/CONCRETE FINISHER:			
1297	Denver	20.18	5.75	
1298	Douglas	18.75	3.00	
1299	ELECTRICIAN (Excludes Traffic Signal Installation)	35.13	6.83	
1300	FENCE ERECTOR (Excludes Link/Cyclone Fence Erection)	13.02	3.20	
1301	GUARDRAIL INSTALLER	12.89	3.20	
	HIGHWAY/PARKING LOT STRIPING:			
	Painter			
1302	Denver	12.62	3.21	
1303	Douglas	13.89	3.21	
	IRONWORKERS:			
1304	Reinforcing (Excludes Guardrail Installation)	16.69	5.45	
1305	Structural (Includes Link/Cyclone Fence Erection), (Excludes Guardrail Installation)	18.22	6.01	

General Decision No. CO130019				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	LABORERS:			
1306	Asphalt Raker	16.29	4.25	
1307	Asphalt Shoveler	21.21	4.25	
1308	Asphalt Spreader	18.58	4.65	
	Common or General			
1309	Denver	16.76	6.77	
1310	Douglas	16.29	4.25	
1311	Concrete Saw (Hand Held)	16.29	6.14	
1312	Landscape and Irrigation	12.26	3.16	
	Mason Tender - Cement/Concrete			
1313	Denver	16.96	4.04	
1314	Douglas	16.29	4.25	
	Pipelayer			
1315	Denver	13.55	2.41	
1316	Douglas	16.30	2.18	
	Traffic Control			
1317	Flagger	9.55	3.05	
1318	Sets Up/Moves Barrels, Cones, Install Signs, Arrow Boards and Place Stationary Flags, (Excludes Flaggers)	12.43	3.22	
	PAINTER:			
1319	Spray Only	16.99	2.87	
	POWER EQUIPMENT OPERATOR:			
	Asphalt Laydown			
1320	Denver	22.67	8.72	
1321	Douglas	23.67	8.47	
	Asphalt Paver			
1322	Denver	24.97	6.13	
1323	Douglas	25.44	3.50	

General Decision No. CO130019				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't.):			
	Asphalt Roller			
1324	Denver	23.13	7.55	
1325	Douglas	23.63	6.43	
1326	Asphalt Spreader	22.67	8.72	
	Backhoe/Trackhoe			
1327	Douglas	23.82	6.00	
1328	Bobcat/Skid Loader	15.37	4.28	
1329	Boom	22.67	8.72	
	Broom/Sweeper			
1330	Denver	22.47	8.72	
1331	Douglas	22.96	8.22	
1332	Bulldozer	26.90	5.59	
1333	Concrete Pump	21.60	5.21	
	Drill			
1334	Denver	20.48	4.71	
1335	Douglas	20.71	2.66	
1336	Forklift	15.91	4.68	
	Grader/Blade			
1337	Denver	22.67	8.72	
1338	Guardrail/Post Driver	16.07	4.41	
	Loader (Front End)			
1339	Douglas	21.67	8.22	
	Mechanic			
1340	Denver	22.89	8.72	
1341	Douglas	23.88	8.22	

General Decision No. CO130019				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't.):			
	Oiler			
1342	Denver	23.73	8.41	
1343	Douglas	24.90	7.67	
	Roller/Compactor (Dirt and Grade Compaction)			
1344	Denver	20.30	5.51	
1345	Douglas	22.78	4.86	
1346	Rotomill	16.22	4.41	
	Screed			
1347	Denver	22.67	8.38	
1348	Douglas	29.99	1.40	
1349	Tractor	13.13	2.95	
	TRAFFIC SIGNALIZATION:			
	Groundsman			
1350	Denver	17.90	3.41	
1351	Douglas	18.67	7.17	
	TRUCK DRIVER:			
	Distributor			
1352	Denver	17.81	5.82	
1353	Douglas	16.98	5.27	
	Dump Truck			
1354	Denver	15.27	5.27	
1355	Douglas	16.39	5.27	
1356	Lowboy Truck	17.25	5.27	
1357	Mechanic	26.48	3.50	
	Multi-Purpose Specialty & Hoisting Truck			
1358	Denver	17.49	3.17	
1359	Douglas	20.05	2.88	

General Decision No. CO130019				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	TRUCK DRIVER (con't.):			
	Pickup and Pilot Car			
1360	Denver County	14.24	3.77	
1361	Douglas County	16.43	3.68	
1362	Semi/Trailer Truck	18.39	4.13	
1363	Truck Mounted Attenuator	12.43	3.22	
	Water Truck			
1364	Denver County	26.27	5.27	
1365	Douglas County	19.46	2.58	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

END OF GENERAL DECISION NO. CO130019



TECHNICAL SPECIFICATIONS

Contract No. 201312778

**RED ROCKS ROAD BRIDGE AND ROADWAY
PROJECT**

SEPTEMBER 3, 2013

RED ROCKS PARKS ROAD (ROAD 2)
BRIDGE REPLACEMENT
CITY AND COUNTY OF DENVER
CONTRACT NO. CE00896
PROJECT NO. BRO M320-072
SUB-ACCOUNT NO. 18375

GENERAL CONTRACT CONDITIONS

General Contract Conditions shall be the City and County of Denver, Department of Public Works, “Standard Specifications for Construction General Contract Conditions”, 2011 edition and hereinafter modified shall be used for this project.

STANDARD CONSTRUCTION SPECIFICATIONS

Standard Construction Specifications shall be the Colorado Department of Transportation “Standard Specifications for Road and Bridge Construction, (Sections 200-700)” adopted in 2011 and as hereinafter modified shall be used for this project.

DETAILED CONSTRUCTION SPECIFICATIONS

The Detailed Specifications for this project are defined in the City of Denver Contract Requirements and Contract Documents.

STANDARD CONSTRUCTION DETAILS

It is the intent of the City to use applicable details from the City and County of Denver Public Works Department Transportation Standards and Details for the Engineering Division, the Colorado Department of Transportation M&S Standards, the City of Denver’s Wastewater Management Division Standard Details, and the Denver Water Department’s Standard Drawings, most recent editions. Drainage related appurtenances shall be constructed as shown in the City and County of Denver (CCD), Department of Public Works document titled “Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications”. This document can be found at the following web address:

<http://denvergov.org/wastewatermanagement/WastewaterManagement/EngineeringandPermits/WastewaterDetailandTechnicalSpecifications/tabid/442699/Default.aspx>.

RED ROCKS PARKS ROAD (ROAD 2)
 BRIDGE REPLACEMENT
 CITY AND COUNTY OF DENVER
 CONTRACT NO. CE00896
 PROJECT NO. BRO M320-072
 SUB-ACCOUNT NO. 18375

PROJECT SPECIAL PROVISIONS

	Date	Page No.
Revision of Section 202 – Removal of Bridge	(May 28, 2013)	PSP-2
Revision of Section 202 – Removal of Structures Coated with Heavy Metal Based Paint	(May 28, 2013)	PSP-6
Revision of Section 210 – Reset Structure (Headwall)	(May 28, 2013)	PSP-7
Revision of Section 210 – Reset Structure (Red Rocks Sign)	(May 28, 2013)	PSP-9
Revision of Section 216 – Soil Retention Blanket (Straw/Coconut)	(May 28, 2013)	PSP-11
Revision of Section 218 – Noxious Weed Management	(May 28, 2013)	PSP-12
Revision of Section 250 – Heavy Metal Based Paint Management	(May 28, 2013)	PSP-16
Revision of Section 304 – Aggregate Base Course	(May 28, 2013)	PSP-19
Revision of Sections 401 & 403 – Hot Mix Asphalt	(May 28, 2013)	PSP-20
Revision of Section 506 – Soil Riprap	(May 28, 2013)	PSP-24
Revision of Section 628 – Pre-Fabricated Vehicular Steel Truss Bridge	(May 28, 2013)	PSP-25
Force Account Items	(May 28, 2013)	PSP-31
Traffic Control Plan – General	(May 28, 2013)	PSP-32
Utilities	(May 28, 2013)	PSP-34
Appendix A: Geotechnical Report	(May 28, 2013)	A-1
Appendix B: Permits	(May 28, 2013)	B-1

RED ROCKS PARKS ROAD (ROAD 2)
 BRIDGE REPLACEMENT
 CITY AND COUNTY OF DENVER
 CONTRACT NO. CE00896
 PROJECT NO. BRO M320-072
 SUB-ACCOUNT NO. 18375

STANDARD SPECIAL PROVISIONS

	Date	No. of Pages
Revision of Sections 106, 627 and 713 - Glass Beads for Pavement Marking	(February 8, 2013)	2
Revision of Sections 107 and 208 – Water Quality Control, Under One Acre of Disturbance	(May 2, 2013)	3
Revision of Section 109 – Fuel Cost Adjustment	(February 3, 2011)	2
Revision of Section 203 – Imported Material for Embankment	(February 3, 2011)	2
Revision of Sections 203, 206, 304, and 613 – Compaction	(July 19, 2012)	2
Revision of Section 206 – Imported Material for Structure Backfill	(July 19, 2012)	2
Revision of Sections 206 and 601 – Backfilling Structures that Support Lateral Earth Pressures	(July 29, 2011)	1
Revision of Section 208 – Erosion Log	(January 31, 2013)	1
Revision of Section 212 – Seed	(April 26, 2012)	1
Revision of Section 213 – Mulching	(January 31, 2013)	4
Revision of Section 250 – Environmental, Health and Safety Management	(July 19, 2012)	1
Revision of Section 401 and 412 – Safety Edge	(May 2, 2013)	2
Revision of Sections 412, 601, and 711 - Liquid Membrane-Forming Compounds for Curing Concrete	(May 5, 2011)	1
Revision of Section 601 – Concrete Batching	(February 3, 2011)	1
Revision of Section 601 – Concrete Finishing	(February 3, 2011)	1
Revision of Section 601 – Concrete Form and Falsework Removal	(July 28, 2011)	2
Revision of Section 601 – Concrete Slump Acceptance	(July 29, 2011)	1
Revision of Sections 603, 624 and 705 – Drainage Pipe	(April 26, 2012)	2
Revision of Section 612 – Delineators	(February 3, 2011)	1
Revision of Section 612 – Flexible Delineators	(July 19, 2012)	1
Revision of Section 620 – Field Laboratories with Ignition Furnace	(February 3, 2011)	1
Revision of Section 627 and 708 – Pavement Marking Paint	(January 31, 2013)	2
Revision of Section 630 – Construction Zone Traffic Control	(February 17, 2012)	1
Revision of Section 630 – Retroreflective Sign Sheeting	(February 3, 2011)	1
Revision of Section 630 – Signs and Barricades	(January 31, 2013)	1
Revision of Section 703 – Concrete Aggregate	(July 29, 2011)	1
Revision of Section 712 – Geotextiles	(Nov. 1, 2012)	2
Revision of Section 712 – Water for Mixing or Curing Concrete	(February 3, 2011)	1
Revision of Section 713 - Reflectors for Delineators and Median Barrier	(May 2, 2013)	1
Affirmative Action Requirements – Equal Employment Opportunity	(February 3, 2011)	10
Disadvantaged Business Enterprise – Definitions and Requirements	(February 3, 2011)	14
On the Job Training	(July 29, 2011)	3
Required Contract Provisions – Federal-Aid Construction Contracts	(July 19, 2012)	14
Special Construction Requirements, Fire Protection Plan	(November 1, 2012)	2

Project Special Provisions

**REVISION OF SECTION 202
REMOVAL OF BRIDGE**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of removal of the existing bridge at Red Rocks Park Road (Road 2) over Mount Vernon Creek. Bridge removal shall consist of the complete removal of all superstructure and substructure elements unless otherwise shown on the plans.

Subsection 202.02 shall include the following:

The removal of the existing bridge shall be performed in a safe manner.

When removal operations are located over a railroad or in proximity to any live water way , additional coordination with the railroad or other agency, (United States Army Corps of Engineers (USACE), US Fish and Wildlife Service, US Forest Service, etc.) shall be required.

The Contractor shall submit a Bridge Removal Plan to the Engineer, for record purposes only, at least 20 working days prior to the proposed start of removal operations. This Plan shall detail procedures, sequences, and all features required to perform the removal in a safe and controlled manner. The Bridge Removal Plan shall be stamped "Approved for Construction" and signed by the Contractor. The Bridge Removal Plan will not be approved by the Engineer.

The Bridge Removal Plan shall provide complete details of the bridge removal process, including:

- (1) The removal sequence, including staging of removal operations. Sequence of operation shall include a detailed schedule that complies with the working hour limitations.
- (2) Equipment descriptions including size, number, type, capacity, and location of equipment during removal operations.
- (3) Shoring that exceeds 5 feet in height, all falsework and bracing.
- (4) Details, locations and types of protective coverings to be used. The protective covering shall prevent any materials, equipment or debris from falling onto the property below. When removal operations are located over or in proximity to any live waterway, railroad, or pedestrian/bicycle path, additional width of protective covering sufficient to protect these facilities shall be required. Detailed methods for protection of the existing roadway facilities, including measures to assure that people, property, utilities, and improvements will not be endangered.
- (5) Detailed methods for protection of live waterways including minimization of turbidity and sedimentation, and protection of existing wetlands.
- (6) Detailed methods for mitigation of fugitive dust resulting from the demolition.

**REVISION OF SECTION 202
REMOVAL OF BRIDGE**

- (7) Details for dismantling, removing, loading, and hauling steel elements.
- (8) Methods of Handling Traffic, including bicycles and pedestrians, in a safe and controlled manner.

A Pre-Removal Conference shall be held at least seven days prior to the beginning of removal of the bridge. The Engineer, the Contractor, the removal subcontractor, the Contractor's Engineer, and the Traffic Control Supervisor (TCS) shall attend the Pre-Removal Conference. The Bridge Removal Plan shall be finalized at this Conference.

The Contractor's Engineer shall sign and seal (1) and (3) listed above in the final Bridge Removal Plan. Calculations shall be adequate to demonstrate the stability of the structure remaining after the end of each stage of removal, before traffic is allowed to resume in its normal configuration.

The final Bridge Removal Plan shall be stamped "Approved for Construction" and signed by the Contractor. The Contractor shall submit a final Bridge Removal Plan to the Engineer prior to bridge removal for record purposes only. The Contractor shall not begin the removal process without the Engineer's written authorization.

Submittal of the final Bridge Removal Plan to the Engineer, and field inspection performed by the Engineer, will in no way relieve the Contractor and the Contractor's Engineer of full responsibility for the removal plan and procedures.

Work within Railroad right-of-way shall be in accordance with Section 107. For bridge removal over railroads, including overhead wires, tunnels and underground facilities, approval of the bridge removal plans will be contingent upon the drawings being satisfactory to the railroad company involved.

Unless otherwise directed, the Contractor's Engineer need not be on site when bridge removal operations are in progress, but shall be present to conduct daily inspection for written approval of the work. The Contractor's Engineer shall inspect and provide written approval of each phase of the removal prior to allowing vehicles or pedestrians on, below, or adjacent to the structure. The Contractor's Engineer shall certify in writing that the falsework, bracing, and shoring conform to the details of the final Bridge Removal Plan. A copy of the certification shall be submitted to the Engineer.

The Contractor's Engineer shall inspect the bridge removal site and report in writing on a daily basis the progress of the operation and the status of the remaining structure. A copy of this daily report shall be available at the site of the work at all times, and a copy of the previous day's inspection report shall be submitted to the Engineer daily.

The Contractor shall have all necessary workers, materials, and equipment at the site prior to closing any lanes to traffic to accommodate bridge removal operations. While the lanes are closed to public traffic, work shall be pursued promptly and without interruption until the roadway is reopened to traffic.

Removal of hazardous material shall be in accordance with Section 250.

REVISION OF SECTION 202 REMOVAL OF BRIDGE

The Contractor shall take all steps to avoid contaminating state waters, in accordance with subsection 107.25.

Should an unplanned event occur or the bridge removal operation deviate from the submitted bridge removal plan, the bridge removal operations shall immediately cease after performing any work necessary to ensure worksite safety. The Contractor shall submit to the Engineer, the procedure or operation proposed by the Contractor's Engineer to correct or remedy the occurrence of this unplanned event or to revise the final Bridge Removal Plan. The Contractor shall submit his Engineer's report in writing, within 24 hours of the event, summarizing the details of the event and the procedure for correction.

Before removal of the protective covering, the Contractor shall clean the protective covering of all debris and fine material.

Bridge removal may be suspended by the Engineer for the following reasons:

- (1) Final Bridge Removal Plan has not been submitted, or written authorization has not been provided by the Engineer to begin the removal.
- (2) The Contractor is not proceeding in accordance with the final Bridge Removal Plan, procedures, or sequence.
- (3) The Contractor's Engineer is not on site to conduct inspection for the written approval of the work.
- (4) Safety precautions are deemed to be inadequate.
- (5) Existing neighboring facilities are damaged as a result of bridge removal.

Suspension of bridge removal operations shall in no way relieve the Contractor of his responsibility under the terms of the Contract. Bridge removal operations shall not resume until modifications have been made to correct the conditions that resulted in the suspension, as approved in writing by the Engineer.

The Contractor shall notify all emergency response agencies of the proposed removal work and any detours 24 hours in advance of work. This shall include the Colorado State Patrol, local Police Department, local Fire Department, all local ambulance services, and the Sheriff's Department, as appropriate.

All required traffic control devices, night time flagging stations, barricades and VMS signs shall be in place, with detours in operation, prior to the beginning of removal operations each day. Night work shall conform to the requirements of the MUTCD, Parts 1, 5, and 6.

Prior to reopening the roadway to public traffic, all debris, protective pads, materials, and devices shall be removed and the roadways swept clean.

Explosives shall not be used for removal work without the written approval of the Engineer.

**REVISION OF SECTION 202
REMOVAL OF BRIDGE**

Removal shall include the superstructure, the substructure, which includes the piers, the abutments and wingwalls, the bridge rail, and any approach slabs and sleeper slabs.

Removal of the substructure shall be taken down to at least 1 foot below the natural existing or future ground surface at the lowest point of interface with the abutment, unless otherwise approved by the Engineer. Holes resulting from substructure removal shall be backfilled with Structure Backfill (Class 2) to the adjacent existing grades.

All other materials removed from the existing structure shall become the property of the Contractor and shall be properly disposed of offsite at the Contractor's expense, unless otherwise stated in the plans.

Existing structures, facilities, and surrounding roadways shall not be damaged by the removal operations. Damage that does occur shall be repaired immediately at the Contractor's expense.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	Unit
Removal of Bridge	Each

Payment for Removal of Bridge will be full compensation for all labor and materials required to complete the work, including, preparation and implementation of the Bridge Removal Plan, inspection, equipment, debris handling and disposal, salvaging, handling and storage of salvable materials, handling and disposal of all hazardous materials and disposal of non-salvable materials.

Lighting required for nighttime operations will not be measured and paid for separately, but shall be included in the work. Excavation and backfill of holes due to removal will not be measured and paid for separately, but shall be included in the work.

END OF SECTION REVISION

**REVISION OF SECTION 202
REMOVAL OF STRUCTURES
COATED WITH HEAVY-METAL BASED PAINT**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of the removal of a structure or components of a structure coated with paint which may contain lead, other heavy metals, or a combination thereof. Management of paint debris waste shall be accomplished in accordance with Section 250.

Subsection 202.12 shall include the following:

Payment for removal of structures, or portions thereof, coated with heavy-metal based paint will be full compensation for all work necessary to complete the item. Paint debris waste management and disposal will be measured and paid for in accordance with Section 250.

END OF SECTION REVISION

**REVISION OF SECTION 210
RESET STRUCTURE (HEADWALL)**

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.01 shall include the following:

Reset Structure (Headwall) consists of removing the existing stone masonry headwalls at either end of the existing 24 inch culvert (location as shown on the plans) and reconstructing them at either end of the proposed 24 inch RCP culvert.

MATERIALS

Mortar shall consist of one part Portland cement and three parts fine aggregate by volume thoroughly mixed with as much water as is necessary to obtain the required consistency. Materials shall meet the requirements specified in the following subsections:

Hydraulic Cement	701.01
Fine Aggregate	703.01
Water	712.01

Mortar shall be used within 45 minutes after mixing and shall not be re-tempered. Class B concrete, conforming to the requirements of Section 601, may be substituted for mortar.

CONSTRUCTION REQUIREMENTS

Subsection 210.02 shall include the following:

The Contractor shall ensure that the stone masonry work is performed by a licensed stone contractor experienced in this type of work. Submit for review by the Engineer substantiating evidence that the Contractor or Subcontractor is qualified by previous experience in construction of stone masonry. Include the following:

- (a) A list of representative jobs the Contractor or subcontractor has completed using the various procedures required to accomplish this type of work, i.e., furnishing, selecting, and placing the stone.
- (b) The name and work history of the person(s) employed by the Contractor or Subcontractor(s) who will be in direct supervision of the stone masonry operations. Include a list of projects that such person(s) has been in a position of responsibility for and has successfully completed while in the employment of the Contractor or its Subcontractor(s).

The Contractor shall photograph each existing stone headwall location impacted by construction, and number each stone prior to removal. Include a clearly legible scale, measuring in inches, in each photograph. Label the photographs by location and maintain a field notebook with the documentation. More than one photograph may be required to document the entire headwall. Provide two 8 inch x 10 inch copies of each photograph to the Engineer prior to dismantling the existing headwalls. Measure the depth and width of the existing headwall's mortar joints at a minimum of four locations and document the average depth and width.

**REVISION OF 210
RESET STRUCTURE (HEADWALL)**

The Contractor shall dismantle the existing stone masonry headwalls with hand tools only unless otherwise approved by the Engineer. The Contractor shall use care to not damage the existing stones. The Contractor shall salvage all existing stone removed for the new culvert installation and reuse the same stones to reconstruct a new headwall.

When work is not in progress, the Contractor shall protect stone faces by covering with non-staining waterproof coverings. Cure completed masonry for at least 3 days after placing. When work resumes, clean the top surfaces of stone of all mortar and thoroughly dampen. Where new mortar joins partially or totally set masonry, remove loose mortar and dampen.

Set the largest stones at the base of the headwall, partially below grade. Gradually diminish the size of the stones in the upper part of the wall. Reconstruct the headwalls in a masonry pattern similar to the existing headwalls (using the photographic documentation). Select any additional stone required to match the size, texture, color, shape, and weathering of the adjacent original stones. Replicate the character of the mortar joints, including width, depth, color, and texture. Reset the existing stones in their original configuration after the new culvert is installed.

Subsection 210.12 shall include the following:

Reset Structure (Headwall) will be measured by the complete unit, including removal of the existing headwall, photographs, field notebooks, mortar material, any required additional stone material, and any other incidental components of the headwalls. Structure excavation and backfill will not be measured and paid for separately but shall be included in the work.

Subsection 210.13 shall include the following:

Reset Structure (Headwall) will be paid for at the contract unit price and shall include all labor, equipment, and materials necessary to complete the installation.

Payment will be made under:

Pay Item	Pay Unit
Reset Structure (Headwall)	Each

END OF SECTION REVISION

**REVISION OF SECTION 210
RESET STRUCTURE (RED ROCKS SIGN)**

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.01 shall include the following:

Reset Structure (RED ROCKS SIGN) consists of removing and protecting the existing signs including the sign foundations, designated as RESET Special on the plans, and reconstructing the foundations and resetting the signs using the existing foundations.

CONSTRUCTION REQUIREMENTS

Subsection 210.02 shall include the following:

The Contractor shall remove each Red Rocks sign and excavate the respective sign foundations, being careful not to damage either. The Contractor must photograph all sides of each foundation and number each structure at time of removal. Include a clearly legible scale, measuring in inches, in each photograph. Label the photographs by location and maintain a field notebook with the documentation. Provide two 8 inch x 10 inch copies of each photograph to the Engineer prior to resetting each foundation.

Prior to reset, the Engineer shall inspect the condition of the foundation and determine if there is unacceptable damage, or the foundations are suitable for reuse.

The Contractor shall dismantle the sign from the foundation with hand tools only unless otherwise approved by the Engineer. The Contractor shall salvage all existing sign and foundation materials removed for the reset sign installation in order to reuse the same materials.

When work is not in progress, the Contractor shall protect sign with a non-staining waterproof cover. The signs and existing foundations are to be protected from damage if stored temporarily.

When resetting the existing foundations, the Contractor shall field verify the sign locations with the Red Rocks Park Service Representative or Engineer to determine final sign location and orientation. The Contractor shall over excavate each foundation hole by 6 inches, measured from the outside face of the foundation. The foundation shall be carefully placed into the hole to avoid damage, and vertically plum with the top of foundation 0.25 ft above finished grade. The Contractor shall place flow-fill in the hole around the foundation. A 7 day flow-fill cure period is required prior to resetting the Red Rocks sign.

Subsection 210.12 shall include the following:

Reset Structure (RED ROCKS SIGN) will be measured by the complete unit, including removal of the existing sign, foundations, photographs, field notebooks, flow-fill material, any required additional materials, and any other incidental components of the signs. Structure excavation, backfill, and flow-fill will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 210
RESET STRUCTURE (RED ROCKS SIGN)**

Subsection 210.13 shall include the following:

Reset Structure (RED ROCKS SIGN) will be paid for at the contract unit price and shall include all labor, equipment, and materials necessary to complete the installation. The Contractor is responsible for protecting the signs and foundations from damage and disrepair during sign and foundation reset. Damage and costs to repair / replace the signs and/ or foundations are not project costs, but the responsibility of the Contractor.

Payment will be made under:

Pay Item	Pay Unit
Reset Structure (RED ROCKS SIGN)	Each

END OF SECTION REVISION

**REVISION OF SECTION 216
SOIL RETENTION BLANKET (STRAW/COCONUT)**

Section 216 of the Standard Specifications is hereby revised for this project as follows:

Delete the first paragraph of 216.02(a) 4 and replace with the following:

Soil Retention Blanket (straw/coconut) shall be a machine produced mat consisting of 70 percent agricultural straw and 30 percent coconut fiber. The blanket shall be of consistent thickness with the straw and coconut fiber evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom with 100% biodegradable natural organic fiber netting. The blanket shall be sewn together with cotton, biodegradable or photodegradable thread.

In subsection 216.02(a) 4, delete the second paragraph and replace with the following:

Material requirements:

Straw content:	70% 0.35 pounds per square yard
Coconut fiber content:	30% 0.15 pounds per square yard
Netting: top and bottom	100% biodegradable organic jute fiber
Thread:	Biodegradable
Roll width:	6.5 to 8.0 feet
Roll length:	108.0 to 112.5 feet (+/- 5%)
Roll weight:	50.0 to 52.22 pounds (+/- 5%)
Area Covered by One Roll:	78 to 100 sq. yds.

A sample of the soil retention blanket (straw and coconut) shall be submitted at least 2 weeks in advance of its use on the project for approval by the Engineer.

END OF SECTION REVISION

**SECTION 218
NOXIOUS WEED MANAGEMENT**

Section 218 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

218.01 This work includes the prevention, control, and monitoring of noxious weeds through an Integrated Weed Management Plan using all methods that are available for the targeted weed species. This work will require coordination with the City and County of Denver (CCD) Mountain Parks staff person responsible weed management on CCD park land. Noxious weed management will include the prevention and control of noxious weeds identified in the project area.

Effective noxious weed management procedures shall use a combination of the four basic methods: chemical, mechanical, cultural, or biological techniques, including prevention and monitoring.

The Contractor shall control and prevent the spread of noxious weeds throughout construction to comply with Title CRS 35-5.5, Colorado Weed Management Act.

MATERIALS

208.02 Chemical Treatment, Mechanical Control, Cultural Control and Biological Control. The material for Noxious Weed Management shall conform to the following:

a) Chemical Treatment. Incorporate herbicide treatment in accordance to CDOT Standard Specification, Section 217, Herbicide Treatment. The herbicide applicator shall consult the most recent publication of the Colorado Weed Management Guide available on-line at <http://www.cerc.colostate.edu/titles/XCM205.html> through Colorado State University's Cooperative Extension Program. Changes by the Contractor to the provisions of the CWMG shall be pre-approved by the Engineer a minimum of 10 days prior to application.

Herbicides shall be labeled as described in Section 217, subsection 217.02 of the Standard Specifications, and labeling information shall be provided to the Engineer in accordance with subsection 217.03.

(b) Mechanical Control. Mechanical control shall consist of mowing and brush cutting, hand pulling, blading, grubbing, and the use of hand operated tools, such as power weeders, string trimmers, chain saws, brushhooks, or heavy equipment.

(c) Cultural Control. Cultural control to enhance the vigor of desirable plants shall consist of native seeding and plantings using an appropriate or adapted seed mix, mulching, and fertilizing, as appropriate in accordance with CDOT Standard Specifications, Sections 212, 213, 214, 216, and as shown on the plans.

(d) Biological Control. Biological control shall consist of the use of approved living organisms (insects, animals, or pathogens) with assistance provided by the Colorado Department of Agriculture's Division of Plant Industry or Colorado State University Cooperative Extension.

**SECTION 218
NOXIOUS WEED MANAGEMENT**

CONSTRUCTION REQUIREMENTS

218.03 Integrated Noxious Weed Management Plan and Noxious Weed Management Supervisor.

(a) The Contractor shall submit an Integrated Noxious Weed Management Plan to the Engineer 10 days prior to the start of construction. Once work has started, and during the active construction period, the Contractor shall update the schedule for noxious weed management work on a monthly basis, and submit the updated schedule to the Engineer. Revisions to the plan and schedules shall not be implemented until the proposed measures have been approved in writing by the Engineer. The plan shall consist of the following elements:

- (1) Identification of on-site targeted Noxious Weeds. (Contractor field survey).
 - (2) Schedule of mechanical and chemical practices prior to topsoil salvage or earthwork operations.
 - (3) Noxious weed management practices in sensitive areas, and in on-site wetlands and threatened and endangered species habitat, if any.
 - (4) Schedule of on-site monitoring for noxious weeds.
 - (5) The procurement of certified noxious weed free hay/mulch and seed.
 - (6) Post construction mapping of noxious weeds, if required by the Engineer.
- (b) The Contractor shall submit mapping of those weeds listed in the Colorado Noxious Weed Act and Jefferson County Noxious Weed lists that are present on-site before and following completion of earthwork operations, after final landscaping, at the time of project acceptance by the Engineer, and at other times as directed by the Engineer.
- (c) The following table shows the noxious weeds known to be on the Red Rocks Bridge Replacement Project site:
- (1) Common teasel
 - (2) cutleaf teasel
 - (3) Canada Thistle
 - (4) houndstongue
 - (5) Poison hemlock

218.04 Noxious Weed Management

(a) *Certifications.* All methods of seeding shall be in accordance with Section 212. All methods of mulching shall be in accordance with Section 213.

All methods of herbicide application shall be in accordance with Section 217.

(b) *Non-Target Injury.* Herbicides shall be applied by spot spraying or as appropriate by the use of wicks or sponges to avoid off-target injury to passing pedestrians and motorists, and to avoid weakening or killing the existing native roadside plant community and allowing more weed invasion. The Contractor must also avoid injuring or killing neighboring landscaped areas, avoid injuring or killing native trees and shrubs, native grasses and wildflowers, and avoid contaminating sensitive aquatic and wetland areas. Aquatic or wetland areas shall only be sprayed with herbicides approved by CDPHE and EPA for aquatic use. Special precautions shall also be taken for pollinators and other beneficial insects. Nearby beekeepers shall be notified before applying pesticides.

**SECTION 218
NOXIOUS WEED MANAGEMENT**

(c) Procedures to Minimize Spread of Noxious Weeds. If excavation is to occur at on-site noxious weed locations as identified by Contractor surveys, or at off-site Contractor sources containing noxious weeds, the Contractor shall treat the weeds in accordance with the Integrated Noxious Weed Management Plan. If excavation is to occur during a time when herbicides cannot be applied (e.g., during winter or at a growth stage inappropriate for noxious weed control), then any weed-infested soils shall be removed, stockpiled at a location to remain undisturbed, and protected from wind and water erosion until the stockpile can be appropriately treated with herbicides. The stockpile shall be signed or identified in an appropriate manner to avoid accidental use prior to treatment. If herbicides can be applied in accordance with the Integrated Noxious Weed Management Plan prior to earthwork operations or topsoil salvage, then the soils infested by noxious weeds can be included with non-infested topsoil and not stockpiled separately.

Noxious weed plants and plant parts, including seed heads, that have been mechanically removed, shall be placed in appropriate bags or other suitable containers that can be tightly closed or sealed and shall be disposed of at a solid waste disposal facility. If topsoil is determined to be infested with perennial noxious weeds and cannot be effectively treated, then the topsoil shall be disposed of at a solid waste disposal facility.

Noxious weed management after earthwork operations and stabilizing has been completed will require chemical and mechanical methods that do not disturb areas that have been seeded and mulched or stabilized by other means such as soil retention blankets and similar devices.

Staging areas will not be allowed in weed-infested areas unless the staging area is approved by the Engineer and pre-treated using integrated weed management practices. Weed-infested staging areas shall be mowed and cleared of noxious weeds as described in Section 201, and sprayed with the appropriate herbicide as described in Section 217, or as referenced in the Colorado Weed Management Guide.

If borrow material is used for any part of the project, the borrow material shall be weed-free and shall be obtained from a site pre-approved by the Engineer. If the borrow is stockpiled it shall be stabilized and remain weed-free for the duration.

If imported topsoil is used for any part of the project, the topsoil shall be inspected by the Noxious Weed Management Supervisor and certified noxious weed free by the Noxious Weed Management Supervisor. If noxious weeds are found to be present at the topsoil source, then the material cannot be used on the project.

(d) Equipment Cleaning. The Contractor shall prevent the spread of noxious weeds that could be picked up by construction equipment. The Contractor shall have all equipment cleaned before off-loading at the project site. All equipment shall be cleaned by hand brushing of all mud, dirt, and plant parts after working with weed-contaminated soils, and the removed material appropriately disposed of at a location approved by the Engineer.

**SECTION 218
NOXIOUS WEED MANAGEMENT**

METHOD OF MEASUREMENT

218.05 The Noxious Weed Management will not be measured separately, but will be paid for on a lump sum basis. The lump sum price will be full compensation for all work required to complete the item.

Herbicide treatment will be paid for in accordance to Section 217.

Staking of sensitive areas with delineators and reflectors will be paid for in accordance to section 612.

Stockpiling of topsoil infested with noxious weeds will be paid for in accordance to Section 207.

Mechanical removal will not be measured, but will be paid for separately, but shall be included in the work.

Equipment cleaning will not be paid for separately, but included in the price of the work.

Solid waste disposal shall be paid for in accordance to Section 250.

BASIS OF PAYMENT

218.06 The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Noxious Weed Management	SY

END OF SECTION REVISION

**REVISION OF SECTION 250
HEAVY METAL BASED PAINT MANAGEMENT**

Subsection 250.04 of the Standard Specifications is hereby revised to include the following:

DESCRIPTION

This work consists of treating surfaces coated with lead-based paint with an encapsulant that chemically reacts with the lead in the paint to render it non-leachable and non-hazardous. The structure on which this treatment is performed shall be removed and disposed of as solid waste, or removed and recycled, as shown in the plans. The cover coating cannot be painted over. In addition, this work includes the proper removal, containment and disposal of lead based paint that already may have previously flaked off from the structure, or that may flake off from these surfaces during treatment operations.

MATERIALS

The coating shall be Ecobond LBP Pre-Demo Paint, as supplied by Metals Treatment Technologies LLC (MT²), 14045 66th Avenue, Arvada, CO 80004, telephone: 1-888-435-6645.

CONSTRUCTION REQUIREMENTS

A minimum of two weeks prior to start of work, the Contractor shall submit a written methods statement for approval. This statement shall describe in detail the work and materials that the Contractor intends to use to achieve the following:

- (1) Contain loose visible paint chips on soil, water, or pavement and treat with Ecobond or in accordance with subsection 250.04(b).
- (2) Contain overspray of Ecobond. Spraying in conditions where wind speeds exceed 20 mph will not be permitted.
- (3) Contain Ecobond overspray, flaked off paint material, paint dust, and other materials that may be generated during the application of Ecobond or the removal of structures to prevent improper disposal in accordance with subsection 107.25 subsection 250.04(g).

Work shall not begin until written approval of the methods statement has been received.

If not already done by City and County of Denver staff, the Contractor shall obtain an approved representative sample of paint from the surface of the structure to which Ecobond is to be applied. Samples shall be tested by a pre-approved independent laboratory to determine the concentration of leachable lead (TCLP lead) in the paint using the Toxicity Characteristic Leachate Procedure EPA Method SW-846. Prior to Ecobond application, the Contractor shall submit the TCLP test results to the Engineer.

**REVISION OF SECTION 250
HEAVY METAL BASED PAINT MANAGEMENT**

Ecobond shall be thoroughly sprayed, rolled, or brushed on to each structure or component thereof that is to be treated in accordance with manufacturer's recommendations and as described in the approved method statement. Ecobond shall be applied at the appropriate rate and thickness recommended by a qualified representative of the manufacturer to render the leachable lead concentrations below the regulated levels.

After the Ecobond has been allowed to dry and set in accordance with manufacturer's recommendations, another sample of paint shall be obtained from each of the structures and tested for TCLP lead using EPA Method SW-846, following the protocol in Specification 250.06 of the CDOT Standard Specifications for Road and Bridge Construction (Specification 250.06). The Contractor shall use the same pre-approved independent testing laboratory as in the initial tests, or another approved laboratory. If the test results indicate the material exceeds the regulated levels for TCLP lead, then Ecobond shall be reapplied and the surfaces or paint chips shall be retested. All painted structures that have a TCLP lead result less than 5 mg/l shall be handled and disposed as a solid waste, and/or considered part of recyclable materials if intact.

METHOD OF MEASUREMENT

Subsection 250.09 of the Standard Specifications is hereby revised to include the following:

Heavy Metal Based Paint Management provides payment on a lump sum basis, so no measurement will be made. This payment will include all existing bridge structural elements that contain lead-based paint. Testing will be measured and paid for as Materials Sampling and Delivery.

BASIS OF PAYMENT

Subsection 250.10 of the Standard Specifications is hereby revised to include the following:

Payment will be made under:

Pay Item	Pay Unit
Coating Lead-Based Paint	Lump Sum

Surface preparation as called for in the manufacturer's recommendations will not be measured and paid for separately, but shall be included in the work. Payment will be full compensation for work, materials and equipment required to safely and properly coat each structure with Ecobond.

Containment and disposal of flaked off paint material and other debris will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 250
HEAVY METAL BASED PAINT MANAGEMENT**

All costs associated with the manufacturer's representative will not be measured and paid for separately, but shall be included in the work.

All work, materials and equipment associated with preventing material from off-site dispersal and entering state waters will not be measured and paid for separately, but shall be included in the work.

Preparation and submittal of the method statement and the implementation of the approved methodologies will not be measured and paid for separately, but shall be included in the work.

END OF SECTION REVISION

**REVISION OF SECTION 304
AGGREGATE BASE COURSE**

Section 304 of the Standard Specifications is hereby revised for this project as follows:

Subsection 304.02 shall include the following:

Materials for the base course shall be Aggregate Base Course (Class 6) as shown in subsection 703.03

The aggregate base course (Class 6) must meet the gradation requirements and have a resistance value of at least 78 when tested by the Hveem Stabilometer method.

END OF SECTION REVISION

**REVISION OF SECTIONS 401 & 403
HOT MIX ASPHALT
STONE MATRIX ASPHALT PAVEMENT**

Sections 401 and 403 of the Standard Specifications are hereby deleted and replaced with the Item 9 “Hot Mix Asphalt Pavement” Specifications from the Metropolitan Government Pavement Engineers Council (MGPEC), Volume 1 Pavement Design Standards and Construction Specifications, latest version, included below.

Contact MGPEC’s Administrative Assistant Pam Weimer at 303-979-2190 for MGPEC membership information and to receive full design standards and construction specifications.

END OF SECTION REVISION

Agency: City and County of Denver Project Number: CCD PCO PRC 2011-8001
 Date: May 28, 2013 Project Number: CDOT No. BRO M320-072
 Project Name: Red Rocks Park Road (Road 2) Bridge Replacement

MGPEC Form # 9 (1/26/2012)	<ul style="list-style-type: none"> • Mixture Design Requirements for Hot Mix Asphalt Pavements (HMA)
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- Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents**, and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: Residential, Collector (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

→ Construction Application: Top Lift Intermediate Lift(s) Bottom Lift

→ Aggregate Gradation: Patching Other _____
 Grading ST (1.5" or less lifts, 3/8" NMPS)

Grading SX (2.5" or less lifts)

Grading S (2.5+ to 3.5" lifts)

Grading SG*1 (3.5" or thicker lifts)

SMA (Top lift only) 3/8" 1/2" 3/4"

*1Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: 0% 20% 25%

Notes: - A quality control plan for RAP will be required when RAP is used

- Top lift Maximum RAP content allowed is 20%

→ Superpave Gyrotory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

Design Level	Recommended Traffic Levels	Recommended PG Binder(s)
<input type="checkbox"/> <input type="checkbox"/> N _{design} =50	Low volume <input type="checkbox"/>	<input type="checkbox"/> PG 58-28 or <input type="checkbox"/> PG 64-22
<input type="checkbox"/> <input checked="" type="checkbox"/> N _{design} =75	0 to <3 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input checked="" type="checkbox"/> PG 58-28
<input type="checkbox"/> <input type="checkbox"/> N _{design} =100	3 million to <30 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input type="checkbox"/> PG 76-28

Notes: - The binders are shown in order they should be considered.

- Polymer modified PG Binders are typically used in the top lift only

- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

• Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)

• Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

**Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

MGPEC Form #9

(1-26-12) to be used with: MGPEC Pavement Design Standards and Construction Specifications - Project Special Provisions for Hot Mix Asphalt Pavements (HMA) Item 9 Mixture Design and Production Requirements

Agency: City and County of Denver Project Number: CCD PCO PRC 2011-8001
 Date: May 28, 2013 Project Number: CDOT No. BRO M320-072
 Project Name: Red Rocks Park Road (Road 2) Bridge Replacement

MGPEC Form # 9 (1/26/2012)	<ul style="list-style-type: none"> • Mixture Design Requirements for Hot Mix Asphalt Pavements (HMA)
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- Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents**, and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: Residential, Collector (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

→ Construction Application: Top Lift Intermediate Lift(s) Bottom Lift

→ Aggregate Gradation: Patching Other _____
 Grading ST (1.5" or less lifts, 3/8" NMPS)

Grading SX (2.5" or less lifts)

Grading S (2.5+ to 3.5" lifts)

Grading SG*1 (3.5" or thicker lifts)

SMA (Top lift only) 3/8" 1/2" 3/4"

*1Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: 0% 20% 25%

Notes: - A quality control plan for RAP will be required when RAP is used

- Top lift Maximum RAP content allowed is 20%

→ Superpave Gyrotory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

Design Level	Recommended Traffic Levels	Recommended PG Binder(s)
<input type="checkbox"/> <input type="checkbox"/> N _{design} =50	Low volume <input type="checkbox"/>	<input type="checkbox"/> PG 58-28 or <input type="checkbox"/> PG 64-22
<input type="checkbox"/> <input checked="" type="checkbox"/> N _{design} =75	0 to <3 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input checked="" type="checkbox"/> PG 58-28
<input type="checkbox"/> <input type="checkbox"/> N _{design} =100	3 million to <30 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input type="checkbox"/> PG 76-28

Notes: - The binders are shown in order they should be considered.

- Polymer modified PG Binders are typically used in the top lift only

- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

• Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)

• Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

**Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

MGPEC Form #9

(1-26-12) to be used with: MGPEC Pavement Design Standards and Construction Specifications - Project Special Provisions for Hot Mix Asphalt Pavements (HMA) Item 9 Mixture Design and Production Requirements

Agency: City and County of Denver Project Number: CCD PCO PRC 2011-8001
 Date: May 28, 2013 Project Number: CDOT No. BRO M320-072
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MGPEC Form # 9 (1/26/2012)	<ul style="list-style-type: none"> • Mixture Design Requirements for Hot Mix Asphalt Pavements (HMA)
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- Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents**, and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: Residential, Collector (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

→ Construction Application: Top Lift Intermediate Lift(s) Bottom Lift

→ Aggregate Gradation: Patching Other _____
 Grading ST (1.5" or less lifts, 3/8" NMPS)
 Grading SX (2.5" or less lifts)
 Grading S (2.5+ to 3.5" lifts)

• Grading SG*1 (3.5" or thicker lifts)
 SMA (Top lift only) 3/8" 1/2" 3/4"
 *1Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: 0% 20% 25%

Notes: - A quality control plan for RAP will be required when RAP is used
 - Top lift Maximum RAP content allowed is 20%

→ Superpave Gyrotory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

Design Level	Recommended Traffic Levels	Recommended PG Binder(s)
<input type="checkbox"/> <input type="checkbox"/> N _{design} =50	Low volume <input type="checkbox"/>	<input type="checkbox"/> PG 58-28 or <input type="checkbox"/> PG 64-22
<input type="checkbox"/> <input checked="" type="checkbox"/> N _{design} =75	0 to <3 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input type="checkbox"/> PG 58-28
<input type="checkbox"/> <input type="checkbox"/> N _{design} =100	3 million to <30 million ESALs <input type="checkbox"/>	<input type="checkbox"/> PG 64-22 or <input checked="" type="checkbox"/> PG 76-28

Notes: - The binders are shown in order they should be considered.
 - Polymer modified PG Binders are typically used in the top lift only
 - PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

- Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)
- Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids
- **Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

MGPEC Form #9
 (1-26-12) to be used with: MGPEC Pavement Design Standards and Construction Specifications - Project Special Provisions for Hot Mix Asphalt Pavements (HMA) Item 9 Mixture Design and Production Requirements

**REVISION OF SECTION 506
SOIL RIPRAP**

Section 506 of the Standard Specifications is hereby revised for this project as follows:

Subsection 506.02 shall include the following:

Rock for soil riprap shall conform to Table 506 -2 for a nominal stone size (d50) of 12 inches. The soil material shall be 35 percent native topsoil mixed with 65 percent riprap by volume.

Subsection 506.03 shall include the following:

- (a) *Mixing Soil Riprap.* Soil riprap shall consist of a uniform mixture of soil and riprap without visible voids. Soil and riprap shall be stockpiled adjacent to each other at a predefined location. Stockpiling at the location of final soil riprap placement will not be permitted.

The Contractor shall mix the riprap and soil in the proportions described above, using additional moisture and control procedures that assure a homogenous mixture. The soil shall fill the inherent voids in the riprap without displacing riprap. Soil thickness between riprap shall be less than six inches.

- (b) *Installing Soil Riprap.* The first layer of soil riprap shall use soil riprap that is d50 or less. The top layer shall use riprap that is d50 or greater, filling voids as necessary with smaller planted riprap. Water shall be added in such a manner to fill the remaining voids with soil. Remaining voids larger than 6 inches shall be filled with rock as needed; visible voids less than six inches shall be filled with soil. The mixture shall be consolidated to create a tight, dense interlocking mass. The resulting top surface shall be smooth.

The top surface of soil riprap shall be covered with four inches of topsoil which conforms to Section 207. No rock points shall protrude after placement of the topsoil. The final surface above the soil riprap shall be thoroughly wetted, smoothed and compacted. The surface shall then be hand raked to receive planting or seeding.

Subsection 506.04 shall include the following:

Soil riprap will be measured as the actual number of cubic yards of soil and riprap mix that are installed and accepted

Subsection 506.05 shall include the following:

PAY ITEM	PAY UNIT
Soil Riprap (18 Inch)	CY

Structure Excavation will be measured and paid for in accordance with Section 206.

Topsoil that is placed above the soil riprap will be measured and paid for in accordance with Section 207.

END OF SECTION REVISION

SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE

Section 628 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

628.01 This work consists of the design, fabrication, assembling and erection of simple span, welded structural steel truss vehicular bridge in accordance with the specifications and plan details. A structural unit is defined as a completed single-span bridge from end bearing to end bearing.

628.02 Potential Suppliers

Potential bridge suppliers are:

1. Big R Manufacturing LLC
P.O. Box 1290
Greeley, Colorado 80632-1290
1-800-234-0734, FAX 1-970-356-9621
2. CONTECH Bridge Solutions, Inc
4021 Gault Avenue South
Fort Payne, AL 35967
1-800-328-2047, FAX 320-852-7067
3. Excel Bridge Manufacturing Company
12001 Shoemaker Avenue
Santa Fe Springs, California 90670
800-548-0054

Qualified suppliers must have at least 5 years experience fabricating the types of structures required in this project and be AISC certified Major Bridge Fabricator with Fracture Critical endorsement.

MATERIALS

628.03 Structural Steel.

All structural steel shall be new (unused) material. The Contractor shall provide the Engineer with copies of all certified mill test reports for all structural steel and bolts. Floor beams, stringers, and members of each truss (chords, diagonals, posts) utilized in the bridges shall meet a longitudinal Charpy V-notch (CVN) value of 25 ft. lbs. at 40 degrees Fahrenheit. Testing shall be in accordance with AASHTO T 243 (ASTM A 673). The H frequency of heat testing shall be used. The Contractor shall provide the Engineer and the Fabrication Inspector with certified copies of all CVN test reports.

All square and rectangular structural steel tubing or hollow structural shapes (HSS) shall conform to the requirements of ASTM A 847, Cold-Formed Welded and Seamless High-Strength, Low-Alloy Structural Tubing with Improved Atmospheric Corrosion Resistance.

All structural steel shapes and plates shall conform to the requirements of ASTM A 588, High-Strength Low-Alloy Structural Steel with Atmospheric Corrosion Resistance.

**SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE**

628.04 Connection Hardware. All anchor rods shall conform to ASTM F1554 Grade 36, 55 or 105. Nuts shall conform to the requirements of ASTM A563, Grade DH. All anchor rods and nuts shall be galvanized in accordance with the requirements of ASTM A 153. Each anchor bolt shall be provided with two nuts for jamming.

All structural steel field connections shall be bolted with high strength bolts. High strength bolts, including suitable nuts and plain hardened washers, shall conform to the requirements of ASTM A 325. Bolts shall be Type 3.

628.05 Reinforced Concrete. Structural concrete for bridge decks shall be as shown on the plans and in accordance with Section 601.

The surface of the concrete deck and sidewalk shall be Class 1 finish.

Stay-in-place metal deck forms are not allowed.

Reinforcing shall be ASTM A615 Grade 60. All bar bends and anchorage shall be in accordance with AASHTO Specifications. Reinforcing bars shall have a minimum clearance of 2 inches to the top of the deck. Reinforcing steel shall be in accordance with Section 602.

CONSTRUCTION REQUIREMENTS

628.06 General Features of Design.

(a) *Span.* Bridge span length shall be as shown on the drawings.

(b) *Width.* The deck width shall be 36'-6", measured from back face of bridge rail curb to back face of bridge rail curb, as shown on the drawings. Trusses shall sit outside of the bridge rail curb, with truss width determined by bridge manufacturer. Recommended bearing locations are provided in the drawings.

(c) *Bridge System Type*

1. The bridge unit shall be a pony truss. The pony truss shall have a polygonal top chord aesthetic similar to the bridge shown in the plans.
2. Panel widths within a structural unit may be adjusted as necessary to accommodate field connections. Panel widths measured along the bridge within a structural unit shall not vary by more than 15 percent. A panel is defined as the distance between two vertical members.
3. The bridge manufacturer shall determine the distance from the top of deck to the top and bottom truss members based upon structural and / or shipping requirements, as well as the following design constraints:
 - i. Bridge shall be cambered to offset the dead load and appear flat.
4. The top of the top chord shall be a minimum of 4'-6" above the finished deck at the first panel vertical member, measured adjacent to the chord.

**SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE**

5. Horizontal safety rails shall be placed on the structure to a minimum height of 4'-6" above the sidewalk surface. The rails shall be so spaced as to prevent a 4 inch sphere from passing through the rail. Rails shall be welded to the truss.

(d) *Bridge Members*

1. The floor beams, stringers, and members of the truss (chords, diagonals, posts) shall be fabricated from structural steel shapes. Use of hollow structural shapes for main members shall be approved.
2. The pedestrian rails shall be fabricated from hollow structural shapes (HSS).
2. Minimum thickness of primary hollow structural shapes (HSS) shall be ¼ inch. Rolled shapes shall have a minimum thickness of ¼ inch.
3. All open ends of HSS end posts and floor support beams shall be capped.
4. ½ inch diameter weep holes shall be drilled (flame cut holes will not be allowed) at all low points of all steel HSS members as oriented in the in-place, completed structure. In members that are level, or flat, a total of two weep holes shall be drilled, one at each end. Weep holes and their locations shall be shown on the Shop Drawings.

628.07 Design.

- (a) *Governing Codes and Standards.* Bridge shall be design in accordance with AASHTO LRFD Bridge Design Specifications, 5th Edition with Interims (AASHTO LRFD).
- (b) *Fabricator Design.* The fabricator's structural design of the bridge(s) shall be by or under the direct supervision of an experienced engineer who is licensed in the state of purchase. Design shall be in conformance with the governing specifications contained herein. Design calculations and fabrication plans shall be stamped, signed, and dated by the engineer.
- (c) *Truss Design.* Design shall consider the truss top chord stability criteria as defined in AASHTO where applicable. Truss vertical and floor members shall make a rigid frame to resist all lateral loads and stability loads as specified by AASHTO.
- (d) *Connections.* All welded connections shall be designed for the loads present at the connections. All welded connections shall be designed in accordance with the ANSI/AWS D1.5 Structural Welding Code (latest edition). Connections shall use ASTM A325 bolts and be designed as slip-critical connections. Field-installed bolts shall be fully tightened to AASHTO pretensioned loads. Faying surfaces shall not be painted and shall have a Class A contact surface.
- (e) *Loads.* The bridge shall be designed for the following loads and loading conditions:

SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE

1. Dead loads shall be as defined in the AASHTO LRFD.
 2. Live load of HL-93 shall be defined and distributed to structural members per the AASHTO LRFD. Deflection and vibration limits as per the AASHTO LRFD shall apply.
 3. Wind load shall be as defined by the AASHTO LRFD.
- (f) *Deflections*: Vertical deflection of the structural bridge unit due to live load shall not exceed $L/800$ of the span, in accordance with AASHTO LRFD.
- (g) *Bearing Devices*
1. Elastomeric bearings shall be used at each support of the structural bridge unit unless otherwise specified on the plans. Bearings shall be designed in accordance with Method A, preferred, or Method B as defined in the AASHTO LRFD. Elastomer hardness shall conform to the temperature zones shown in the AASHTO LRFD. Elastomeric pads shall be designed as steel reinforced where necessary.
 2. Elastomeric bearings shall be designed for the temperature differences specified and for the actual rotations occurring at the bearing due to dead load and live load.
- (g) *Anchor Rods*. Anchor rods shall be designed at the fixed and expansion ends of the bridge units for the forces present at that point. Anchor rods conforming to ASTM F1554 Grade 36, 55, or 105 shall be used. “J” shaped or hooked rods shall not be used if uplift is present under 0.9DL plus any uplift forces. The design shall consider longitudinal, transverse, and uplift forces present under the AASHTO LRFD load cases. If epoxy rods are used, the foundation design engineer shall be given the design loads and is responsible for the embedment design and details.

628.08 Submittals. The Contractor shall submit three sets of Design Calculations and Shop Fabrication Details (Shop Drawings) to the Engineer for the bridge. This submittal shall be in accordance with Subsection 105.02. Fracture Critical Members shall be clearly identified. This submittal shall include deck screed elevations. The Design Calculations and Shop Drawings shall contain the endorsement seal of the Professional Engineer registered in the State of Colorado responsible for the design. Contractor shall submit certifications of all materials and components used in the fabrication of the bridge unit.

The Contractor shall submit a load rating package to the Engineer for the bridge in accordance with the CDOT Bridge Rating Manual. Load rating shall be based on AASHTO Load Resistance and Factor Rating (LRFR).

SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE

The Contractor shall submit erection drawings a minimum of four weeks prior to the erection date. The erection drawings shall contain the endorsement seal of the Professional Engineer registered in the State of Colorado responsible for the erection. The submittal shall be in accordance with Subsections 105.02 and 509.27.

628.09 Shop Fabrication. Welding and fabrication of the steel truss bridge shall conform to the requirements of the Structural Welding Code-Steel ANSI/AWS D1.5 (Latest Edition) as amended by the following:

1. The Contractor shall submit a Quality Control Plan. The Plan shall include personnel qualifications, certifications, and a Written Practice in accordance with ASNT SNT-TC-1A.
2. The quality of all welds shall be in accordance with Section 6, Table 6.1. In Table 6.1, Undercut 7(B), the criteria for primary members shall apply to the bottom chord members.
3. All Complete Joint Penetration Groove Welds in butt joints in the bottom chord members shall be 100% Magnetic Particle tested in accordance with ASTM E 709. Acceptance shall be determined in accordance with Section 6.10 and Table 6.1, using Alternating Current. In addition, complete joint penetration groove butt welds welded from one side without backing of bottom chord members shall be examined by ultrasonic testing in accordance with Section 6.11.1.
4. Magnetic Particle Testing shall be performed on 100% of all attachment welds to the bottom chord, using Alternating Current, in accordance with Section 6.10 and Table 6.1.
5. All Procedure Qualification Records and Welder Qualification Test Records shall be current within three years of the date of beginning fabrication.
6. A copy of all Procedure Qualification Records, Welder Qualification Test Records, Quality Control Plan and all visual and nondestructive test reports shall be provided to:
 - a. The Engineer.
7. To aid in providing a uniformly “weathered” appearance, Weathering Steel shall have all boldly exposed surfaces abrasive metal blasted in accordance with the Steel Structures Painting Council (SSPC) Surface Preparation Specification No. 7 “Brush-off Blast Cleaning.” Exposed surfaces of steel shall be defined as those surfaces seen from the deck and from outside of the structure.

628.10 Field Construction.

(a) *Anchorage Coordination.* The substructure shall be constructed in accordance with the details shown in the plans and the bridge shop drawings. Before construction begins on the substructure, the Contractor shall determine the anchor bolt requirements and substructure dimensions needed to properly erect the structure which will be provided. The Engineer shall be provided with two copies of detail sheets delineating these requirements and will have fourteen (14) days to review this information before any work begins on the substructure.

**SECTION 628
PRE-FABRICATED VEHICULAR STEEL TRUSS BRIDGE**

The Contractor shall meet the requirements outlined in Section 509 for Steel Structures including the Erection of Steel Structures.

(b) *Delivery.* Delivery shall be made via truck to a location nearest the site which is accessible to normal over-the-road equipment. All trucks delivering bridge material will need to be unloaded at the time of arrival. If the erection contractor needs special delivery or delivery is restricted, he shall notify the fabricator prior to bid date.

(c) *Erection.* The fabricator will provide a written procedure for lifting and splicing the bridge. All methods, equipment, and sequence of erection are the responsibility of others, per Section 107.061 of the Specifications. A representative for the fabricator must be on site during the erection of the structure.

METHOD OF MEASUREMENT

628.12 Vehicular truss bridge will be measured by the complete Structural Steel Unit installed and accepted.

BASIS OF PAYMENT

628.13 The accepted quantity shall be paid for at the contract unit price for the pay unit listed below. Payment will be made under:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Structural Steel Unit (Through Truss)	Each

Payment shall be full compensation for all work necessary to complete the item, which shall include design, fabrication, and transportation to the bridge site, field assembly and erection. The substructure shall be measured and paid for separately. Anchor bolts and bearings shall be included in Item 628. Payment will not be made for this item until all required reports, certifications, and forms have been submitted to the Engineer.

END OF SECTION REVISION

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the City and County's estimate for force account items included in the Contract. Force Account work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with the provision of general condition Title 11. Payment will constitute full compensation for all work necessary to complete the item.

Force account work valued at \$5,000 or less, that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

<u>Force Account Item</u>	<u>Quantity</u>	<u>Estimated Amount</u>
F/A Fuel Cost Adjustment	F/A	\$1,500
F/A Erosion Control	F/A	\$5,000
F/A On the Job Training	F/A	\$640

F/A Fuel Cost Adjustment – This force account is to pay for contract price adjustments to reflect increases or decreases in the prices of gasoline, diesel, and other fuels from those in effect during the month in which bids were received for the Contract if the Contractor has specified on the Form 85 that the price adjustment will apply to the Contract.

F/A Erosion Control – This work shall include all necessary work and materials for erosion control items not identified in the plans and at the Engineer's direction. Payment will be made based on time and materials used to perform the work. Work must be performed in a workmanlike manner and properly scheduled to minimize cost and inconvenience. The Force Account shall also be used to pay for any additional BMPs or testing which may become required by future changes to the current stormwater regulations by either EPA or CDPHE and could include future effluent limits.

F/A On the Job Training – This force account is to cover the cost of the OJT Training hours.

END OF SECTION REVISION

TRAFFIC CONTROL PLAN – GENERAL

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.09.

The components of the TCP for this project are included in the following:

- (1) Subsection 104.04 and Section 630 of the specifications.
- (2) Standard Plan S-630-1, Traffic Controls for Highway Construction, and Standard Plan S-630-2.
- (3) Manual on Uniform Traffic Control Devices (MUTCD).
- (4) Denver Barricade Manual.

Traffic Control shall be provided as required by, in descending order of precedence, MUTCD, the plans and special provisions for this project, Denver Barricade Manual, Colorado Department of Transportation Standard Specifications, and Colorado Department of Transportation M and S Standards.

Special Traffic Control Plan requirements for this project are as follows:

Steel drum channelizing devices shall not be used for traffic control.

During the construction of this project, traffic shall use the present traveled roadway at all times in each direction unless otherwise directed by the Engineer.

The Contractor shall not have construction equipment or materials in the lanes open to traffic any time, unless approved by the Engineer.

All personal/employee vehicle and construction equipment parking is prohibited when it conflicts with safety, access, or the flow of traffic.

The Contractor shall install construction traffic control devices in locations where they do not block or impede other existing traffic control devices, or sidewalks for pedestrians, disabled persons, or bicyclists.

The Contractor and subcontractors shall equip their construction vehicles with flashing amber lights. Flashing amber lights on vehicles and equipment shall be visible from all directions.

The Contractor shall maintain access to all roadways, walkways, driveways, and hike/bike paths at all times unless otherwise approved by the Engineer. . During construction, driveways shall be open with safe access to each property on the project generally as follows:*Properties with a single driveway*: Either 12 feet or ½ of the existing driveway width must be left open at all times.

All construction vehicles shall remain on paved surfaces at all times.

TRAFFIC CONTROL PLAN – GENERAL

During non-construction periods, all work shall be adequately protected to ensure the safety of vehicular and pedestrian traffic, as detailed in the Contractor's MHT. Excavations or holes shall be filled in or fenced when unattended.

Two lanes of traffic shall be maintained on CR 93 at all times. . No work will be allowed between 6:00pm Friday through 7:00am Sunday. Sunday work is allowed, subject to the City noise ordinance., Work that interferes with traffic will not be permitted: 1) on any day of a 3 or 4 day holiday weekend; or 2) after 12:00 noon on the day preceding such holiday weekend.

The Contractor shall remove pavement markings and striping where it conflicts with the construction traffic zone striping. The Contractor shall re-stripe the work zone to allow for maintenance of traffic after the work zone is dismantled in any area.

The Contractor shall remove or cover all signs in the work zone that conflict with the construction traffic control plans.

Traffic Control Inspection (TCI) is required to maintain detour route signs and Red Rocks Park Road (Rd. 2) road closure signs during construction. The Contractor will check the sign placement for compliance with the detour plan twice during the work day. It is expected that two hours per day is sufficient to complete this TCI.

The Contractor shall coordinate all of the work on the roadway during any special event with the City and County of Denver.

All costs incidental to foregoing requirements shall be included in the original contract prices for the project and will not be measured and paid for separately.

Contractor shall obtain all required access and construction permits from the City & County of Denver prior to initiating work along City right of way. Contractor shall submit Traffic Control Plans (TCP) 2 weeks prior to work for street occupancy permits and street cut permits.

All lane closures shall be subject to the approval of the Engineer. Requests for such lane closures shall be made at least 2 weeks in advance of the time the lane closure is to be implemented. Lane closures will not be allowed to remain unless utilized in continuum for the duration of each working period.

Two-way traffic shall be maintained on all streets at all times, via flagging if necessary for closures of less than one day.

END OF SECTION

UTILITIES

The known utilities within the limits of this project are:

UTILITY	CONTACT/EMAIL	PHONE/FAX
CDOT Utilities – Region 1 18500 E. Colfax Avenue Aurora, CO 80011	Tracy Vance, Asst. Utility Engineer Tracy.Vance@dot.state.co.us	303-365-7309
CenturyLink Communications 9750 East Costilla Avenue, Room 201 Englewood, CO 80112	Andy Devine Andy.devine@centurylink.com	303-792-6298
Xcel Energy-Street Lighting/Electric Distribution 10001 West Hampden Avenue Lakewood, CO 80227	Robyn Larm Robyn.M.Larm@xcelenergy.com	303-716-2043

The Contractor shall coordinate with the CDOT Project Engineer and any appropriate utility company to facilitate the installation, placement, and relocation of all utilities impacted on this project.

The work described in these plans and specifications requires full cooperation between the Contractor and the utility owners in accordance with Subsection 105.11 in conducting their respective operations, so the utility work can be completed with minimum delay to all parties concerned. Also, in accordance with the plans and specifications, and as directed by the Engineer, the Contractor shall keep each utility owner advised of any work being done to its facility, so that each utility owner can coordinate its inspections for final acceptance of the work with the Engineer.

The Contractor shall coordinate the work with the owners of the utilities impacted by the work. Coordination with utility owners includes, but is not limited to, staking construction features, providing and periodically updating an accurate construction schedule which includes all utility work elements, providing written notification of upcoming required utility work elements as the construction schedule indicates, allowing the expected number of working days for utilities to complete necessary relocation work, conducting necessary utility coordination meetings, applying for and obtaining power or communication services in CDOT’s name and all other necessary accommodations as directed by the Project Engineer. Surveying and/or staking of utility relocations to be performed by the owner shall be the responsibility of the utility owner.

Prior to excavating or performing any earthwork operations, the Contractor shall positively locate all potential conflicts with existing underground utilities and proposed construction, as determined by the Contractor according to proposed methods and schedule of construction. The Contractor shall modify construction plans to avoid existing underground facilities as needed, and as approved by the Engineer. Please note that UNCC marks only its members’ facilities – Other facilities, such as ditches and drainage pipes and CDOT’s fiber optic system may exist, and it is the Contractor’s responsibility to investigate, locate, and avoid such facilities.

The Contractor shall provide traffic control for any utility work by the utility owner expected to be coordinated with construction, as directed by the Engineer.

-2-
UTILITIES

THE WORK LISTED BELOW SHALL BE PERFORMED BY THE CONTRACTOR:

NOTE: The Contractor shall provide written notice to each utility owner, with a copy to the Engineer, immediately prior to each utility work element expected to be coordinated with construction. The number of days of prior notice is noted for each owner.

Contractor coordination with Xcel Energy

Coordinate the relocation of the overhead power lines and poles and any affected segment of underground or aerial electric cables for this project. Confirm the existing locations for all overhead and buried electrical lines within the limits of this project and allow Xcel to precede with the relocations of any overhead or buried power lines that conflicts with the construction of this project. Xcel will relocate the light pole in the island of the CR-93 intersection and the aerial power line that provides electrical service to the light pole. All work will be done by Xcel forces. See the plans for the utility relocation plan. Use caution when working around these lines

The Contractor shall **provide the utility owner written notice 45 days** immediately prior to each utility work element expected to be coordinated with construction.

Contractor coordination with CenturyLink

Confirm the existing locations for all overhead and buried telecommunication lines within the limits of this project. No relocations or other impacts are anticipated. Protect all poles, pedestals, and lines in place. See the plans for the approximate locations. Use caution when working around these lines

The Contractor shall **provide the utility owner written notice 45 days** immediately prior to each utility work element expected to be coordinated with construction.

THE WORK LISTED BELOW WILL BE COMPLETED BY THE UTILITY COMPANIES OR THEIR AGENTS:

Although the Contractor shall provide traffic control for utility work expected to be coordinated with construction, traffic control for utility work outside of typical project work hours will not be permitted unless it is directed by the Engineer.

Xcel Energy

Xcel has a light pole in the island of the CR-93 intersection. There is an overhead power line that crosses to the east side of CR-93 which provides electrical service to this pole. Xcel will relocate the pole and the overhead line to the reconstructed intersection island as shown on the plans. Xcel will accomplish all electric line relocations. This work is expected to take 10 working days to complete and shall be coordinated with the construction of this project.

There is an overhead power line that crosses Red Rocks Park Road 2 approximately 350 feet west of CR-93. There is a power pole on the south side of the road at this location. The pole is outside of the proposed construction limits. No work on this line or pole are anticipated.

Xcel will verify that there is adequate vertical clearance for all overhead crossings in the project area.

-3-
UTILITIES

CenturyLink

No work anticipated. There is an overhead telecommunications line that crosses Red Rocks Park Road 2 approximately 350 feet west of CR-93. There is a power pole and telephone pedestal on the south side of the road at this location. The pole and pedestal are outside of the proposed construction limits.

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavating or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the actual day of notice, prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) at phone no. 811, to have locations of UNCC registered lines marked by member companies. All other underground facilities shall be located by contacting the respective owner. Utility service laterals shall also be located prior to beginning excavation or grading.

The locations of utility facilities as shown on the plan and profile sheets, and herein described, were obtained from the best available information.

All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.

END OF SECTION

Appendix

A

Appendix B



Yeh and Associates, Inc.

Consulting Engineers & Scientists

**Geotechnical Report
Red Rocks Park Road
Bridge Over Mt. Vernon Creek
Jefferson County, Colorado
CDOT Project No. BRO M320-072**

July 17, 2012

YA Project No. 210-207

Prepared for:

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1 Purpose and Scope of Study

This report presents the results of the geotechnical engineering study for the proposed replacement of the bridge over Mt. Vernon Creek in Jefferson County, Colorado (see Figure 1). The existing bridge is located on Red Rocks Park Road (The Park Road), approximately 1.3 miles north of Morrison, Colorado. Red Rocks Park Road is the southern entrance from State Highway 93 for the Red Rocks Amphitheater and Park, owned and operated by the City and County of Denver (CCD).

The purpose of this study was to evaluate the geotechnical characteristics of the subsurface soils at the proposed bridge location and to provide geotechnical recommendations for foundation and pavement design. The scope of the study includes the following tasks:

- A subsurface investigation for the proposed bridge and associated pavements
- Field and laboratory testing of the soils and bedrock encountered.
- Preparation of a report that summarizes our evaluation of the field and laboratory data and presents the results of our geotechnical engineering analyses and recommendations.

2 Proposed Construction

The existing bridge a single span deck supported on concrete abutments to the west and east. We understand that the proposed replacement structure will either be a concrete box culvert or a replacement single span bridge.

3 Site Conditions

The existing bridge spans a small drainage in a narrow valley oriented north-south. The valley is dominated by bedrock outcrops with localized alluvial deposits following the drainage. The existing roadway is slightly sloping to the west, following the topography of the site. The roadway is generally oriented east-west and the creek, which flows north-south, crosses under the bridge at an angle. The creek channel spanned by the proposed structure consists of moderate to steeply sloping banks, dropping approximately 10 to 15 feet to the water level. Mt. Vernon Creek is comprised of a single channel, which meanders throughout the drainage bottom. Some cobbles

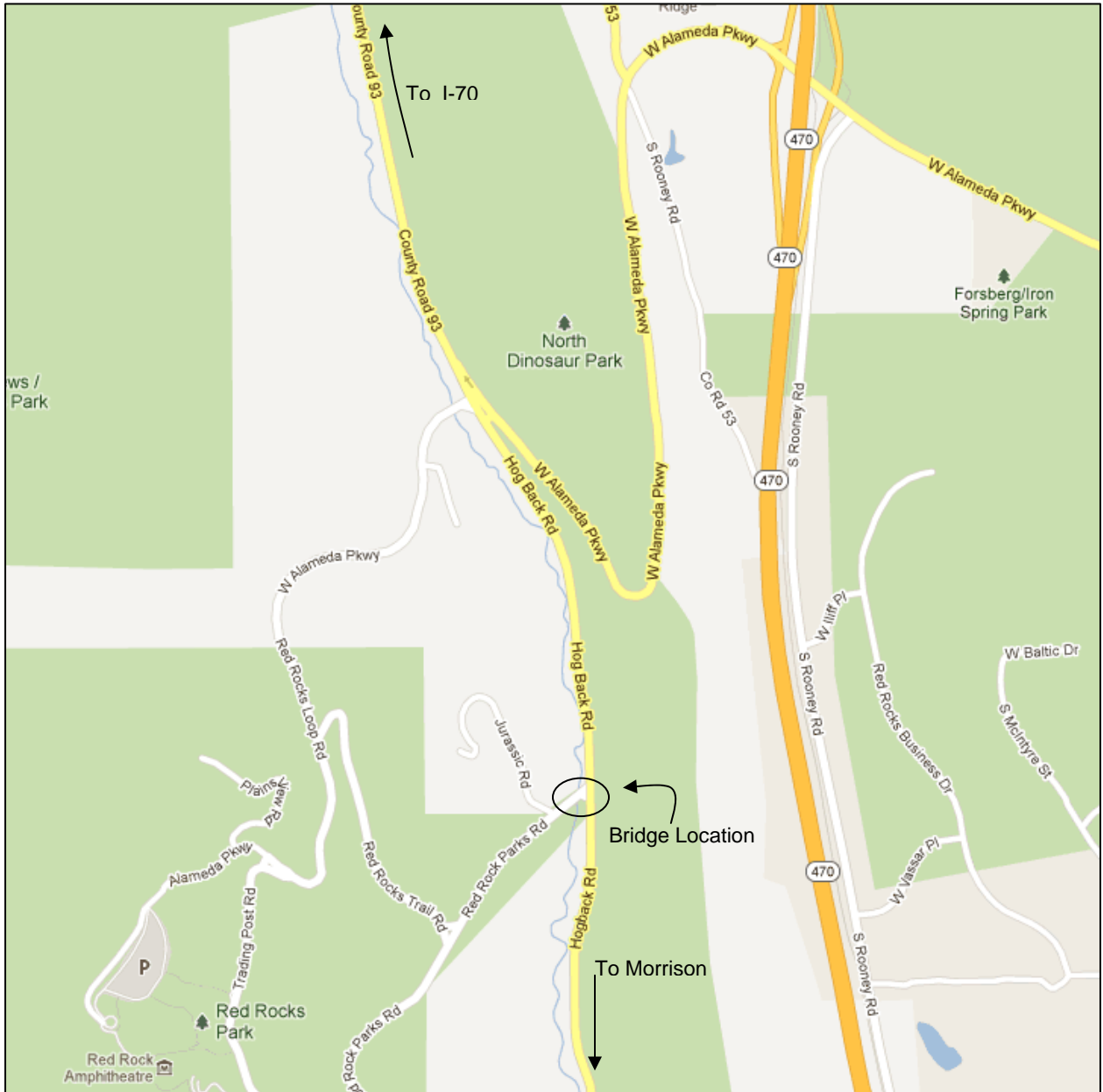


Figure 1. Location of Project.

and boulders were observed, potentially originating from the surrounding bedrock outcrops. The creek flows year-round.

Residential and recreational properties populate the area, with a few buildings near the bridge location.

4 Geology

The geology of the site was investigated by reviewing published geologic maps and reports, analyzing aerial photographs, observing field conditions, and by the analysis of our test borings.

The Park Road lies within a valley formed by erosion of bedrock in the inclined Dakota Hogback. This erosion has resulted in the removal of relatively softer bedrock (claystone and siltstone) leaving the harder cemented bedrock (sandstone and conglomerate). As a result the depth to bedrock can vary greatly due to rock hardness, the methods of erosion and transport, and thickness of bedrock layers.

Soil materials at the site consist of a varying thickness of roadway fill, topsoil, and alluvial deposits. The area is mapped by the USGS as having Piney Creek and Post Piney Creek alluvium, overlying sandstone and claystone bedrock. Bedrock was encountered at the boring locations at depths ranging from 19 feet to 32 feet below existing grade. Bedrock in this area has been mapped as the Morrison Formation of upper Jurassic age. The Morrison Formation has been described as containing claystone, siltstone, and sandstone with lenses of limestone. This description is in general agreement with our subsurface investigation.

5 Subsurface Investigation

An initial subsurface investigation, consisting of geologic reconnaissance and exploratory drilling, was conducted using different equipment on December 6, 2010 and on December 15, 2010. A total of three borings, designated B-1 through B-3, were drilled. Two borings (B-1 and B-2) were drilled at the approximate locations of the proposed abutments and one boring (B-3) was drilled in the creek channel to determine alluvium and bedrock depth.

A subsequent subsurface investigation consisting of 4 borings was completed from October 17 to October 24, 2011. Four additional borings were completed, (two shallow borings to collect subgrade samples for pavement design and one additional boring at either abutment to drill deeper into bedrock in anticipation of possible drilled shaft bridge foundations). Refer to Appendix A, for a map showing the approximate boring locations, and to Appendix B for the Boring Logs.

The bridge abutments and roadway pavement borings were drilled to varying depths utilizing a truck mounted CME 55 drill rig owned and operated by Rock Edge Drilling, located in Westminster, Colorado. The boring in the bottom of the drainage was drilled using a track mounted CME 550 drill rig owned and operated by Precision Sampling, located in Colorado Springs, Colorado. Borings were advanced vertically using 8-inch diameter hollow-stem augers. Penetration resistance measurements were obtained by driving a split spoon California sampler located at the bottom of a length of drill string into the subsurface materials with a 140 pound hammer falling 30 inches. The measurements were obtained at approximate 5-foot intervals. The hammer was lifted and dropped using a cathead and rope or an automatic-trip hydraulic device. The penetration resistance value (N-value as shown on the Boring Logs) is a useful index to the consistency, relative density, or hardness of the materials encountered. Subsurface materials were collected from the California split spoon sampler. The borings were located by pacing from existing features at the site and elevations were approximated based on plans provided. The accuracy of boring locations and elevations should only be assumed to the level implied by this limited survey technique.

The subsurface conditions encountered in the borings are discussed below.

5.1 Artificial Fill

Road fill material was encountered in the borings drilled within the existing road and ranged in depth from 7.5 feet 10.5 feet at the boring locations. The fill consists of brown, loose to medium dense, gravelly sand and sandy gravel and was non-plastic. The asphalt pavement thickness was approximately 7.5 inches and 6 inches at the east and west abutments, respectively.

5.2 Surficial Deposits

Both Piney Creek (Qp) and Post Piney Creek (Qpp) deposits occur in the valley and channel of Mt. Vernon Creek. The alluvium consists of unconsolidated, loose to medium dense silty sand and sandy gravel, with lenses of sandy clay. Some cobbles were encountered within the borings and observed in the surrounding area. This

material extends to depths ranging from 19 to 32 feet below the existing grade at the boring locations.

5.3 Bedrock

The bedrock encountered in the borings consists of sandstone and claystone. The bedrock is reddish-brown to yellow-brown, fresh to slightly weathered, hard to very hard. The sandstone is moderately cemented.

5.4 Groundwater

Due to the proximity of Mt. Vernon Creek, groundwater is shallow at this site. Groundwater depths observed in the borings ranged from 2 to 14 feet below existing grade, which is 2 feet below the elevation of the creek surface. Groundwater conditions were determined and then the borings were immediately backfilled following completion. Groundwater conditions in the study area are likely to vary throughout the year and should be directly influenced by flow amounts in the creek drainage.

6 Laboratory Testing

Soil samples were tested in the Yeh and Associates, Inc. laboratory to determine the classification of the on-site subsurface materials. The testing was conducted in general accordance with recognized test procedures, primarily those of the American Association of State Highway and Transportation Officials (AASHTO) and the American Society for Testing and Materials (ASTM). Laboratory tests performed included sieve analysis, Atterberg limits, natural moisture content, natural dry density, and unconfined compressive strength (See Appendix C, Laboratory Test Results).

The laboratory classifications indicate the subsurface soils at the site consist primarily of silty sand (SM, based on Unified Soil Classification System (USCS)), with some well graded sand (SW-SM) and gravel (GW) and poorly graded/silty gravel (GP-GM), or A-1 to A-4 materials based on AASHTO classifications. The subsurface materials tested were predominantly non-plastic.

The subsurface bedrock at the site consists primarily of sandstone and sandy claystone sedimentary rock.

7 Site Grading Recommendations

We did not observe signs of slope instability during our field investigation. Major stability problems are not anticipated if site grading is carefully designed and constructed. We recommend that permanent fills not exceed 30 feet in height, and fill slopes in the project area should not be steeper than 3 horizontal to 1 vertical. Rock slopes, such as angular rip rap can be placed at a steeper slope angle up to a maximum 1.5 horizontal to 1 vertical depending on the size of the rock and the degree of angularity. Because of the high water levels, excavations may need to be shored or braced and dewatered.

Prior to placement of fill, the existing ground surface should be prepared by removing all organic material or other deleterious materials and scarifying the resulting ground surface to a depth of 12 inches. The scarified soils should be recompacted to a dry density of at least 95 percent of the maximum dry density determined by a modified Proctor test (AASHTO T180), at a moisture content within 2 percent of the optimum moisture content.

We understand that the bridge deck grade may be raised based on the hydraulic design criteria. Thus, it is anticipated that fill will be required to attain the proposed road grades. Fill materials adjacent to the bridge abutments and retaining walls should consist of Class 1 Structure Backfill placed and compacted per the latest edition of the Colorado Department of Transportation's (CDOT) Standard Specifications for Road and Bridge Construction Section 206 and the applicable CDOT bridge standards. Embankment fill materials should consist of suitable materials, placed and compacted per CDOT's Section 203.

Good surface drainage should be provided around all excavations and fills to direct surface runoff away from the work. Fill slopes, cut slopes and other stripped areas should be protected against erosion by re-vegetation or other methods.

All site grading should conform to the CDOT Standard Specifications for Road and Bridge Construction. Fill should not contain organic matter or other deleterious material. Most of the granular, native materials encountered within the borings are suitable for use as compacted fill.

8 Bridge Foundation Recommendations

Based on the results of our geotechnical investigation, the bridge abutments may be supported on either deep foundations founded in bedrock or shallow spread footings placed on medium dense alluvium.

Specific design recommendations for drilled shafts, driven H-piles and spread footings are presented in the following subsections of this report. Generally, the estimates for soil and bedrock response under imposed loads are interpreted from blow count data (number of blows of a 140-lb hammer falling 30 inches to drive a split spoon sampler 12-inches into the ground) and material descriptions contained in the logs of individual boreholes. The average reported blow counts (or N-values) have not been corrected for sampler size (a 2 inch I.D. California sampler was used for some of the penetration tests), hammer efficiency or overburden pressure.

The recommendations contained herein generally comply with the 2010 AASHTO Bridge Design Specifications, Load-Resistance Factor Design, 5th Edition. If the final alignment of these structures varies from the assumptions presented herein, we should be notified immediately to evaluate our foundation recommendations.

8.1 Drilled Shafts

Drilled shafts may be selected to support either abutments and/or piers. If individual drilled shafts support pier columns thereby providing a limited degree of foundation redundancy, we recommend (in addition to the prescribed quality control construction inspection) that each drilled shaft excavation be carefully observed by a geotechnical representative capable of identifying weathered lenses in the bedrock and estimating their overall thickness. Drilled shafts encountering weathered sandy shale at the anticipated foundation support elevations shall be extended an additional depth equal to or greater than the thickness of the sum of the soft lenses. The bottom of all drilled shafts should be keyed into hard bedrock.

We recommend nominal (unfactored) bearing capacity values of 8.0 kips per square foot (ksf) for side shear and 110 ksf for end bearing for drilled shafts socketed into the claystone and sandstone bedrock at the proposed bridge location. Bedrock resistance factors for end bearing and side shear are 0.55 and 0.60, respectively, per

AASHTO for Intermediate Geomaterials (IGMs). Factored bearing capacity values are the product of the nominal resistance and resistance factors. Adjustments to the load and/or resistance factors may be required per AASHTO if the drilled shafts are considered non-redundant (see AASHTO 10.5.5.2.4, “Drilled Shafts”). The side shear resistance developed in the overburden soils is neglected. The effects of embankment settlement on the deep foundations at the abutments are expected to produce little to no downdrag.

General recommendations pertaining to the drilled shafts include:

1. The minimum penetration of the drilled shafts into bedrock shall be 10 feet to ensure adequate localized support. The approximate depths to bedrock are presented below in Table 1.

Table 1. Bedrock depth below ground surface (from boreholes)

Foundation Unit	Bedrock (feet)	
	Depth from Ground Surface	Approximate Elevation
East Abutment (from road grade)	19	5977
Middle of Channel	19	5962
West Abutment (from road grade)	32	5958

2. One shaft diameter shall be added to the shaft length determined based on the recommended ultimate end bearing and side shear values for bedrock, per AASHTO.
3. The installation of drilled shafts will require casing and possibly dewatering due to the observed shallow groundwater conditions.

8.2 Driven H-Piles

For steel piles driven into bedrock, the following general recommendations apply:

1. Driven H-piles piles should be installed per Section 502 of the CDOT Standard Specifications for Road and Bridge Construction, 2011 edition.

2. H-piles should be driven to virtual refusal (10 blows per inch) into the underlying bedrock. It is anticipated that virtual refusal will be achieved with a bedrock embedment between 2 to 10 feet into bedrock.
3. Using Load Resistance Factor Design (LRFD) criteria, a combined end bearing and skin friction nominal bearing capacity equal to 24 kips per square inch (ksi) (Grade 36 steel) multiplied by the cross sectional area of the pile, can be used for H-piles driven to refusal into bedrock. For Grade 50 steel, the nominal bearing capacity is 33 ksi multiplied by the cross sectional area of the pile. The “factored” bearing resistance is the product of the nominal bearing capacity and a 0.45 resistance factor. At the discretion of the bridge design engineer, the resistance factor may be increased (up to 0.65) if field testing techniques are used during construction (i.e. pile driving analyzer with subsequent stress wave signal matching).
4. After selection of the pile size and type, a wave equation analysis should be performed for the anticipated subsurface conditions using a computer program for the dynamic analysis of pile driving (WEAP). The WEAP analysis will indicate the minimum size of hammer in terms of energy rating that the Contractor should provide to successfully mobilize the required pile bearing resistance. The minimum hammer size should be written into the contract as a special provision along with the Contractor’s quality control monitoring requirements to be performed. The WEAP analysis can also estimate both compressive and tensile driving stresses and the pile penetration resistance at the end-of-driving. The piles shall be installed to a driving resistance determined by the wave equation analysis.
5. For design of uplift capacity of the H-pile installed for the abutments, we recommend that the uplift capacity be assumed to be 20 percent of the pile capacity, provided the H-piles penetrate at least 5 feet into bedrock.
6. Based on the subsurface soil conditions encountered in the borings and the minimal additional embankment fill required at the abutments, it is anticipated that negative skin friction on H-piles will be minimal.

7. Groups of piles required to support concentrated loads may require appropriate reductions of the axial and lateral capacities based on the effective envelope of the pile group.
8. H-piles should be driven with protective cast-steel pile points to protect the flanges from damage.
9. Because a soil sample test result for resistivity was less than 2,000 ohm-centimeters, a corrosion protocol consisting of a protective coating or sacrificial steel may be required.
10. The pile-driving hammer shall be configured to deliver maximum energy at the end-of-driving unless directed otherwise.
11. Modification to the driving criteria may occur during construction pending evaluation of the dynamic monitoring data collected with the pile driving analyzer, if used.
12. A representative of the geotechnical engineer should observe pile-driving activities on a full-time basis. Piles should be observed and checked for crimping, buckling and alignment. Also a record should be kept of embedment depths and penetration resistances for each pile.

8.3 Lateral Support

The software input parameters presented in Table 2 are recommended for use with the computer program LPILE to develop the p-y soil models used to determine the drilled shaft and H-pile response to lateral loading. The design should consider removing soils from the model that are prone to future disturbance such as scour, utility excavations or frost heave, as appropriate. The water table referenced in Table 2 should be the water surface elevation pertaining to the flood case under consideration. For example, using the design event (typically 50 or 100 year flood frequency) the water surface elevation pertaining to design event should be used for estimating the lateral response of the deep foundation elements. For the extreme event (typically a 500 year flood frequency) the corresponding higher water surface elevation would be used.

Table 2: LPILE Parameters

Material Type	LPILE Soil Criteria	Unit Weight, γ (pcf)	Friction Angle ϕ (degrees)	Cohesion c (psf)	Horizontal Subgrade Reaction K_s (pci)	ϵ_{50}
Embankment Fill (above water table)	Sand (Reese)	120	35°	-	90	-
Embankment Fill (below water table)	Sand (Reese)	58	35°	-	60	-
Alluvial Soil (above water table)	Sand (Reese)	125	37°	-	200	-
Alluvial Soil (below water table)	Sand (Reese)	62	37°	-	100	-
Claystone and Sandstone Bedrock	Stiff Clay w/o free water (Reese)	135	-	8,000	-	0.004

8.4 Spread Footing Foundations

Shallow reinforced concrete spread footing foundations may be used to support the bridge abutments, wing walls and/or retaining walls. The bottom of spread footing elevations should be placed on medium dense, native granular soil at or below the critical scour elevations and frost depths. The frost depth is 36 inches per the City of Denver and Jefferson County residential building codes¹.

Resistance to sliding at the bottom of the spread footing can be calculated based on a coefficient of friction or adhesion at the interface between cast-in-place concrete (CIP) or Mechanically Stabilized Earth (MSE) and the native foundation material. We recommend nominal coefficient of friction of 0.55 for characterizing the interface shear between CIP or MSE and foundation soil (which corresponds to a friction angle of 29 degrees at the interface). The resistance factor per AASHTO Table 11.5.6-1, is 1.0 for CIP or MSE walls. Passive soil resistance due to the minimum embedment requirements of the retaining wall should be conservatively ignored.

The bearing capacity check and settlement estimates for a CIP or MSE shallow spread footing foundations are provided by determining the minimum footing widths

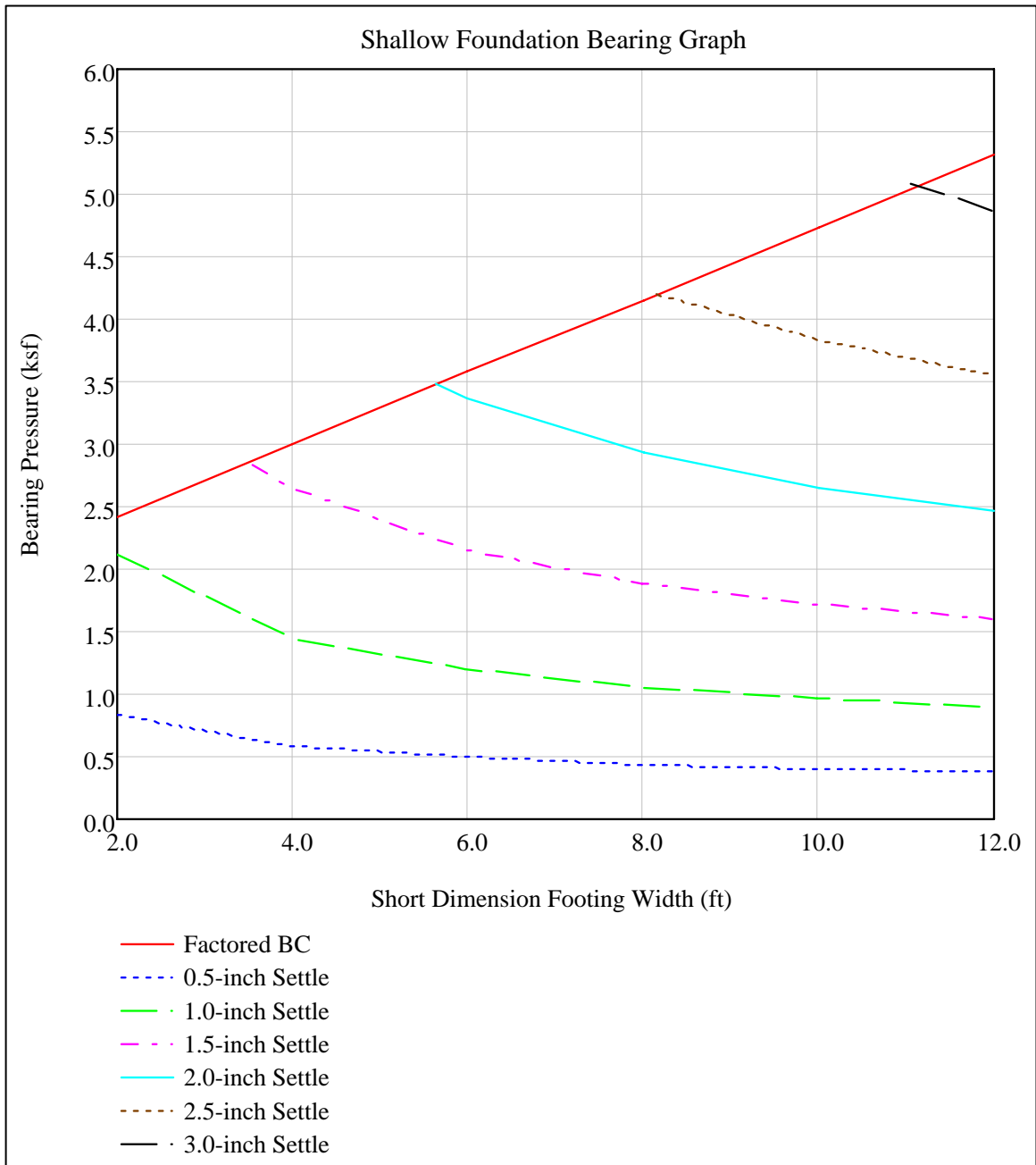
¹ 2009 Jefferson County Residential Code Supplement and 2008 Denver Amendments to 2006 IBC

shown on Graph 1. The bearing capacity and settlement estimates on Graph 1 consider that the foundation soils are saturated and include a bearing capacity resistance factor of 0.45. The graph may be used as follows:

To complete a bearing capacity check, first estimate a spread footing width, L' , in feet, that has been reduced for eccentricity, $L'=L-2e$, where L is the actual width of the spread footing and e (eccentricity) is the distance from the center of the spread footing to the vertical soil reaction force for a given Strength Limit State. Then determine the resulting factored load (in ksf units) from the "Factored BC" line. Then compare the factored bearing capacity to the factored load over the same L' . The factored loads should be less than or equal to the factored bearing capacity. If the factored bearing capacity is smaller than the factored load, select a larger spread footing width and repeat the process until the factored bearing capacity is greater than or equal to the factored load.

For estimating settlement of the shallow foundation, calculate the unfactored load (in ksf units) for a given Service Limit State and using the reduced footing width, L' , which resulted from the bearing capacity check, estimate the settlement from the graph. If the settlement is too high for the structure, then readjust the unfactored loads using a wider footing until an acceptable settlement is estimated. (Note that readjusting the footing width may require an additional bearing capacity check.)

The spread footing widths required to satisfy sliding, bearing capacity, overturning and tolerable settlement should be compared with one another and the greatest width selected as the design spread footing width.



Graph 1. Shallow Foundation Bearing Capacity Check and Settlement Estimate

9 Other Design Considerations

9.1 Lateral Earth Pressures

Abutment wingwalls and other retaining wall structures should be designed to resist lateral earth pressures. Walls that are able to rotate to mobilize shear strength of the retained soils can be designed for active earth pressure conditions. Wall rotation on the order of 1 to 2 percent of the wall height is typically sufficient.

For the active condition, the walls can be designed using an equivalent fluid density of 35 pcf assuming that the backfill is a Class 1 Structure Backfill behind the walls and the backslope is horizontal. If walls are braced and rotation is restricted, an equivalent fluid density of 60 pcf should be used. Passive earth pressure should be conservatively ignored.

The lateral earth pressure applied against abutments and wingwalls may be reduced up to 50% (maximum) by constructing mechanically stabilized backfill (MSB) behind the wall and maintaining a minimum 1.5 inch gap between the face of the MSB and the back of the abutment or wingwall. Refer to CDOT's bridge drawing worksheet B-206-M1 for information on MSB. Note that the 1.0 inch minimum gap shown on the worksheet must be increased to a 1.5 inch minimum for reducing lateral earth pressure.

Retaining wall designs should consider the influence of surcharge loading such as construction equipment. Retaining walls should be designed with subsurface drains or weep holes to prevent the buildup of hydrostatic pressures.

9.2 Water-Soluble Sulfates

The concentration of water-soluble sulfates measured in samples obtained from the exploratory borings ranges from 0.003 to 0.005 percent. These concentrations of water-soluble sulfates represent a Class 0 degree of sulfate attack on concrete exposed to these geologic materials. The degree of attack is based on a range of Class 0 (negligible) to Class 3 (very severe) as described in the American Concrete Institute (ACI) Standard 201.2R, "Guide to Durable Concrete" and CDOT Standard Provisions, Section 601, "Structural Concrete."

Based on these sulfate tests, the soils at the bridge structure location present a very low potential for sulfate attack on concrete. Therefore, sulfate resistant concrete mix designs are not required, per ACI and CDOT.

9.3 Corrosion

Test results on acidity of the samples indicated pH levels in the range of 7.6 to 8.1 and a soil resistivity range from 1821 to 3425 ohm centimeters. Based on the test results (less than 2,000 ohm-centimeters), the durability of steel may be adversely affected when exposed to the on-site soils, per AASHTO Section 10.7.5. For example, if driven steel piles are selected as a foundation option a corrosion protocol consisting of protective coating or sacrificial steel may be required.

9.4 Seismicity

Using the software program AASHTO GM-2.1² to characterize a seismic event with a 7 percent probability of exceedance in 75 years at the Red Rocks Bridge location (39.67 degrees latitude, 105.19 degrees longitude) results in a Peak Ground Acceleration coefficient (PGA), a 0.2 second, Short Period Spectral Acceleration Coefficient (S_s) and a 1.0 second, Long Period Spectral Acceleration Coefficient (S_l) of 0.063, 0.133 and 0.035, respectively. The soil and bedrock conditions indicate that the location is a Site Class "C" per AASHTO.

10 Pavement Thickness Recommendations

10.1 Traffic Loading

Traffic loading for the Red Rocks approaches was calculated from information supplied by Red Rocks Park, Jefferson County, Jacobs, and the CDOT web page. E-mails from the various entities are attached in Appendix D.

Traffic using this bridge is from two sources; daily traffic such as visitors in cars and pick-ups and various service trucks such as trash collection, snow plows, and

² Leyendecker, E., Frankel, A., and Rukstales, K., 2007, *Seismic Design Parameters for AASHTO Guide Specifications for LRFD Seismic Bridge Design*, National Seismic Hazard Mapping Project, United States Geological Survey, Department of the Interior, Washington, D.C.

delivery trucks and event traffic consisting of cars, busses, and trucks such as delivery trucks, event trucks (semis) and attendees in busses and cars.

The calculation of 20-Year Equivalent Single Axle Loads (ESALs) is presented in Appendix D and summarized in Table 3.

10.2 Determination of Subgrade Resilient Modulus (M_R)

Two borings (B-1 and B-4) were drilled to evaluate the pavement subgrade characteristics. Based on the laboratory test results, the subgrade soils from B-1 were classified as A-6(3) and B-4 was classified as A-2-4(0). The bulk sample from boring B-1 was tested for unconfined compressive strength with a result of 1985 psf and the bulk samples from B-4 was tested for R-value in accordance with AASHTO T199 with a resulting R-value of 6. Using the MGPEC program, the unconfined compressive strength yielded a resilient modulus of 3,321 psi, and using equations 2.1 and 2.2 from the 2012 CDOT Pavement Design Manual, an R-value of 6 yields a resilient modulus of 3,126 psi. These values were entered into the respective pavement thickness design programs to calculate the minimum pavement thickness.

Following the MGPEC Design Standards, the unconfined compressive strength was used to determine the minimum pavement thickness and then was checked using the pavement design computer program DARWin, Version 3.1, was employed to determine the minimum required pavement thickness for the composite flexible pavement design using aggregate base course (ABC) and Hot Mix Asphalt (HMA). Both programs follow the 1993 AASHTO Pavement Design Guidelines. The pavement design program outputs are presented in Appendix D.

10.3 Pavement Thickness Recommendations

We have provided a composite design using a combination of Hot Mix Asphalt (HMA) and aggregate base course (ABC), Class 6. The asphalt pavement section thickness was determined in accordance with the 2007 CDOT Pavement Design Manual. The parameters used in the pavement design are shown below in Table 3.

Table 3 – Pavement Design Parameters

Hot Mix Asphalt (HMA) Composite Design Inputs			
Design ESALs	100,105	Reliability Level, %	90
Initial Serviceability	4.5	Overall Standard Deviation	0.44
Terminal Serviceability	2.5	Structural Coefficient – Asphalt Mix	0.44
Design Subgrade R-value	6	Design Unconfined Compressive Strength, psf	1,985
CDOT Design Resilient Modulus, psi	3,126	MGPEC Design Resilient Modulus, psi	3,201

The DARWin calculations that support the minimum pavement thickness recommendations are presented in Appendix D and summarized below.

The MGPEC output calculations recommend 4.0 inches of HMA over 8 inches of stabilized subgrade. Stabilized subgrade is not easily constructed in a structure approach, so we recommend an alternate stabilization plan as follows; Table 5.3.3 of the MGPEC Standards would allow the substitution of 4.5 inches of HMA over 9 inches of ABC. Since the structural layer coefficient for ABC is 0.15, three inches of ABC can be substituted for 1 inch of HMA (structural layer coefficient - 0.44), so the designs can be considered equivalent with 5.5 inches of HMA and 6 inches of ABC as indicated in Table 4.

Table 4 – Pavement Thickness Recommendations

Traffic Design Criteria Assumptions	Thickness Recommendations
MGPEC Program Output Adjusted to use ABC.	5.5" HMA
	6.0" ABC
CDOT Program Output	5.5" HMA
	6.0" ABC

10.4 Hot Mix Asphalt Type

We recommend that the asphalt mix for this project meet the specifications for Grading S (75) in accordance with CDOT specifications. The SuperPave Gyrotory Revolution (Ndes) for the asphalt mixes should be at 75 gyrations. We also recommend that unmodified performance grade asphalt binder meeting the CDOT requirements for performance grade PG 58-28 be used. PG 58-28 is the recommended 98% reliability binder for this area based on the output from the Long Term Pavement Performance Program (LTPP), which was developed partly from historic weather data for this area. The LTPP program output is presented in Appendix D. HMA pavement should be placed in lifts not exceeding 3 inches.

Aggregates for hot plant mix bituminous pavement should be of uniform quality, composed of clean, hard, durable particles of crushed stone, gravel, or slag. Excess of fine material should be wasted before crushing. The specified gradation for a Grading S (75) is shown below.

Table 4 – Gradation Specifications for Grading S (75)

Sieve Size	Percent Passing
1 ½"	
1"	100
¾"	90-100
½"	
⅜"	
#4	
#8	23-49
#30	
#200	2-8

10.5 Pavement Subgrade Preparation

Prior to placement of base course or other fill material, the in-place soils should be scarified to a minimum depth of 6 inches and recompact to a dry density of at least 95 percent of the maximum dry density determined by a modified Proctor test (AASHTO T180), at a moisture content within 2 percent of the optimum moisture content.

All fill placed within 2 feet of the pavement section should consist of soils having a minimum R-value of 6.

Aggregate base course should conform to CDOT ABC Class 6 specification and have a minimum R-value of 78. The pavement subgrade should be proof rolled with a heavily loaded pneumatic-tire vehicle. Areas that deform more than 0.5 inch under heavy wheel loads should be removed, replaced and recompact to achieve a stable subgrade prior to paving. We also recommend proof rolling of the subgrade soils prior to placement of the aggregate base course. Proof rolling and subgrade compaction tests should be observed and reviewed by a representative of the geotechnical engineer prior to asphalt paving.

10.6 Drainage Considerations

The collection and diversion of surface drainage away from paved areas is critical to the satisfactory performance of the pavement. Proper drainage design should include prevention of ponding of water on or immediately adjacent to pavement areas. Concentrated runoff should be avoided in areas susceptible to erosion and slope instability.

11 Limitations

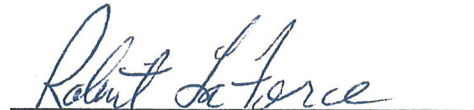
This report was prepared for the exclusive use of the City of Denver and their consultants for specific use on the Red Rocks Park Road Bridge project. The work was performed in accordance with generally accepted geotechnical engineering practices. No warranty, expressed or implied, is made. The conclusions and recommendations made are based upon the data obtained and described in this report, including the subsurface investigation. This investigation indicates the subsurface

conditions only at the specific locations and to the depths specified when the data was obtained. This data may not necessarily reflect variations in the subsurface conditions and water levels occurring at other locations. Also variations in the data may occur with the passage of time. If variations in the subsurface conditions from those described in this report are discovered, then the recommendations contained in this report must be reevaluated. If during construction, fill, soil, rock or water conditions appear to be different from those described herein, this office should be advised at once so reevaluation of the recommendations may be made. We recommend on-site observation of excavations and foundation bearing strata by a representative of the geotechnical engineer.

Respectfully Submitted,
YEH AND ASSOCIATES, INC.

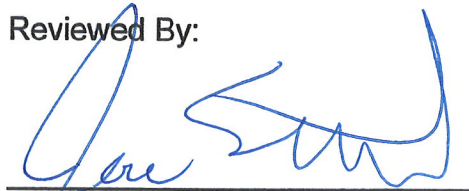


Paul R. Macklin, P.E.
Senior Project Manager



Robert LaForce, P.E.
Senior Pavement Engineer

Reviewed By:



Jere A. Strickland, P.E.
Senior Project Manager

References

AASHTO LRFD Bridge Design Specifications (2010), 5th Edition, American Association of State Highway and Transportation Officials, Washington, DC.

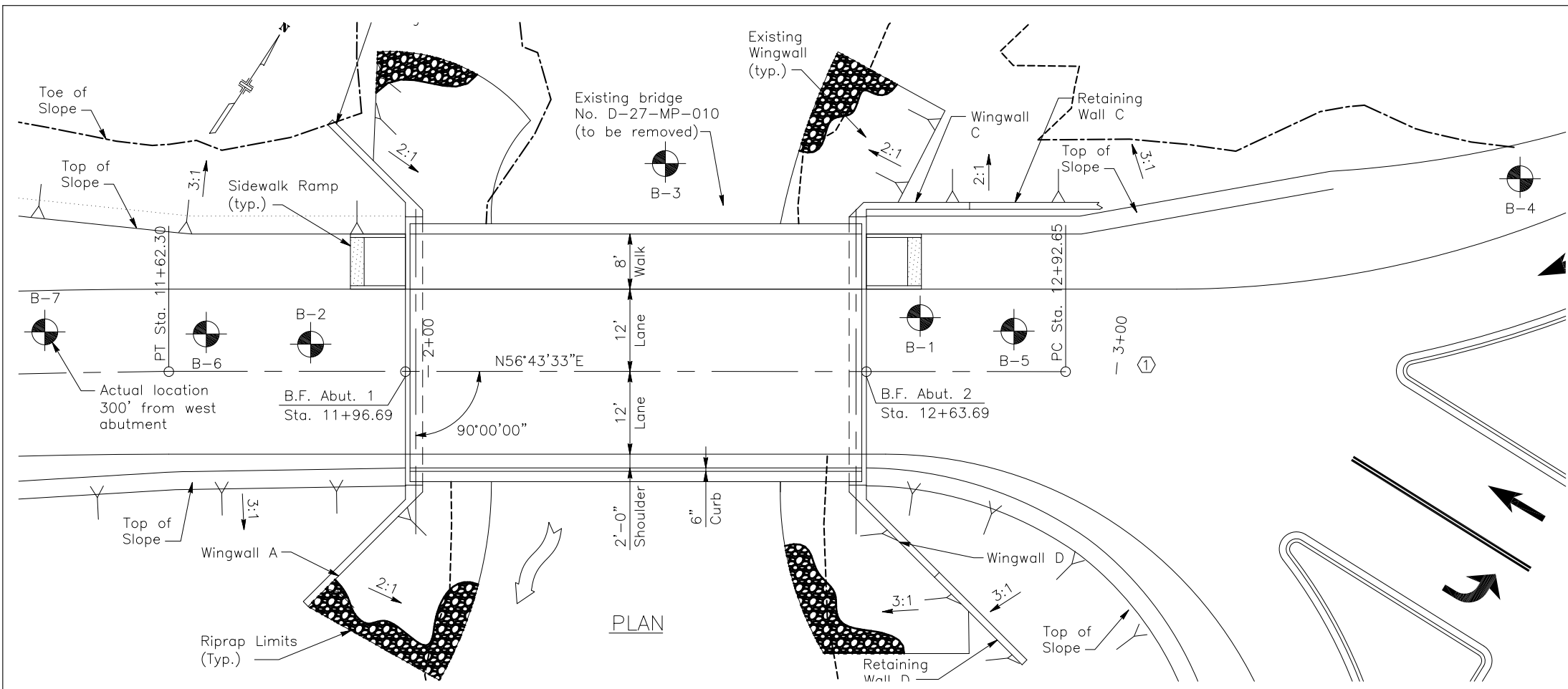
American Concrete Institute (ACI) (2006), *ACI Manual of Concrete Practice*, Part 1, Section 201.2R.

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Tweto, O., 1979, "Geologic Map of Colorado", United States Geologic Survey, Department of the Interior.

APPENDIX A

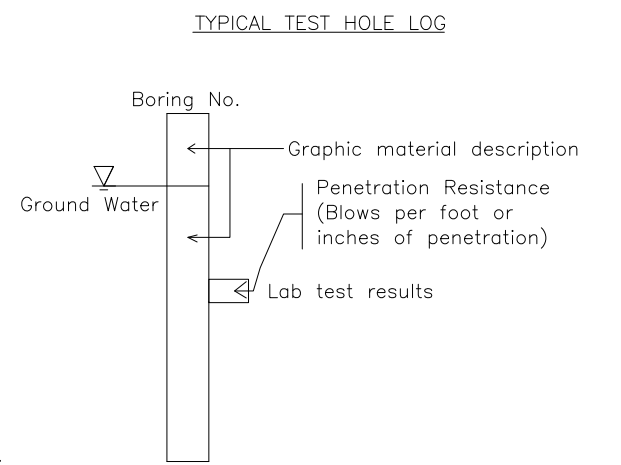
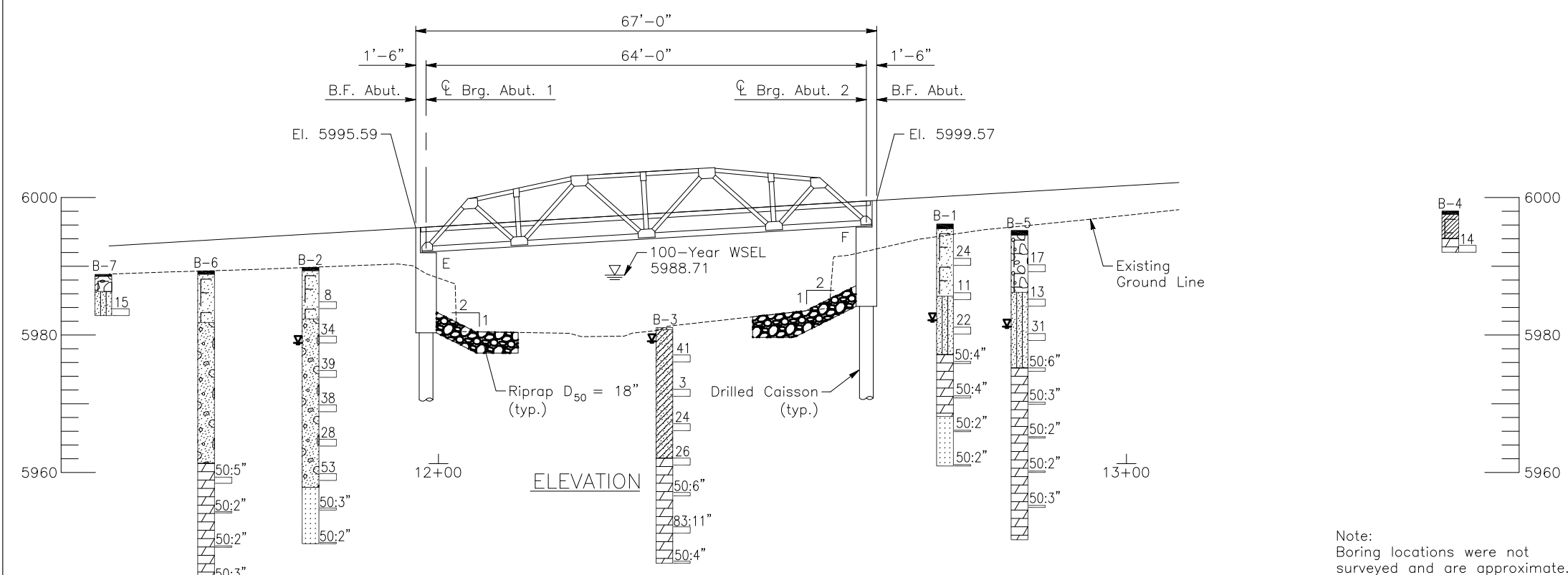
Engineering Geology Sheet



LEGEND

	Asphalt		Fill with Sand as major soil
	USCS Silty Sand		USCS Poorly-graded Gravelly Sand
	Topsoil		USCS Clayey Sand
	Fill with Clay as major soil		Fill with Gravel as major soil
	Fill with Boulders and cobbles as main material		Claystone
	Sandstone		

Approximate Boring Location



Note:
Boring locations were not surveyed and are approximate.

Computer File Information

Creation Date:	05/04/11	Initials:	BDC
Last Modification Date:		Initials:	
Full Path:	\\		
Drawing File Name:	RedRocks Eng Geo.dwg		
Acad Ver.	2010	Scale:	As Shown
		Units:	English

Sheet Revisions

(R-)	/	/	.	.
(R-)	/	/	.	.
(R-)	/	/	.	.
(R-)	/	/	.	.
(R-)	/	/	.	.

City & County of Denver

Yeh and Associates, Inc.
Consulting Engineers & Scientists

As Constructed

No Revisions:	/	/	/
Revised:	/	/	/
Void:	/	/	/

**RED ROCKS PARK ROAD (RD. 2)
OVER MOUNT VERNON CREEK
ENGINEERING GEOLOGY**

Designer: P. Macklin
Detailer: M. Walz
Sheet Subset: GEO

Project No./Code

CE00896

Structure Numbers

Subset Sheets: of

Sheet Number

APPENDIX B

Boring Logs



Boring Began: 12/6/2010
 Drilling Method: Solid-Stem Auger
 Drill: CME 55
 Driller: Rock Edge
 Logged By: T. Hansen
 Final By: T. Hansen
 Inclination: Vertical

Completed: 12/6/2010
 Drill Bit:
 Casing:
 Weather:

Total Depth: 35.2 ft
 Ground Elevation: 5996.0 ft
 Location: East Bridge Abutment Sta 2+86, Off 8' Lt
 Coordinates: N: 1.0 E: 1.0

Ground Water Notes:

Depth	∇	14.0 ft	-	-	-
Date		12/6/10	-	-	-
Time		-	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
5995							0.0 - 0.7 ft. Asphalt Pavement 7.5 inches.	
5990	5				13/11	24	0.7 - 10.5 ft. gravelly SAND FILL , brown, no plasticity, damp to moist, medium dense.	MC= 4.2 % DD= 104.5 pcf #200= 11 % LL= NV PL= NP PI= NP AASHTO: A-1-a (0) USCS: GP-GM
5985	10				5/6	11	10.5 - 19.0 ft. silty SAND with gravel, brown, no plasticity, moist to wet, medium dense.	MC= 12.9 % DD= 111.1 pcf #200= 26 % LL= NV PL= NP PI= NP AASHTO: A-2-4 (0) USCS: SM
5980	15				4/18	22		MC= 16.8 % DD= 106.1 pcf #200= 9 % LL= NV PL= NP PI= NP AASHTO: A-1-b (0) USCS: SW_SM
5975	20				50:4"	50:4"	19.0 - 28.0 ft. SANDY CLAYSTONE , reddish brown, very hard, low to medium plasticity, damp.	MC= 14.3 % DD= 118.7 pcf #200= 46 % LL= 27 PL= 13 PI= 14 UCCS= 1985 psi AASHTO: A-6 (3) USCS: SC
5970	25				50:4"	50:4"	28.0 - 35.2 ft. SANDSTONE , reddish brown, very hard, no to low plasticity, damp, moderately	

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Rock	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in	N			
5965	30				50.2"	50.2"		cemented.	
5960	35				50.2"	50.2"		Bottom of Hole at 35.2 ft.	
5955	40								
5950	45								
5945	50								
5940	55								
5935	60								

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 12/6/2010
Drilling Method: Solid-Stem Auger
Drill: CME 55
Driller: Rock Edge
Logged By: T. Hansen
Final By: T. Hansen
Inclination: Vertical

Completed: 12/6/2010
Drill Bit:
Casing:
Weather:

Total Depth: 40.2 ft
Ground Elevation: 5990.0 ft
Location: West Bridge Abutment Sta 1+83, Off 4' Lt
Coordinates: N: 1.0 E: 2.0


Ground Water Notes:

Depth	▽ 11.0 ft	-	-	-
Date	12/6/10	-	-	-
Time	-	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in N			
							0.0 - 0.5 ft. Asphalt Pavement 6 inches.	
							0.5 - 7.5 ft. gravelly SAND FILL, brown, low plasticity, damp to moist, loose to medium dense.	
5985	5				4/4	8		MC= 13 % DD= 108.9 pcf #200= 40 % LL= NV PL= NP PI= NP AASHTO: A-4 (0) USCS: SM
5980	10				18/16	34		
5975	15				21/18	39		MC= 5.5 % DD= 116.9 pcf #200= 4 % LL= NV PL= NP PI= NP AASHTO: A-1-a (0) USCS: GW
5970	20				20/18	38		MC= 5.6 % DD= 138.5 pcf #200= 5 % LL= NV PL= NP PI= NP AASHTO: A-1-a (0) USCS: GW
5965	25				14/14	28		MC= 9.1 % DD= 125.9 pcf #200= 13 % LL= NV PL= NP PI= NP AASHTO: A-1-b (0) USCS: SM

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Rock	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in	N			
5960	30				38/15	53		32.0 - 40.2 ft. SANDSTONE , yellow, very hard, no to low plasticity, damp, moderately cemented.	
5955	35				50:3"	50:3"			
5950	40				50:2"	50:2"		Bottom of Hole at 40.2 ft.	
5945	45								
5940	50								
5935	55								
5930	60								

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 12/15/2010 Completed: 12/15/2010 Total Depth: 34.3 ft
 Drilling Method: Hollow-Stem Auger Drill Bit: Ground Elevation: 5981.0 ft
 Drill: CME 55 Rubber Track Casing: Location: Creek Bottom Sta 2+34, Off 30' Lt
 Driller: Precision Sampling Weather: Coordinates: N: 1.0 E: 3.0

Logged By: T. Hansen	Ground Water Notes:			
Final By: T. Hansen	Depth	2.0 ft	-	-
Inclination: Vertical	Date	12/15/10	-	-
	Time	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
5980							0.0 - 0.3 ft. Topsoil 3 inches.	
	5				27/14	41	0.3 - 19.0 ft. clayey SAND with gravel, brown, low to medium plasticity, wet, dense to very dense.	
5975								
	10				1/2	3		
5970								
	15				4/20	24		
5965								
	20				12/14	26	19.0 - 34.3 ft. CLAYSTONE, reddish brown, firm to very hard, damp, waxy, medium plasticity.	
5960								
	25				50:6"	50:6"		
5955								

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Rock	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in	N			
5950	30				83:11"	83:11"			
5945	35				50:4"	50:4"		Bottom of Hole at 34.3 ft.	
5940	40								
5935	45								
5930	50								
5925	55								
5920	60								

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 10/17/2011
 Drilling Method: Solid-Stem Auger
 Drill: CME 55
 Driller: Rock Edge

Completed: 10/24/2011
 Drill Bit:
 Casing:
 Weather:

Total Depth: 6.0 ft
 Ground Elevation: 0.0 ft
 Location: East Pavement
 Coordinates: N: 1.0 E: 4.0

Logged By: T. Hansen
 Final By: T. Hansen
 Inclination: Vertical

Ground Water Notes:

Depth	▽	Dry	-	-	-
Date		10/24/11	-	-	-
Time		-	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
							0.0 - 0.5 ft. Asphalt Pavement 6 inches.	
							0.5 - 4.0 ft. sandy CLAY FILL , brown to dark brown, moist, stiff to very stiff.	MC= 7.8 % #200= 27 % LL= 24 PL= 14 PI= 10 pH= 8.1 S= 0.005 % R-Value= 6 Re= 1821 ohms-cm AASHTO: A-2-4 (0) USCS: SC MC= 21 % DD= 84.8 pcf #200= 76 % LL= 49 PL= 20 PI= 29 AASHTO: A-7-6 (22) USCS: CL
-5	5				7/7	14	4.0 - 6.0 ft. SANDY CLAYSTONE , brown, decomposed, soft, weakly cemented, moist, very stiff, residuum.	
							Bottom of Hole at 6.0 ft.	

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 10/24/2011 Completed: 10/24/2011 Total Depth: 45.0 ft
 Drilling Method: Solid-Stem Auger Drill Bit: Ground Elevation: 5995.0 ft
 Drill: CME 55 Casing: Location: East Bridge Abutment Sta 2+80, Off 6' Lt
 Driller: Rock Edge Weather: Coordinates: N: 1.0 E: 5.0

Logged By: T. Hansen	Ground Water Notes:			
Final By: T. Hansen	Depth	14.0 ft	-	-
Inclination: Vertical	Date	10/24/11	-	-
	Time	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
							0.0 - 0.7 ft. Asphalt Pavement 7.5 inches.	
							0.7 - 9.0 ft. sandy GRAVEL FILL , brown, no plasticity, damp to moist, medium dense.	
5990	5				9/8	17		MC= 3.4 % #200= 12 % LL= NV PL= NP PI= NP AASHTO: A-1-a (0) USCS: GP-GM
5985	10				6/7	13		MC= 9.4 % DD= 110.2 pcf
5980	15				13/18	31		
5975	20				50:6"	50:6"		MC= 10.6 %
5970	25				50:3"	50:3"		MC= 18.8 % DD= 104.4 pcf #200= 79 % LL= 36 PL= 19 PI= 17 AASHTO: A-6 (12) USCS: CL

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in N			
5965	30				50:2"	50:2"		MC= 18.3 % DD= 101.5 pcf UCCS= 735 psi
5960	35				50:2"	50:2"		
5955	40				50:3"	50:3"		
5950	45						Abandoned boring due to tools dropped down boring. Bottom of Hole at 45.0 ft.	
5945	50							
5940	55							
5935	60							

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 10/24/2011

Completed: 10/24/2011

Total Depth: 45.0 ft

Drilling Method: Hollow-Stem Auger

Drill Bit:

Ground Elevation: 5989.0 ft

Drill: CME 55

Casing:

Location: West Bridge Abutment Sta 1+68, Off 5' Lt

Driller: Rock Edge

Weather:

Coordinates: N: 1.0 E: 6.0

Logged By: T. Hansen

Ground Water Notes:

Final By: T. Hansen

Inclination: Vertical

Depth	▽	11.0 ft	-	-	-
Date		10/24/11	-	-	-
Time		-	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
5985	5						0.0 - 0.5 ft. Asphalt Pavement 6 inches.	
5980	10						0.5 - 7.5 ft. silty SAND FILL with gravel, brown, low plasticity, damp to moist, loose to medium dense.	
5975	15						7.5 - 28.0 ft. gravelly SAND with cobbles, brown, no to low plasticity, moist to wet, medium dense to dense.	
5970	20							
5965	25							
							28.0 - 45.3 ft. SANDY CLAYSTONE , gray - brown, moderately weathered to fresh, very hard, moist,	

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
	30				23/50.5"	50.5"		MC= 15.9 % DD= 100.5 pcf MC= 14.3 % DD= 114.4 pcf #200= 71 % LL= 40 PL= 20 PI= 20 AASHTO: A-6 (13) USCS: CL MC= 14.4 % DD= 118.4 pcf UCCS= 5649 psi
5955	35				50.2"	50.2"		
5950	40				50.2"	50.2"		
5945	45				50.3"	50.3"		
	45						Bottom of Hole at 45.0 ft.	
5940	50							
5935	55							
5930	60							
5925								

BORING LOG 210-207 RED ROCKS RD.GPJ YEH ASSOCIATES.GDT 1/27/12



Boring Began: 10/24/2011
 Drilling Method: Solid-Stem Auger
 Drill: CME 55
 Driller: Rock Edge
 Logged By: T. Hansen
 Final By: T. Hansen
 Inclination: Vertical

Completed: 10/24/2011
 Drill Bit:
 Casing:
 Weather:

Total Depth: 6.0 ft
 Ground Elevation: 0.0 ft
 Location: West Pavement
 Coordinates: N: 1.0 E: 7.0

Ground Water Notes:

Depth	▽	Dry	-	-	-
Date		10/24/11	-	-	-
Time		-	-	-	-

Elevation (feet)	Depth (feet)	Run / Sample Type	Recovery (%)	Soil Samples		Lithology	Material Description	Field Notes and Lab Tests
				RQD	Blows per 6 in			
							0.0 - 0.3 ft. Asphalt Pavement 4 inches.	
							0.3 - 2.5 ft. GRANITE Gravel and Cobble FILL, reddish brown, damp, dense, angular to subangular.	
							2.5 - 6.0 ft. silty SAND, reddish brown, moist, medium dense.	
-5	5				7/8	15		MC= 4.9 % #200= 19 % LL= 20 PL= 17 PI= 3 pH= 7.6 S= 0.003 % Re= 3425 ohms-cm AASHTO: A-1-b (0) USCS: SM MC= 3 % #200= 7 % LL= NV PL= NP PI= NP AASHTO: A-1-b (0) USCS: SW-SM
							Bottom of Hole at 6.0 ft.	
-10	10							
-15	15							
-20	20							
-25	25							

APPENDIX C

Lab Test Results



YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

12/13/2010

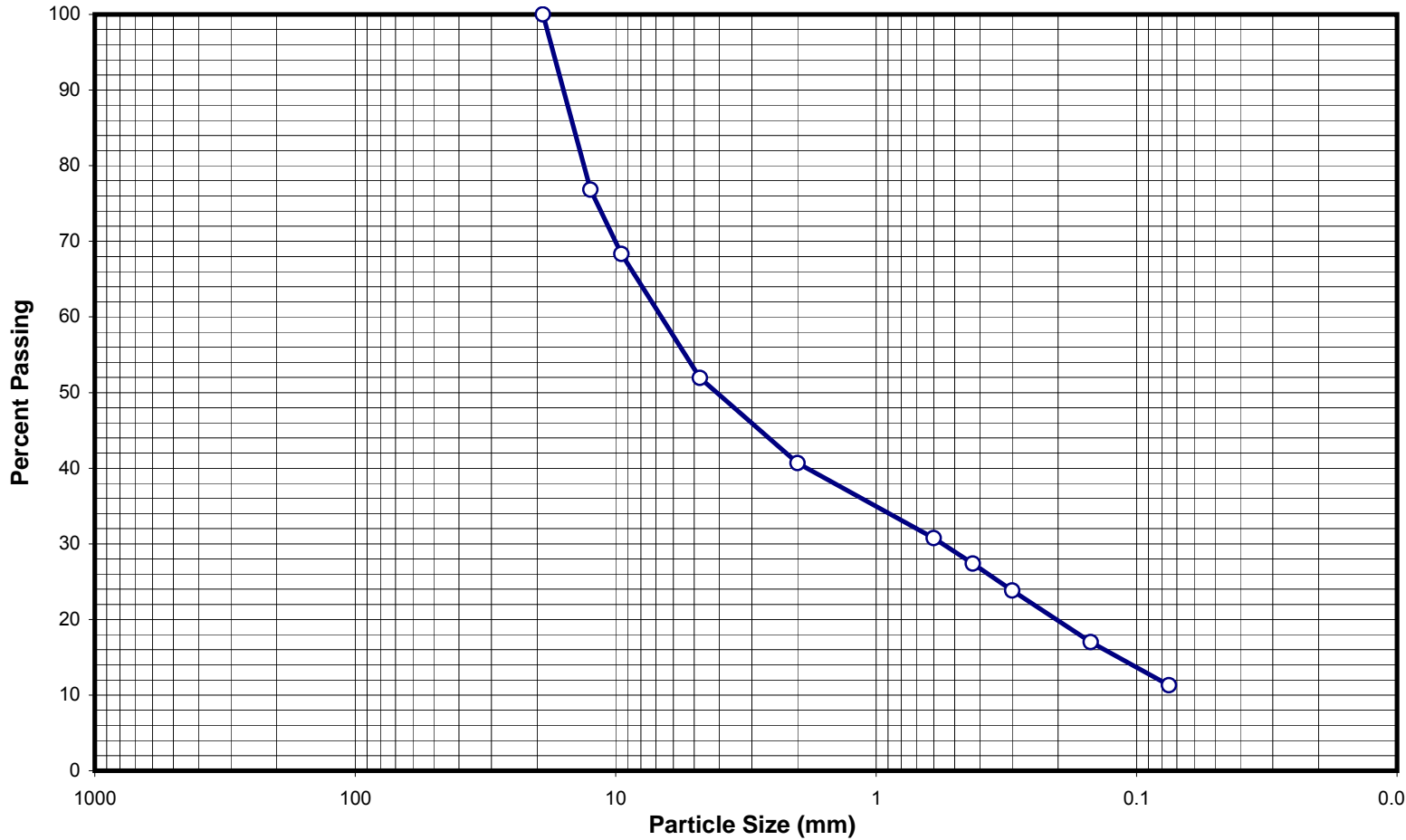
&

Project No: 210 - 207Project Name: Red Rocks RoadDate: 11/16/2011

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Chloride %	Unconf. Comp. Strength (psf)	R-VALUE	CLASSIFICATION	
Boring NO.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
B-1	5	CA	4.2	104.5	48	41	11	NV	NP	NP	-	-	-	-	-	-	A-1-a (0)	GP - GM
B-1	10	CA	12.9	111.1	14	60	26	NV	NP	NP	-	-	-	-	-	-	A-2-4 (0)	SM
B-1	15	CA	16.8	106.1	0	91	9	NV	NP	NP	-	-	-	-	-	-	A-1-b (0)	SW - SM
B-1	20	CA	14.3	118.7	5	49	46	27	13	14	-	-	-	-	1985.0	-	A - 6 (3)	SC
B-2	5	CA	13	108.9	4	56	40	NV	NP	NP	-	-	-	-	-	-	A - 4 (0)	SM
B-2	15	CA	5.5	116.9	55	41	4	NV	NP	NP	-	-	-	-	-	-	A-1-a (0)	GW
B-2	20	CA	5.6	138.5	53	42	5	NV	NP	NP	-	-	-	-	-	-	A-1-a (0)	GW
B-2	25	CA	9.1	125.9	37	50	13	NV	NP	NP	-	-	-	-	-	-	A-1-b (0)	SM
B-4		Bulk	7.8	-	9	64	27	24	14	10	8.1	0.005	1821	0.0042	-	6	A-2-4 (0)	SC
B-4	5	CA	21.0	84.8	-	-	76	49	20	29	-	-	-	-	-	-	A-7-6 (22)	CL
B-5	5	CA	3.4	-	49	39	12	NV	NP	NP	-	-	-	-	-	-	A-1-a (0)	GP-GM
B-5	10	CA	9.4	110.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-5	20	CA	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-5	25	CA	18.8	104.4	-	-	79	36	19	17	-	-	-	-	-	-	A - 6 (12)	CL
B-5	30	CA	18.3	101.5	-	-	-	-	-	-	-	-	-	-	735	-	-	-
B-6	30	CA	15.9	100.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-6	35	CA	14.3	114.4	-	-	71	40	20	20	-	-	-	-	-	-	A - 6 (13)	CL
B-6	40	CA	14.4	118.4	-	-	-	-	-	-	-	-	-	-	5649	-	-	-
B-7		Bulk	4.9	-	17	64	19	20	17	3	7.6	0.003	3425	0.0048	-	-	A-1-b (0)	SM
B-7	5	CA	3.0	-	26	67	7	NV	NP	NP	-	-	-	-	-	-	A-1-b (0)	SW - SM

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	100
1/2"	77
3/8"	68
#4	52
#10	41
#40	27
#200	11

Gravel (%)	48	LL	NV	Project Name:	Red Rocks Road
Sand (%)	41	PL	NP	Sample ID:	B1
Fines (%)	11	PI	NP	Sample Depth (ft.):	5
Sample Description:	GP - GM / A-1-a (0)				



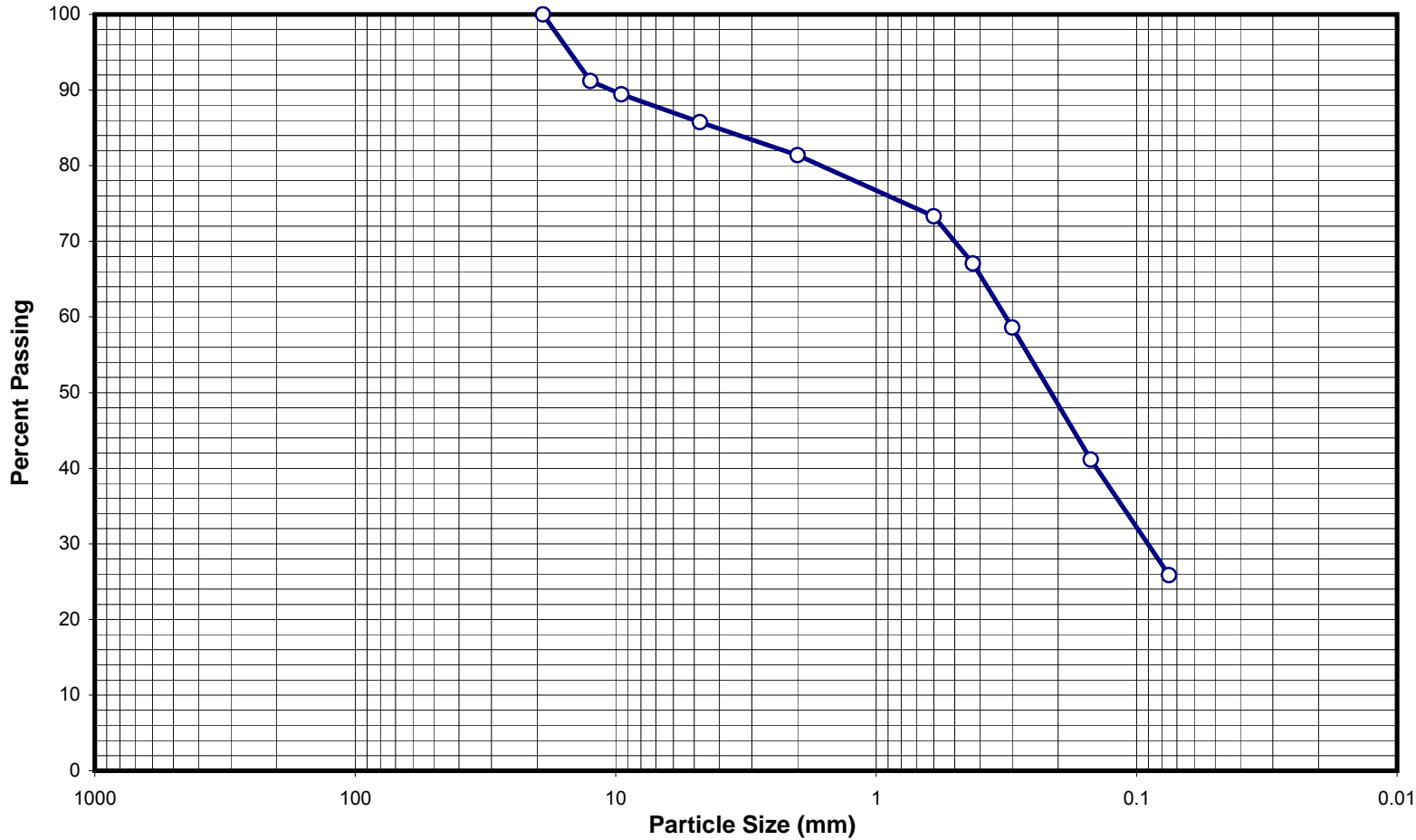
Yeh & Associates, Inc.
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	100
1/2"	91
3/8"	89
#4	86
#10	81
#40	67
#200	26

Gravel (%)	14	LL	NV	Project Name:	Red Rocks Road
Sand (%)	60	PL	NP	Sample ID:	B1
Fines (%)	26	PI	NP	Sample Depth (ft.):	10
Sample Description:	SM / A-2-4 (0)				



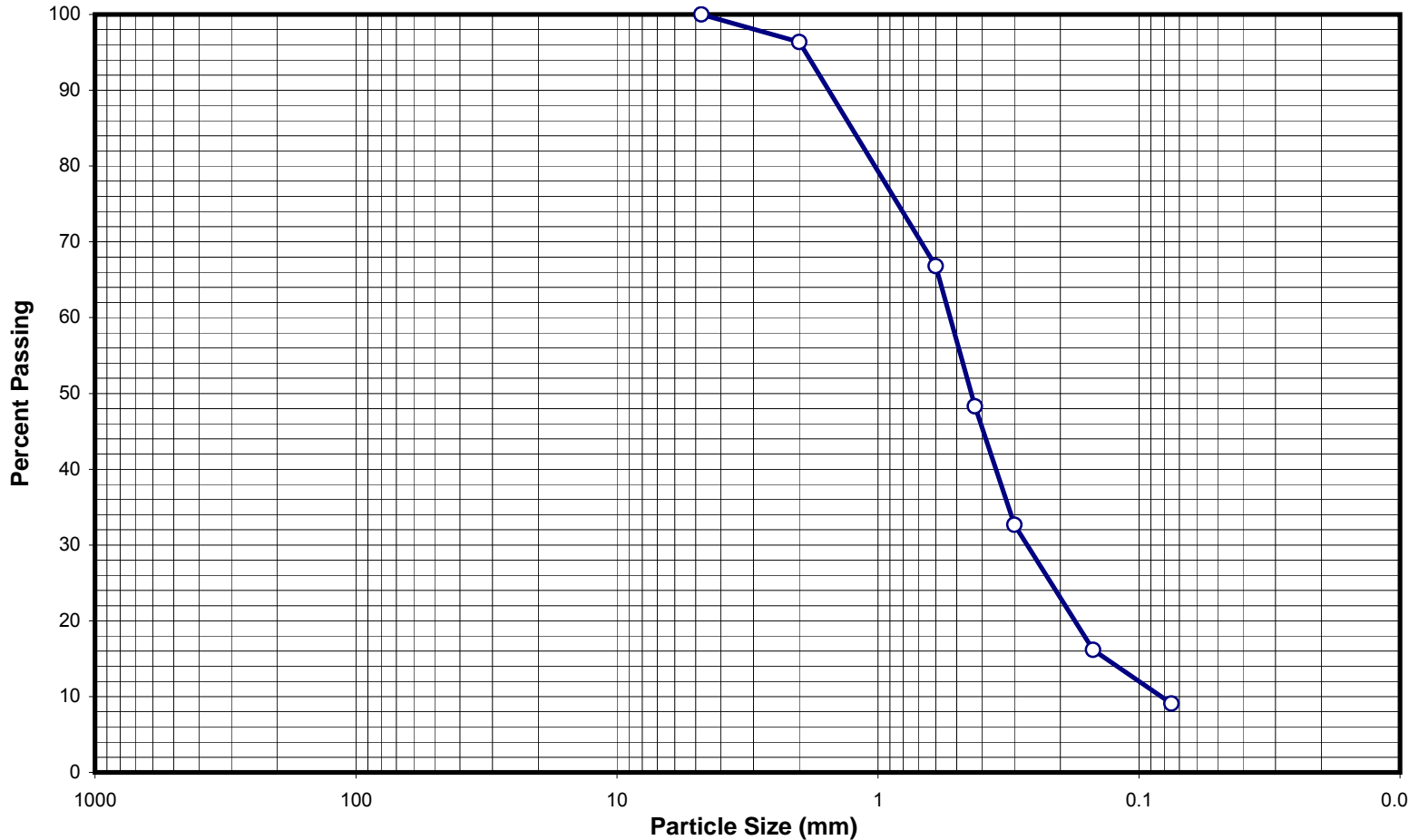
Yeh & Associates, Inc.
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		


Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



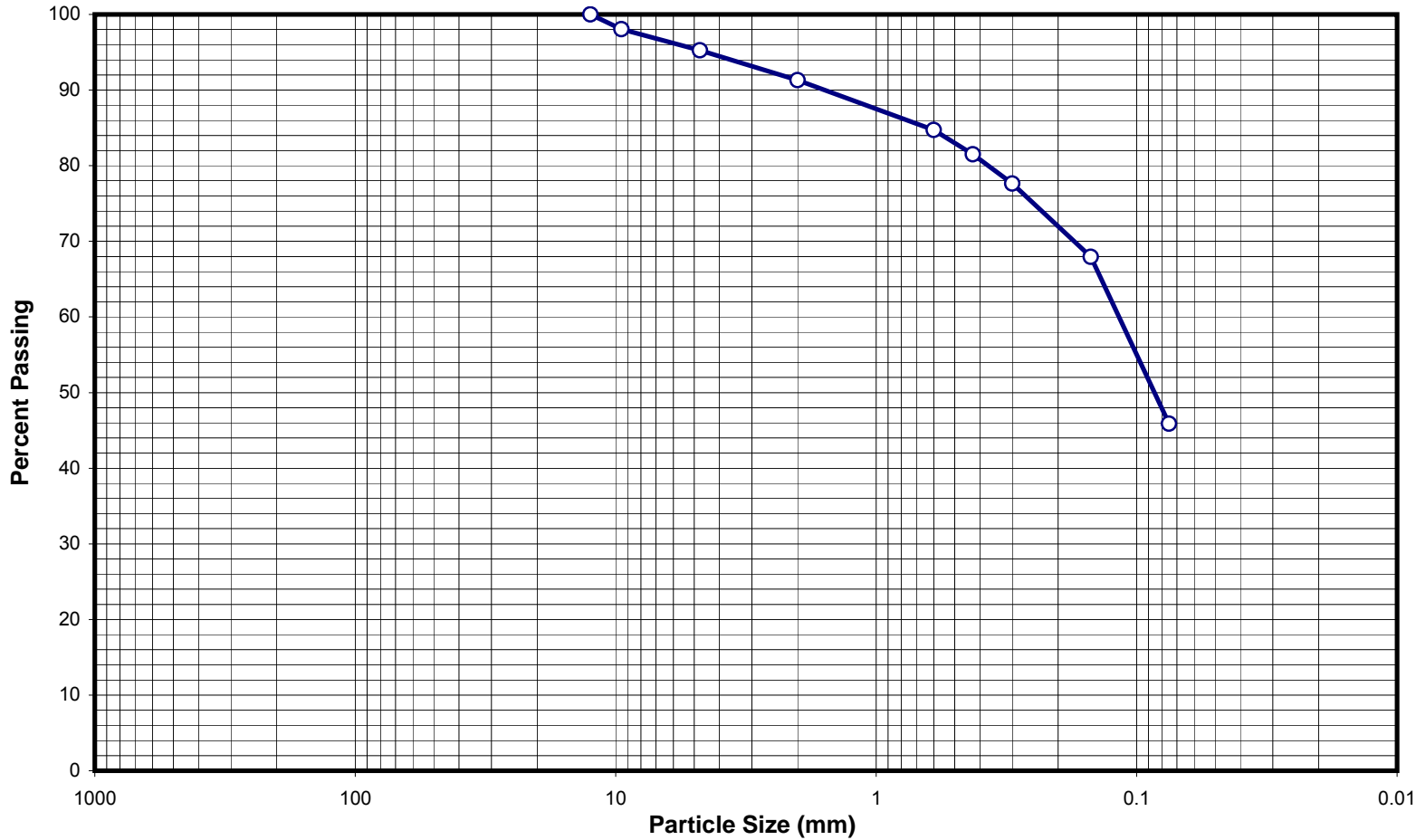
Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	-
1/2"	-
3/8"	-
#4	100
#10	96
#40	48
#200	9

Gravel (%)	0	LL	NV	Project Name:	Red Rocks Road
Sand (%)	91	PL	NP	Sample ID:	B1
Fines (%)	9	PI	NP	Sample Depth (ft.):	15
Sample Description:	SW - SM / A-1-b (0)				

 Yeh & Associates, Inc. Geotechnical Engineering Consultants	SIEVE ANALYSIS	
	Drawn By: MA Checked By: Paul Date: 12/16/10	Project No.: 210 - 207 Figure No.: -

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	-
1/2"	100
3/8"	98
#4	95
#10	91
#40	81
#200	46

Gravel (%)	5	LL	27	Project Name:	Red Rocks Road
Sand (%)	49	PL	13	Sample ID:	B1
Fines (%)	46	PI	14	Sample Depth (ft.):	20
Sample Description:	SC / A-6 (3)				



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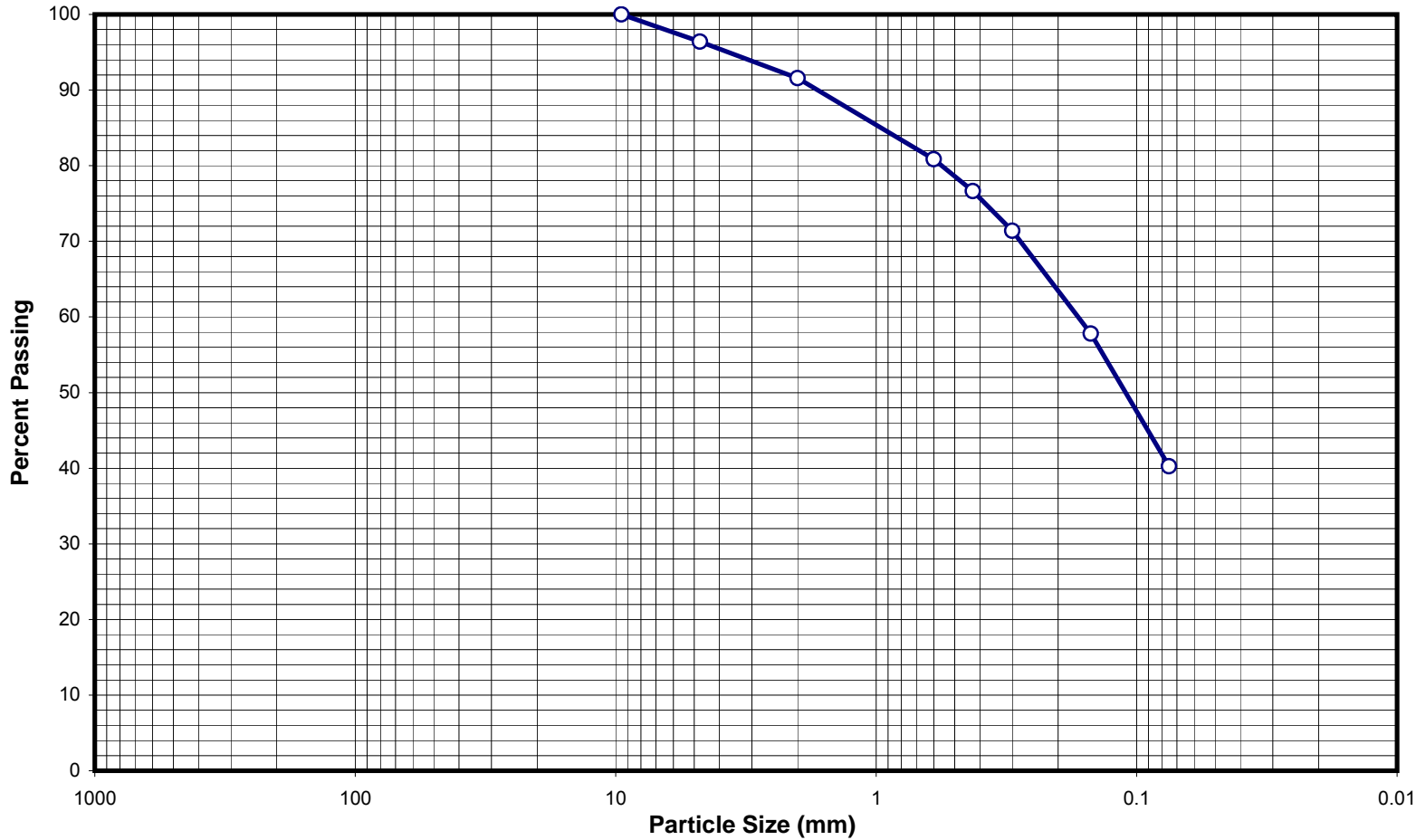
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4 "	-
1/2"	-
3/8"	100
#4	96
#10	92
#40	77
#200	40

Gravel (%)	4	LL	NV	Project Name:	Red Rocks Road
Sand (%)	56	PL	NP	Sample ID:	B2
Fines (%)	40	PI	NP	Sample Depth (ft.):	5
Sample Description:	SM / A-4 (0)				



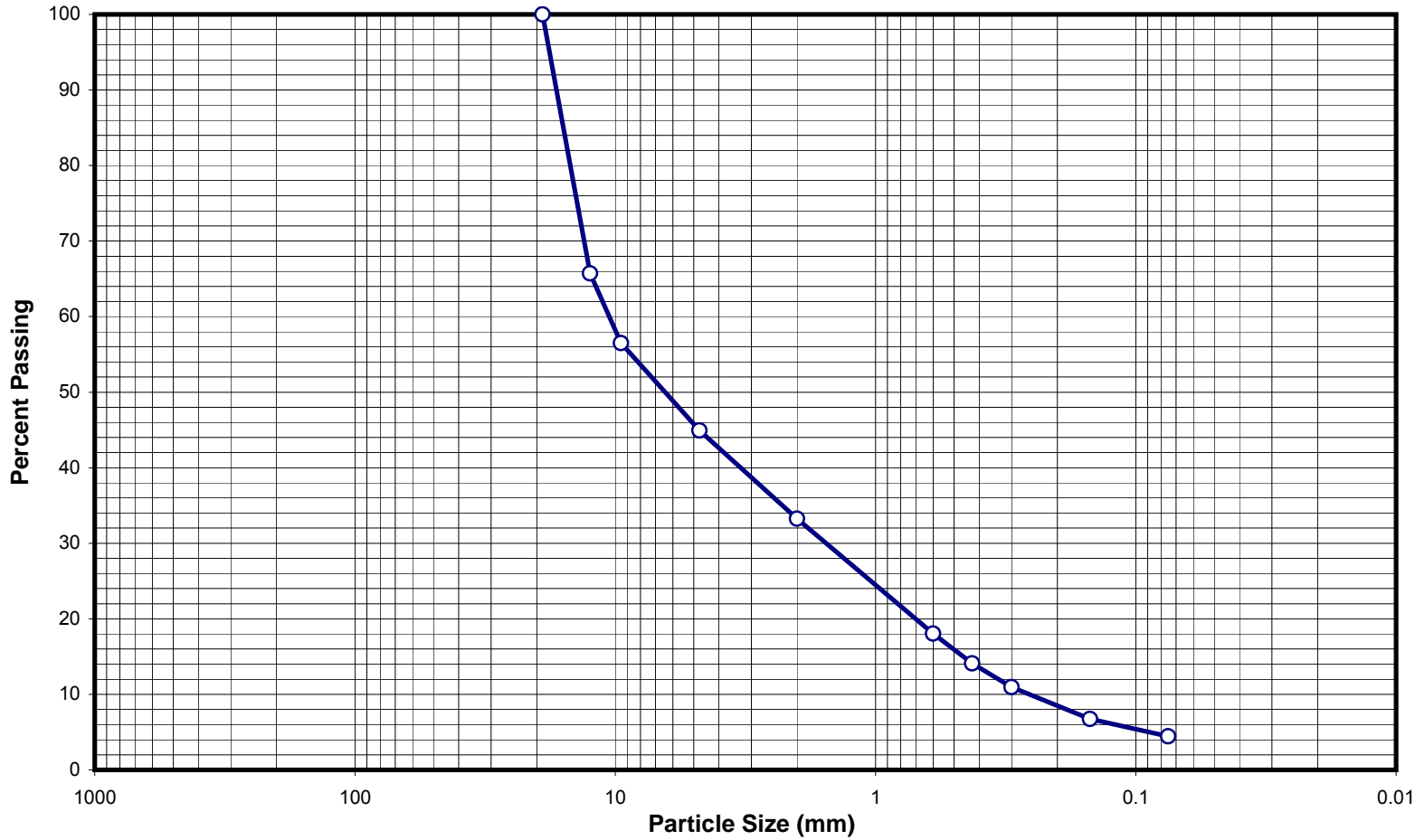
Yeh & Associates, Inc.
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	100
1/2"	66
3/8"	56
#4	45
#10	33
#40	14
#200	4

Gravel (%)	55	LL	NV	Project Name:	Red Rocks Road
Sand (%)	41	PL	NP	Sample ID:	B2
Fines (%)	4	PI	NP	Sample Depth (ft.):	15
Sample Description:	GW / A-1-a (0)				



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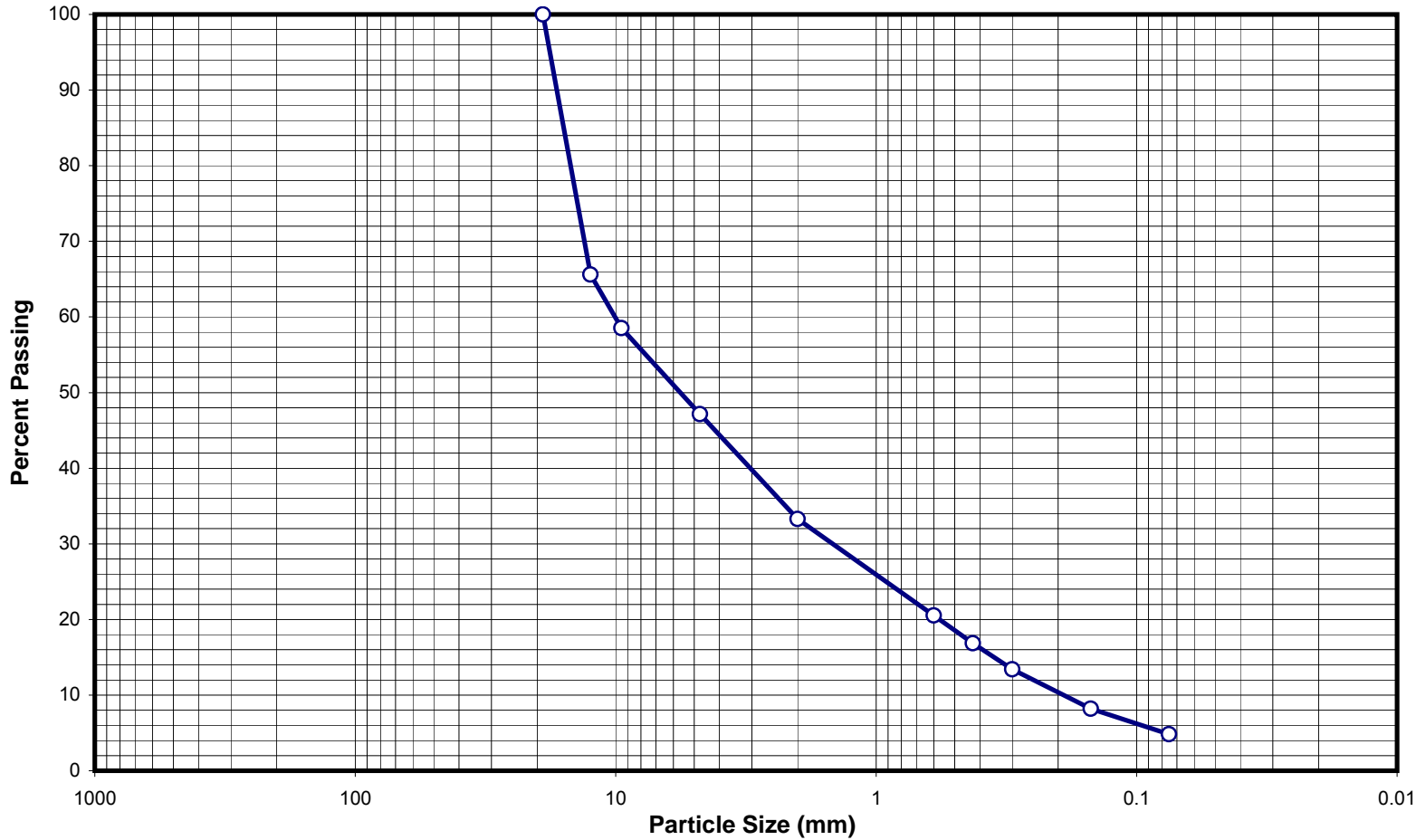
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	100
1/2"	66
3/8"	59
#4	47
#10	33
#40	17
#200	5

Gravel (%)	53	LL	NV	Project Name:	Red Rocks Road
Sand (%)	42	PL	NP	Sample ID:	B2
Fines (%)	5	PI	NP	Sample Depth (ft.):	20
Sample Description:	GW / A-1-a (0)				



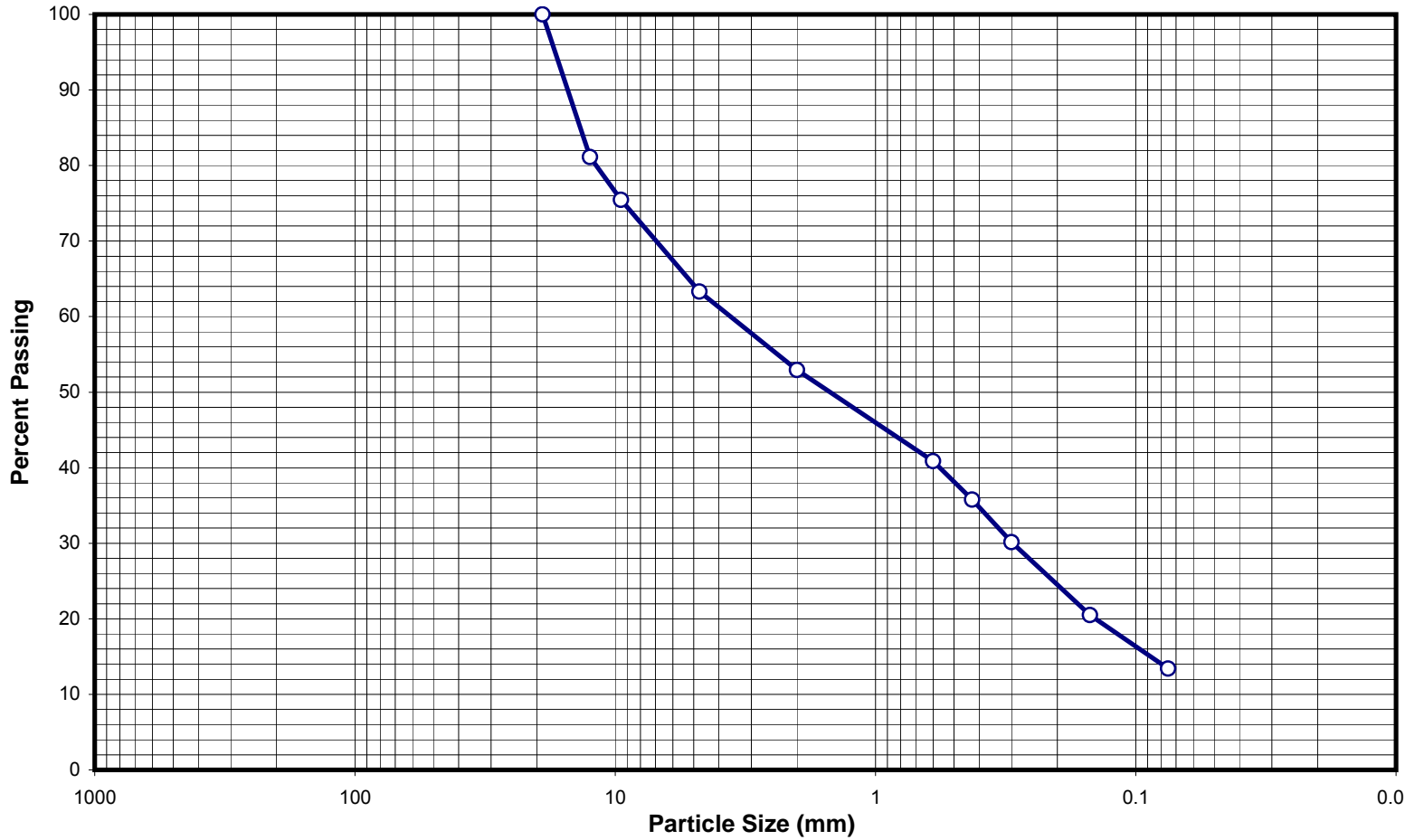
Yeh & Associates, Inc.
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	-
3/4"	100
1/2"	81
3/8"	75
#4	63
#10	53
#40	36
#200	13

Gravel (%)	37	LL	NV	Project Name:	Red Rocks Road
Sand (%)	50	PL	NP	Sample ID:	B2
Fines (%)	13	PI	NP	Sample Depth (ft.):	25
Sample Description:	SM / A-1-b (0)				



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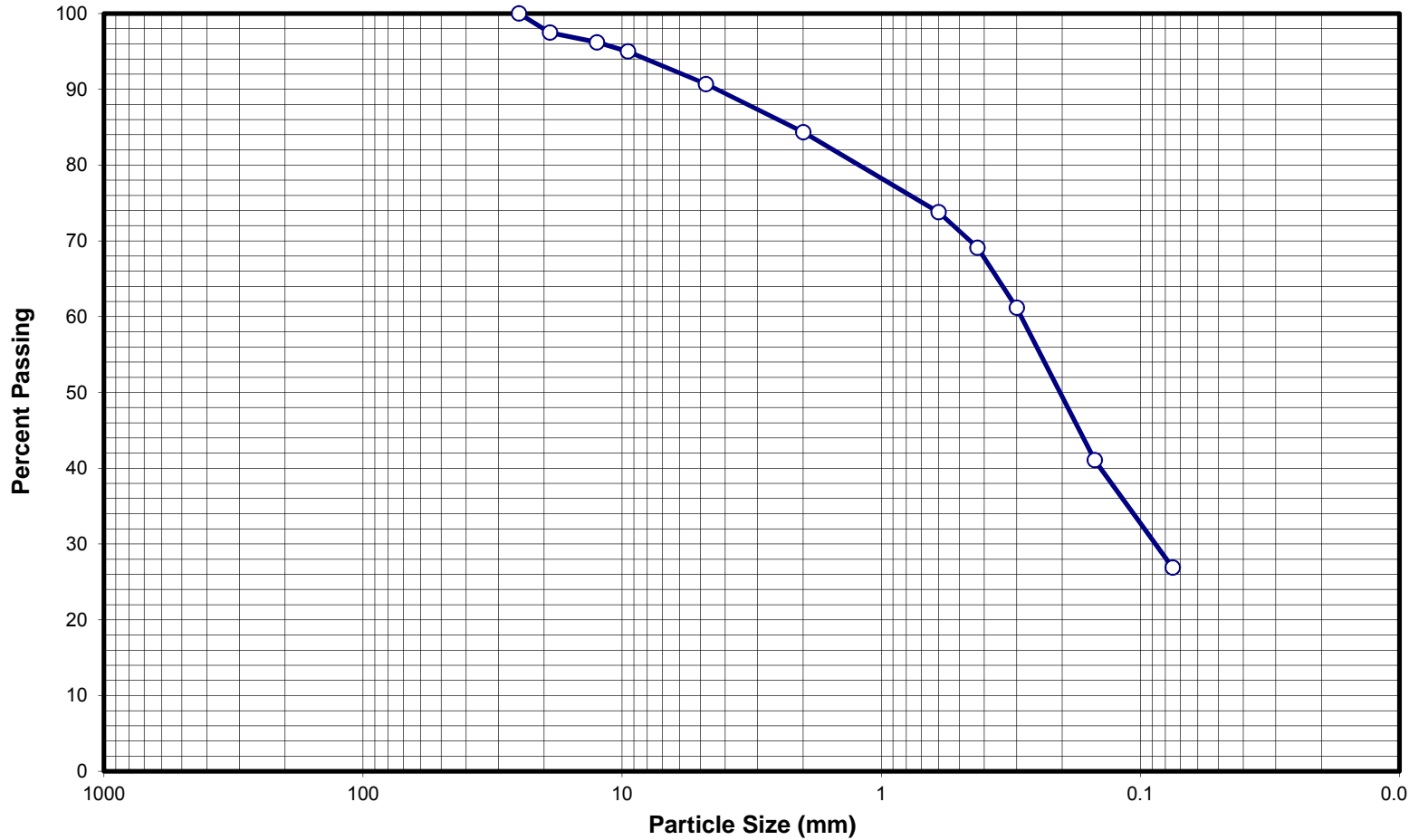
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	12/16/10		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	-
1"	100
3/4"	97
1/2"	96
3/8"	95
#4	91
#10	84
#40	69
#200	27

Gravel (%)	9	LL	24	Project Name:	Red Rocks Road
Sand (%)	64	PL	14	Sample ID:	B-4
Fines (%)	27	PI	10	Sample Depth (ft.):	
Sample Description:	SC / A - 2 - 4 (0)				



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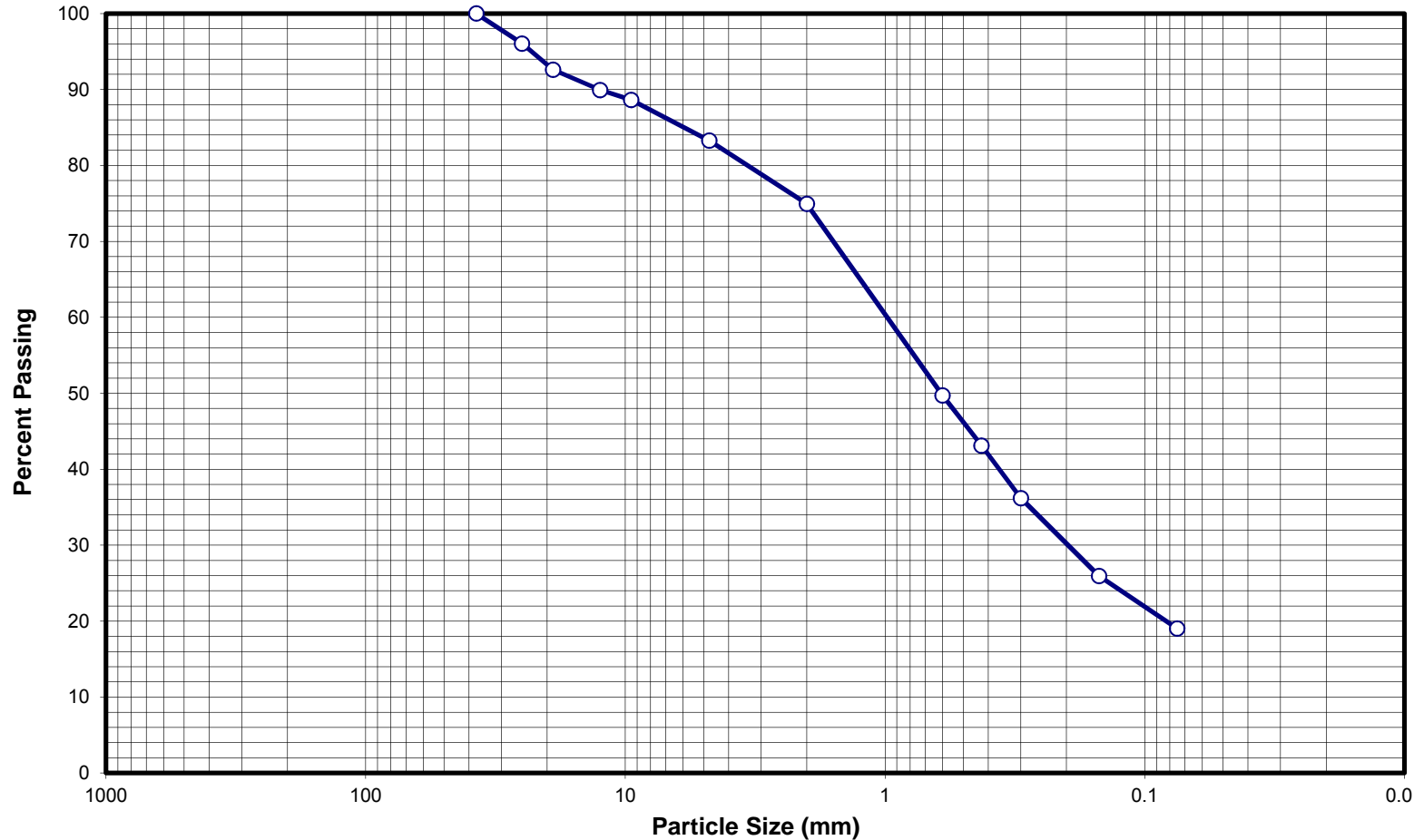
Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	11/08/11		

Sieve Analysis		Hydrometer Analysis
Sieve Opening in Inches	U.S. Standard Sieves	Size of Particles in mm

12" 6" 3" 2" 1" 3/4" 1/2" 3/8" 4 8 10 16 30 40 50 100 200



Sieve Size	% Passing
3"	-
2 1/2"	-
2"	-
1 1/2"	100
1"	96
3/4"	93
1/2"	90
3/8"	89
#4	83
#10	75
#40	43
#200	19

Gravel (%)	17	LL	20	Project Name:	Red Rocks Road
Sand (%)	64	PL	17	Sample ID:	B-7
Fines (%)	19	PI	3	Sample Depth (ft.):	
Sample Description:	SM / A - 1 - b (0)				



Yeh & Associates, Inc.

Geotechnical Engineering Consultants

SIEVE ANALYSIS

Drawn By:	MA	Project No.:	210 - 207
Checked By:	Paul	Figure No.:	-
Date:	11/08/11		

APPENDIX D

Pavement Thickness Design Calculations

210-207 Red Rocks Bridge Traffic Loading Calculations

Based on the traffic counts from CR 93 on either side of the entrance road, approximately 300 vehicles per day enter the area. The other major use of this road is from events being held at the Red Rocks Amphitheater. The parking lot capacity is approximately 3,500 vehicles. The following assumptions were used to calculate 20-year Equivalent Single Axle Loads for the approach road to the new structure.

Daily Visitor Traffic Loading			ESAL	
2012 Est. Volume			% total	Factor
300	veh/day			
Cars and Pick-ups			98%	0.0045
Type 3 Trucks (Trash Truck/Constr Truck, Snow plow)			1%	1.6930
Commercial Carriers / School Busses / Semis			1%	2.7300

Based on CDOT Traffic for SH 8 in Morrison, the 20-Year Groth Factor is 1.33. Using this factor and volume for the entrance road, the design volume would be $(Vol\ 2012 + vol\ 2032)/2 = (300 + 300)/2 = 349.5$. => USE **350** veh/day for design Equivalent Single Axle Load (ESAL) calculations

HMA Design ESALs = design volume X ESAL factor X 365 days/year X 20 Years

20-Yr ESALs		
Cars	11268	20-Year ESALs
Trucks	43256	20-Year ESALs
Busses	69752	20-Year ESALs
Total =	124275	ESALs from daily traffic
	0.6	X Lane Correction Factor for 2-Lane roadway
	74565	Design ESALs from Daily Traffic

Event Traffic Loading

For event traffic, we have assumed capacity parking at 3500 vehicles per event, and 40 events per year for 20 years. We assumed six trucks and ten busses or semis per event. The ESAL calculations are as follows:

Volume	3500	veh/event	Volume/	ESAL
	40	events/yr	Event	Factor
Cars and Pick-ups			3500	0.0045
Type 3 Trucks (Trash Truck/Constr Truck, Snow plow)			6	1.6930
Commercial Carriers / School Busses / Semis			10	2.7300

HMA Design ESALs = design volume X ESAL factor X 20 Years

20-Yr ESALs		
Cars	12600	20-Year ESALs
Trucks	8126	20-Year ESALs
Busses	21840	20-Year ESALs
Total =	42566	ESALs from 40 Events / Year
	0.6	X Lane Correction Factor for 2-Lane roadway
	25540	Design ESALs from Events

20-Yr Design ESALs =	74565	+	25540	=	100105	ESALs
----------------------	--------------	---	--------------	---	---------------	-------

**MGPEC Pavement Design
With Event Traffic Added**

Pavement Design To MGPEC Standards
File Options

DESIGN RECORD New Analysis - No Open File
Total Records 1 Analysis 1 Add Delete

SUBDIVISION
Subdivision
Street Red Rocks Entrance Road
From
To
Township Range

TRAFFIC
Classification Commercial Speed Limit (mph) 0 Compute ESAL ESALS 100105
Residential Lots 0 Commercial Acres 0 Industrial Acres 0

SUBGRADE
Soil Type Clay AASHTO A-6 Subsurface Drainage Clear Subgrade
R Value 0 UNC 1985 Resilient Modulus 3201 Swell 0 %
Load Transfer 2.8 Doweled and Tied Passing 200 0 % Liquid Limit 0 % Plasticity Index 0 %
Optimum Moisture 0 % pcf Max Density 0 Std Proctor Mod Proctor Use Custom Cost

* Use Tab or Enter Keys To Force Recalculation Of Related Values

Calculate Print Form

Calculated Pavement Thickness

Default Material Cost

Option	Material	Thickness (Inches)	At (\$ Per Lane Mile)	30 yr Maintenance (\$ Per Lane Mile)	Total Cost (\$ Per Lane Mile)
Option One	Plain Portland Cement Concrete	6.0	126,720	28,489	155,199
	At				
	Total Cost				
Option Two	Hot Mix Asphalt Pavement	6.6	82,368	78,533	160,902
	At				
	Total Cost				
Option Three	Hot Mix Asphalt Pavement	4.0	95,744	78,533	174,278
	Chemical Stabilized Subgrade	8.0			
	At				
	Total Cost				

Print Or Export Report OK

1993 AASHTO Pavement Design

DARWin Pavement Design and Analysis System

A Proprietary AASHTOWare
Computer Software Product

Flexible Structural Design Module

Red Rocks Bridge
R = 6

Flexible Structural Design

18-kip ESALs Over Initial Performance Period	100,105
Initial Serviceability	4.5
Terminal Serviceability	2.5
Reliability Level	90 %
Overall Standard Deviation	0.44
Roadbed Soil Resilient Modulus	3,126 psi
Stage Construction	1
Calculated Design Structural Number	3.22 in

Specified Layer Design

<u>Layer</u>	<u>Material Description</u>	Struct Coef. <u>(Ai)</u>	Drain Coef. <u>(Mi)</u>	Thickness <u>(Di)(in)</u>	Width <u>(ft)</u>	Calculated <u>SN (in)</u>
1	HMA	0.44	1	5.5	24	2.42
2	cl 6	0.15	1	6	24	0.90
Total	-	-	-	11.50	-	3.32

Layered Thickness Design

Thickness precision

Actual

<u>Layer</u>	<u>Material Description</u>	Struct Coef. <u>(Ai)</u>	Drain Coef. <u>(Mi)</u>	Spec Thickness <u>(Di)(in)</u>	Min Thickness <u>(Di)(in)</u>	Elastic Modulus <u>(psi)</u>	Width <u>(ft)</u>	Calculated Thickness <u>(in)</u>	Calculated <u>SN (in)</u>
1	HMA	0.44	1	-	-	-	-	7.32	3.22
Total	-	-	-	-	-	-	-	7.32	3.22

LTPP Output - Five Closest Weather Stations

Five Closest Weather Stations

Five Closest Weather Stations For Latitude/Longitude= 39.435/105.1					
General	A=2 km	B=8 km	C=21 km	D=23 km	E=30 km
Station ID	✓CO8022	✓CO4452	✓CO1401	✓CO5056	✓CO2790
County/District	douglas	jefferson	douglas	arapahoe	jefferson
Weather Station	strontia spring	kassler	castle rock	littleton	evergreen
Elevation, m	1654	1558	1799	1504	1983
Latitude, Longitude	39.43 ,105.12	39.5 ,105.1	39.37 ,104.87	39.62 ,105.02	39.63 ,105.32
Last Year Data Available	1997	1997	1997	1993	1997
Air Temperature	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)
High Temperature	32.5 (13,13)	34.1 (13,35)	33.3 (13,33)	33.2 (14,15)	30.4 (12,32)
Low Temperature	-26.4 (42,13)	-26.7 (36,35)	-27.2 (38,32)	-25.9 (38,15)	-27.5 (38,34)
Low Temperature Drop	34.3 (45,13)	34.1 (41,35)	33.5 (32,32)	29.5 (38,15)	33.9 (36,34)
Degree-Days > 10C	2655 (133,13)	2894 (164,35)	2735 (196,33)	2717 (142,15)	2274 (157,32)
PG	High Low Rel.	High Low Rel.	High Low Rel.	High Low Rel.	High Low Rel.
Pavement Temperature, C	53.6 -18.0	55.7 -18.3	54.3 -18.6	54.2 -17.7	50.1 -18.9
50% Reliability PG	58-22 (98,86)	58-22 (98,87)	58-22 (98,84)	58-22 (98,89)	52-22 (97,82)
>50% Reliability PG	58-28 (98,98)	58-28 (98,98)	58-28 (98,98)	58-28 (98,98)	52-28 (97,98)
=					58-28 (98,98)
=					
=					

Kassler - Closest Station

Five Closest Weather Stations For Latitude/Longitude= 39.435/105.1					
General	A=2 km	B=8 km	C=21 km	D=23 km	E=30 km
Station ID	✓CO8022	✗CO4452	✓CO1401	✓CO5056	✓CO2790
County/District	douglas	jefferson	douglas	arapahoe	jefferson
Weather Station	strontia spring	kassler	castle rock	littleton	evergreen
Elevation, m	1654	1558	1799	1504	1983
Latitude, Longitude	39.43 ,105.12	39.5 ,105.1	39.37 ,104.87	39.62 ,105.02	39.63 ,105.32
Last Year Data Available	1997	1997	1997	1993	1997
Air Temperature	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)	Mean (Std, N)
High Temperature	32.5 (13,13)	34.1 (13,35)	33.3 (13,33)	33.2 (14,15)	30.4 (12,32)
Low Temperature	-26.4 (42,13)	-26.7 (36,35)	-27.2 (38,32)	-25.9 (38,15)	-27.5 (38,34)
Low Temperature Drop	34.3 (45,13)	34.1 (41,35)	33.5 (32,32)	29.5 (38,15)	33.9 (36,34)
Degree-Days > 10C	2655 (133,13)	2894 (164,35)	2735 (196,33)	2717 (142,15)	2274 (157,32)
PG	High Low Rel.	High Low Rel.	High Low Rel.	High Low Rel.	High Low Rel.
Pavement Temperature, C	53.6 -18.0	55.7 -18.3	54.3 -18.6	54.2 -17.7	50.1 -18.9
50% Reliability PG	58-22 (98,86)	58-22 (98,87)	58-22 (98,84)	58-22 (98,89)	52-22 (97,82)
>50% Reliability PG	58-28 (98,98)	58-28 (98,98)	58-28 (98,98)	58-28 (98,98)	52-28 (97,98)
=					58-28 (98,98)
=					
=					

98% Reliability Binder Selection

Parameter	A=2 km	B=8 km	C=21 km	D=23 km	E=30 km
Station ID	✓CO8022	✗CO4452	✓CO1401	✓CO5056	✓CO2790
Elevation, m	5423	5110	5901	4933	6503
Degree-Days >10 C	2655	2894	2735	2717	2274
Low Air Temperature, C	-26.4	-26.7	-27.2	-25.9	-27.5
Low Air Temp. Std Dev	4.2	3.6	3.8	3.8	3.8

Input Data

Latitude, Degree: 39.44 Lowest Yearly Air Temperature, C: -26.8

Yearly Degree-Days>10 Deg.C: 2595 Low Air Temp. Standard Dev., Deg C: 3.9

Temperature Adjustments

Base HT PG: 58

Desired Reliability, %: 98

Depth of Layer, mm: 0

Traffic Adjustments for HT

Traffic Loading	Fast	Slow
Up to 3 M. ESAL	0.0	2.7
3 to 10 M. ESAL	7.1	9.5
10 to 30 M. ESAL	12.3	14.5
Above 30 M. ESAL	14.5	16.6

PG Temperature	HIGH	LOW
PG Temp. at 50% Reliability	53.1	-18.3
PG Temp. at Desired Reliability	55.3	-25.5
Adjustments for Traffic	2.7	
Adjustments for Depth	0.0	0.0
Adjusted PG Temperature	58.0	-25.5
Selected PG Binder Grade	58	-28

Buttons: Recalculate PG, Save, Cancel



Yeh and Associates, Inc.

Consulting Engineers & Scientist

Date: March 27, 2013

To: Beth Tosti, P.E.
Jacobs Engineering
707 17th Street, Suite 2300
Denver, Colorado 80202-5131

From: Robert F. LaForce, P.E.
Yeh and Associates, Inc.
5700 East Evans Avenue
Denver, Colorado 80222

A handwritten signature in blue ink that reads "Robert F. LaForce".

Re: Pavement Subgrade
Red Rocks Park Road Bridge Over Vernon Creek
Structure No. BRO M320-072

The pavement for the bridge approaches to this structure were designed with the subgrade strength of the in-place soil. Testing of the in-place soil yielded an R-value of 6 and also an unconfined compressive strength of 1985 psf. Using these input values, the pavement was designed using both the MGPEC program and the Darwin program resulting in similar thickness recommendations.

The R-value of 6 was entered into the project plans as minimum requirement for the subgrade below the pavement section, aggregate base course, (ABC) and Hot Mix Asphalt (HMA). Dave Potter from the City and County of Denver commented that the R-6 was too low, and asked that other materials be used.

We agree that the R-6 is too low, since it is a heavy clay and very difficult to work, place and compact.

There are a large number of subbase materials that could be specified to meet or exceed the required strength to provide adequate support for the pavement and also would be easier to place and compact. Some examples of materials that would satisfy the requirements are soil having an R-value greater than 20, soil with an AASHTO Classification of A-2-4(0) or better, ABC, or structural backfill as specified for placement next to the structure. To the best of our knowledge, none of these materials can be generated in the project area, so they will have to be imported. We anticipate a relatively small quantity that will be placed in the top two feet of roadway in the approaches to the new structure.

Our recommendation would be to not specify material using R-value, but designate either Structural Backfill Class 1 or Aggregate Base Course (Class 6) in these areas because quantities for these items are already in the project plan quantities and estimate.

Please contact us if you have any questions or need more information.

cc: Paul Macklin

**RED ROCKS PARK ROAD (ROAD 2)
BRIDGE REPLACEMENT
FINAL HYDRAULICS REPORT**

Prepared for:



DENVER
THE MILE HIGH CITY

City and County of Denver
201 West Colfax Avenue
Denver, Colorado 80202

Prepared by:

JACOBS

707 17th Street, Suite 2300
Denver, Colorado 80202

March 2012

Jacobs Project No.: WVXV0519



Red Rocks Park Road Bridge Replacement

Final Hydraulics Report

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Floodplain Map	
Scour Analysis	
Riprap Design	
C. BRIDGE HYDRAULIC INFORMATION SHEET	

Red Rocks Park Road Bridge Replacement

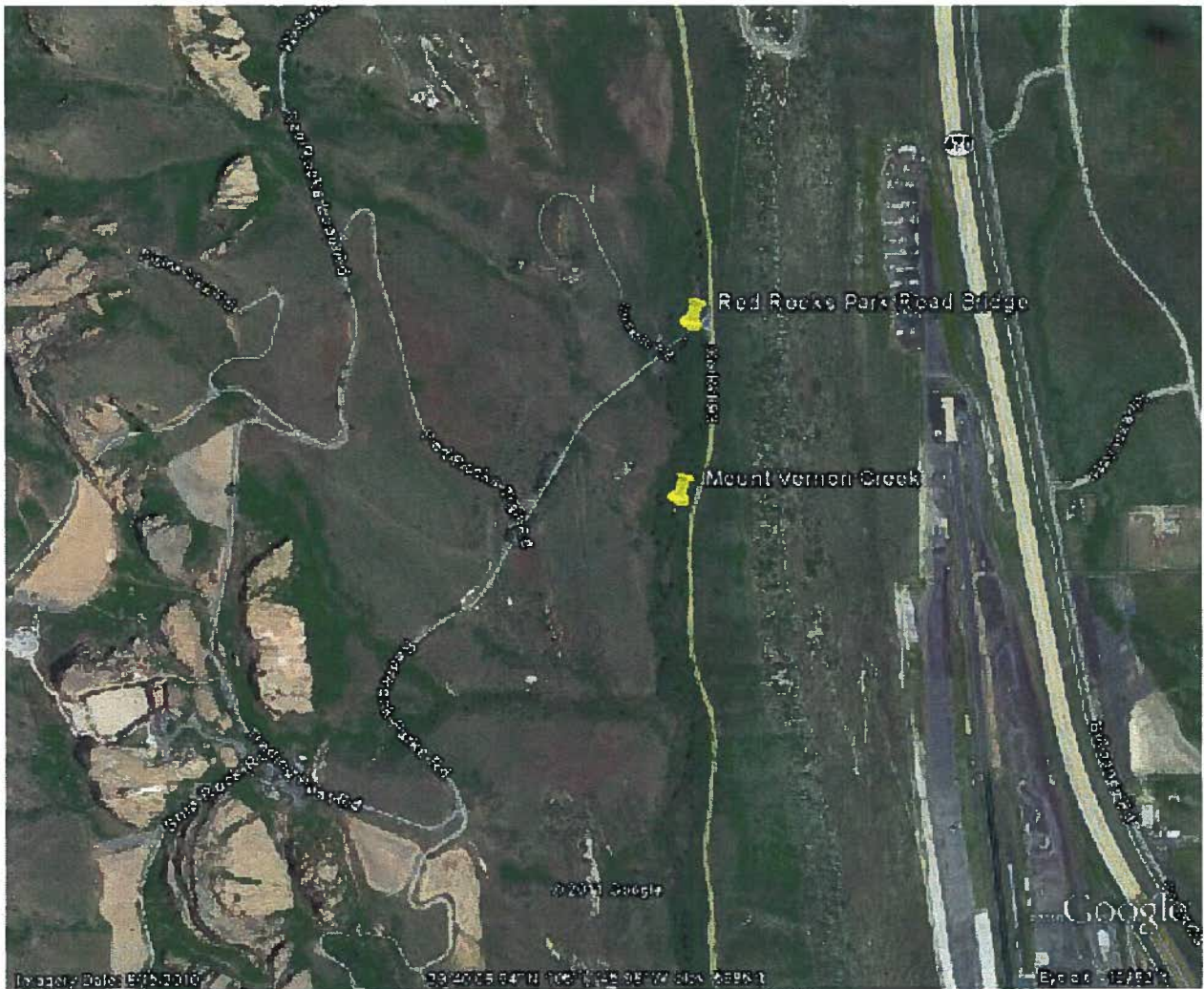
Final Hydraulics Report

I. INTRODUCTION

A. Project Location

The Red Rocks Park Road (Road 2) Bridge is located approximately 1.3 miles north of the Town of Morrison, in unincorporated Jefferson County, Colorado. While the project site is located within the limits of Jefferson County, the Red Rocks Park, Amphitheatre, and access roads are owned by the City and County of Denver. The project is located within Section 26 of Township 4 South, Range 70 west of the sixth principal meridian. See **FIGURE 1: Project Location Map** for a detailed layout of the project area.

FIGURE 1: Project Location Map



Red Rocks Park Road Bridge Replacement

Final Hydraulics Report

B. Project Description

This project involves the replacement of the existing bridge over Mount Vernon Creek along Red Rocks Park Road just west of County Road 93. The work also includes a raised roadway profile over the creek and intersection improvements for the Red Rocks Park Road and County Road 93 intersection.

This project begins at the west shoulder of County Road 93 and extends approximately 400 feet along Red Rocks Park Road to the west. The overall scope of the project includes site survey, roadway design, structural design, hydraulics analysis and a review of floodplain impacts, geotechnical engineering, and an environmental Categorical Exclusion study.

C. Purpose

This report summarizes the preliminary hydrologic and hydraulic analyses that have been completed to identify impacts to Mount Vernon Creek, which is a FEMA regulated waterway, and to design any related stream improvements that are to be included in the Red Rocks Park Road bridge replacement.

The bridge replacement project is beneficial to the community because the bridge is posted with reduced weight limits that restrict the gross weight of vehicles using the bridge and is classified as functionally obsolete, in addition to the safety issues introduced by the existing roadway profile and intersection layout.

II. HYDROLOGIC ANALYSIS

A. Drainage Basin Description

Mount Vernon Creek has its headwaters near Genesee Mountain and Interstate 70. It then flows easterly along I-70 to the junction with Highway 26 (also known as County Road 93), where it then turns south and flows along the west side of County Road 93 and into the Town of Morrison, where it meets its confluence with Bear Creek. The drainage basin for Mount Vernon Creek is approximately 10 square miles and ranges in elevation from 5,700 feet to over 8,200 feet. The average slope of the streambed is three percent and supercritical velocities occur along the entire reach. Most of the basin is currently undeveloped and the floodplain is narrow and well defined, except within the Town of Morrison where the flood hazard is higher due to high residential development within the floodplain. This project is located north of Morrison in an undeveloped park and open space environment where the floodplain is still narrow. Information on the

Red Rocks Park Road Bridge Replacement

Final Hydraulics Report

Mount Vernon Creek drainage basin was taken from the Flood Hazard Area Delineation (FHAD) for Southern Jefferson County (Reference 1).

B. Flood History

A major flood has not been documented on Mount Vernon Creek since 1938, although smaller floods have occurred throughout the years, mostly causing flooding issues within the Town of Morrison.

Mount Vernon Creek is a FEMA regulated waterway. It has been studied and is designated by FEMA as a Zone AE floodplain with established base flood elevations (BFE's). While flooding is known to occur in the Town of Morrison, upstream the valley is deeply incised and the 100-year discharge is contained within a relatively narrow channel. No floodway has been delineated for this upper reach because the criteria adopted by FEMA does not allow for a substantial encroachment. No development has occurred within the floodplain of the upper reach of Mount Vernon Creek and the two major crossing on the creek (both Red Rocks Park access roads) have been studied and are shown to accommodate the 100-year design flow without overtopping.

C. Design Frequency and Peak Flows

The 100-year storm event was used for the floodplain analysis along Mount Vernon Creek. The peak flow values of 4,160 cfs upstream of the project site and 4,395 cfs downstream of the project site were taken from the Southern Jefferson County FHAD (Reference 1). This report used the Colorado Urban Hydrograph Procedure (CUHP) to study this reach. The design rainfall used in the analysis was supplied by the Urban Drainage and Flood Control District (UDFCD). A detailed description of CUHP and the design rainfall values used is given in Volume I of the Urban Storm Drainage Criteria Manual (Reference 2).

For the determination of scour and riprap design at the bridge abutments, the 500-year design storm of 6,400 cfs was also analyzed for the project. Values for the 500-year design storm were obtained from the Flood Insurance Study (FIS) for Jefferson County (Reference 3).

Background information from the FHAD and FIS is in Appendix A.

Red Rocks Park Road Bridge Replacement

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III. HYDRAULIC ANALYSIS

A. Design Criteria

The basis for analysis of the Mount Vernon Creek bridge crossing is the Urban Storm Drainage Criteria Manual (Reference 2), FEMA Floodplain Management Requirements (Reference 4), and the requirements of the local Jefferson County Floodplain Administrator. While FEMA allows a one foot rise in the water surface elevation (WSEL) due to a bridge crossing, the Colorado Water Conservation Board recently initiated a 0.3' maximum rise or fall in WSEL before an official Letter of Map Revision (LOMR) would be required. After discussions with the City and County of Denver and local regulatory agencies involved in this project, it was decided to restrict this project to the 0.3' requirement because the proposed bridge provides a larger hydraulic opening than the existing bridge and will allow for this stricter requirement to be met.

The HEC-RAS computer modeling program (Reference 5) was used to determine water surface elevations along the creek channel for existing and proposed conditions.

Scour design requirements are based on the Federal Highway Administration's Evaluating Scour at Bridges, Hydraulic Engineering Circular No. 18 (HEC-18) (Reference 6).

Riprap design requirements are based on the Federal Highway Administration's Bridge Scour and Stream Instability Countermeasures, Hydraulic Engineering Circular No. 23 (HEC-23) (Reference 7).

B. HEC-RAS Floodplain Models

Effective Model

A hardcopy of the original HEC-2 model that was the basis for the current floodplain delineation as shown on the Flood Insurance Rate Map (FIRM) (a.k.a. the "effective" model) was obtained from the Urban Drainage and Flood Control District. This data was then input into the HEC-RAS program to create a "duplicate effective" model.

The existing structure is a single span bridge, approximately 58 feet long. Results from the effective model show that the structure passes the 100-year flood flows without overtopping the roadway. However, the 100-year water surface does slightly encroach on the "low girder" elevation by approximately 0.3 feet vertically at the west end of the bridge on the upstream side. This is consistent with the water surface elevations published in the FHAD relative to the bridge elevations in the HEC-2 model.

Red Rocks Park Road Bridge Replacement

Final Hydraulics Report

Corrected Effective Model

A corrected effective model was then developed, which becomes the new "baseline" condition to compare to proposed conditions. Differences between the effective model and the corrective model are as follows:

A detailed ground survey was conducted within the project area. Updated and more detailed topographical information was used to update the channel geometry for Cross Sections 76+35, 76+77, 77+00, and 77+40. Locations and alignments for these cross sections were based on duplicating what is shown in the FHAD as closely as possible.

Two additional cross sections (76+52 and 77+10) were added in the vicinity of the proposed bridge. Modeling procedures require cross sections at the downstream and upstream faces of bridge structures. Because the proposed bridge is wider and on a slightly different alignment than the existing bridge, these two cross sections were added to the corrected effective model to represent the existing conditions at the downstream and upstream ends of the proposed bridge, respectively. These can then be used as a basis of comparison to proposed conditions.

Finally, the effective HEC-2 model from 1981 used the NGVD 1929 datum. The project is using the NAVD 1988 datum, so all of the surveyed cross sections within the project area reflect elevations that are approximately 3 feet higher than the effective model. The cross sections that are outside of the surveyed area (71+80 and 86+60) were raised by 3 feet to be consistent with the rest of the model. More information about the datum is in Appendix A.

Proposed Model

The intent of the proposed project is to replace the structure in kind with a single span bridge that provides at least the same hydraulic opening as the existing structure.

The proposed model incorporates the proposed bridge geometry, as well as a roadway profile that has been raised approximately five feet. The revised roadway profile improves the existing steep grade down to the bridge from the County Road 93 intersection, and also provides more freeboard for the proposed condition. With freeboard being measured from 1/3 of the bridge opening up from the lower end of the bridge, the existing freeboard is 0.06' while the proposed freeboard is 4.11'. (See the Bridge Hydraulic Information Sheet in the Appendix for more details.)

The overall width of the bridge opening between the abutments is slightly wider than existing (61 feet proposed, compared to 58 feet existing). Grading within

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Final Hydraulics Report

the channel that will be required to construct the new bridge abutments, wingwalls, and riprap has also been incorporated into the cross sections.

As noted above, Cross Sections 76+52 and 77+10 represent the proposed conditions at the downstream and upstream ends of the proposed bridge, respectively, and Cross Sections 76+77 and 77+00 are removed from the proposed model.

Results from the proposed model show that the proposed new bridge will not cause an increase to the 100-year water surface elevation of Mount Vernon Creek. Therefore, a Conditional Letter of Map Revision (CLOMR) from FEMA will not be required for this project.

HEC-RAS output and cross sections for existing and proposed conditions are in Appendix B.

C. Scour Analysis

The scour analysis for the proposed bridge structure was evaluated using the Hydraulic Design Scour function within HEC-RAS. This model uses formulas from the HEC-18 design guide (Reference 6). Only the contraction scour and abutment scours functions were used since the proposed bridge design does not include any piers. For the streambed material, a D50 particle size of 2mm (needed for input into the HEC-RAS scour program) was estimated from the National Resource Conservation Service's (NRCS) Web Soil Survey for the project area (See Appendix A), and was verified from soils data provided in the final Geotechnical Report (Reference 8). Results of the scour analysis are in Appendix B.

D. Riprap Design

Riprap protection at the proposed bridge structure was designed per formulas in HEC-23 (Reference 7). 18" rock riprap at three feet thick is recommended around both the left and right abutments. Calculations for the riprap sizing are in Appendix B.

IV. STORMWATER MANAGEMENT PLAN

A Stormwater Management Plan (SWMP) was developed during final design and will be implemented during construction of the project. This plan is in compliance with the latest NPDES permit program. The SWMP consists of erosion and sediment control measures that serve as Best Management Practices (BMP's) for water quality control during construction. The BMP's include structural controls, such as silt fence barriers, erosion logs, and riprap protection. Some

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non-structural BMP's that will be implemented include native seeding and mulching of disturbed areas, protection of trees and overall maintenance of the BMP facilities. Inspection and maintenance controls for erosion control protection will be included in the project specifications.

V. CONCLUSION

This report is prepared in accordance with the procedures and concepts outlined in the Urban Storm Drainage Criteria Manual (Reference 2), FEMA Floodplain Management Requirements (Reference 4), and the requirements of the local Jefferson County Floodplain Administrator as discussed in Section III of this report. The hydraulic criteria listed are adhered to. The proposed bridge replacement will not cause an increase to the 100-year water surface elevation of Mount Vernon Creek.

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VI. REFERENCES

1. *Flood Hazard Area Delineation – Southern Jefferson County*; Urban Drainage and Flood Control District (UDFCD), prepared by PRC Engineering Consultants, Inc.; December 1981.
2. *Urban Storm Drainage Criteria Manual*; Vol. 1, 2 & 3; Urban Drainage and Flood Control District (UDFCD), Denver, Colorado; August 2006 (with revisions).
3. *Flood Insurance Study – Jefferson County, Colorado*; FIS No. 08059CV001A; Federal Emergency Management Agency (FEMA); June 2003.
4. *Floodplain Management Requirements*; Federal Emergency Management Agency (FEMA); August 2010.
5. *HEC-RAS, River Analysis System*; Version 4.1.0; Hydraulic Engineering Center – U.S. Army Corps of Engineers; January 2010.
6. *Evaluating Scour at Bridges, HEC-18*; Fourth Edition; Federal Highway Administration (FHWA); May 2001.
7. *Bridge Scour and Stream Instability Countermeasures, HEC-23*; Second Edition; Federal Highway Administration (FHWA); March 2001.
8. *Geotechnical Report, Red Rocks Park Road Bridge Over Mt. Vernon Creek, Jefferson County, Colorado*; Yeh and Associates, Inc.; March 2012.

Red Rocks Park Road Bridge Replacement
Final Hydraulics Report

APPENDIX A:
Background Information

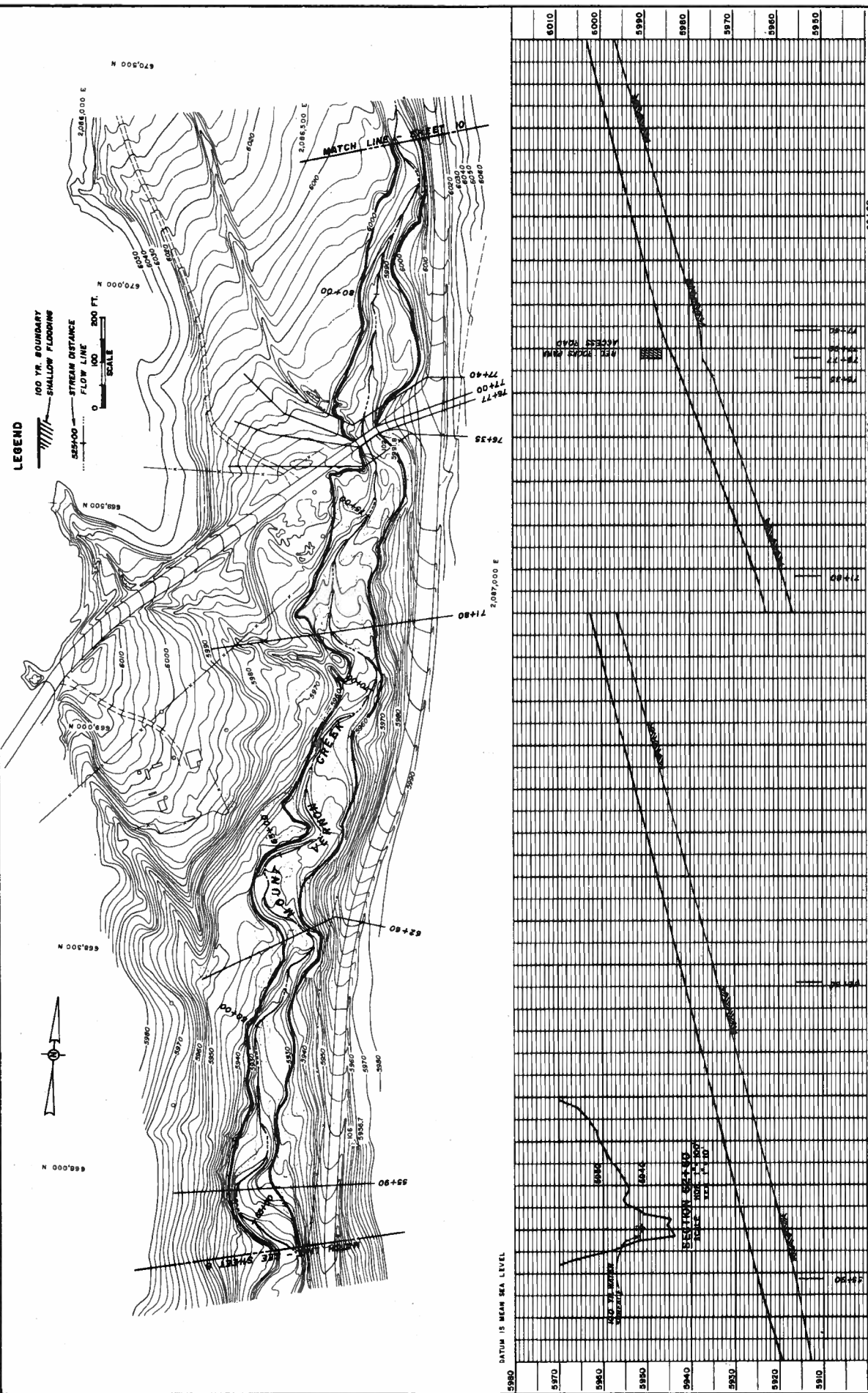
FLOODING SOURCE		FLOOD PLAIN DATA			FLOODWAY DATA			DISTANCE IN FEET ABOVE MOUTH	
IDENTIFICATION	CROSS SECT & STATION	100 YEAR DISCHARGE (CFS)	THALWEG ELEV.(MSL)	100 YR.FLOOD ELEV.(MSL)	FLOOD PLAIN WIDTH(FT.)	LEFT DIST. (FT.)	FLOODWAY WIDTH(FT.)	RIGHT DIST. (FT.)	FLOODWAY ELEV.(MSL)
Highway 8 Private Road	1+05	4395	5759.0	5766.2	650	225	285	60	5766.7
	1+70	"	5759.0	5766.2	650	225	285	60	5766.7
	3+05	"	5762.0	5772.1	315	160	210	50	5722.1
	3+17	"	5762.0	5772.1	315	160	210	50	5722.1
	3+70	"	5762.8	5775.3	247	85	135	50	5775.3
	4+90	"	5767.1	5777.4	123	50	90	40	5777.4
	7+75	"	5777.3	5787.0	146	10	80	70	5787.0
	11+00	"	5786.4	5795.3	129	30	80	50	5795.5
	15+95	"	5799.2	5810.1	58	+	+	+	+
	18+55	"	5807.5	5816.8	104	+	+	+	+
	18+95	"	5809.0	5822.4	104	+	+	+	+
	21+00	"	5815.5	5823.5	.84	+	+	+	+
	26+50	"	5829.7	5838.3	70	+	+	+	+
	29+75	"	5841.1	5849.5	88	+	+	+	+
	32+50	"	5849.3	5857.6	97	+	+	+	+
35+95	"	5859.3	5866.7	104	+	+	+	+	
39+80	"	5868.6	5877.2	96	+	+	+	+	
43+40	"	5881.0	5888.5	115	+	+	+	+	
47+70	"	5892.8	5903.7	67	+	+	+	+	
50+50	"	5902.5	5908.4	154	+	+	+	+	
53+70	"	5911.9	5918.6	65	+	+	+	+	
55+90	"	5916.1	5924.8	98	+	+	+	+	
62+60	"	5933.6	5941.2	68	+	+	+	+	
71+80	"	5958.8	5964.4	134	+	+	+	+	
76+35	4160	5974.7	5981.6	81	+	+	+	+	
76+77	"	5978.0	5983.4	58	+	+	+	+	
77+00	"	5978.0	5984.8	58	+	+	+	+	
77+40	"	5977.2	5986.1	115	+	+	+	+	
86+60	"	6005.3	6010.9	82	+	+	+	+	
92+70	"	6021.1	6029.5	63	+	+	+	+	
100+00	"	6042.0	6049.1	88	+	+	+	+	
104+80	"	6055.2	6063.1	110	+	+	+	+	
109+55	"	6067.9	6075.5	63	+	+	+	+	
112+05	"	6075.2	6082.9	55	+	+	+	+	
112+45	"	6078.0	6090.2	17	+	+	+	+	
112+95	"	6082.0	6094.3	17	+	+	+	+	
113+40	"	6083.3	6101.0	190	+	+	+	+	
115+90	"	6093.1	6101.0	95	+	+	+	+	
118+50	"	6101.9	6109.2	131	+	+	+	+	
119+50	"	6105.9	6111.6	172	+	+	+	+	
126+05	"	6123.4	6130.5	89	+	+	+	+	
130+95	"	6139.2	6143.7	160	+	+	+	+	
131+20	"	6140.0	6148.8	185	+	+	+	+	
131+35	"	6140.0	6150.3	190	+	+	+	+	
131+45	"	6141.3	6150.6	183	+	+	+	+	

MOUNT VERNON CREEK

URBAN DRAINAGE & FLOOD CONTROL DISTRICT
FLOOD HAZARD AREA DELINEATION
SOUTHWEST WASHINGTON COUNTY

**FLOOD PLAIN AND FLOODWAY
REFERENCE DATA**

CONSULTANTS - THE ENGINEERING CONSULTANTS, INC.
FREETOWN, COLORADO, U.S.A.
DESIGNED BY - J.S. -
DRAWN BY - J.S. -
CHECKED BY - J.S. -
DATE - 12-14-81 -
BY - J.S. -
TABLE 3



5850
5870
5900
5950
5980
6000
6010

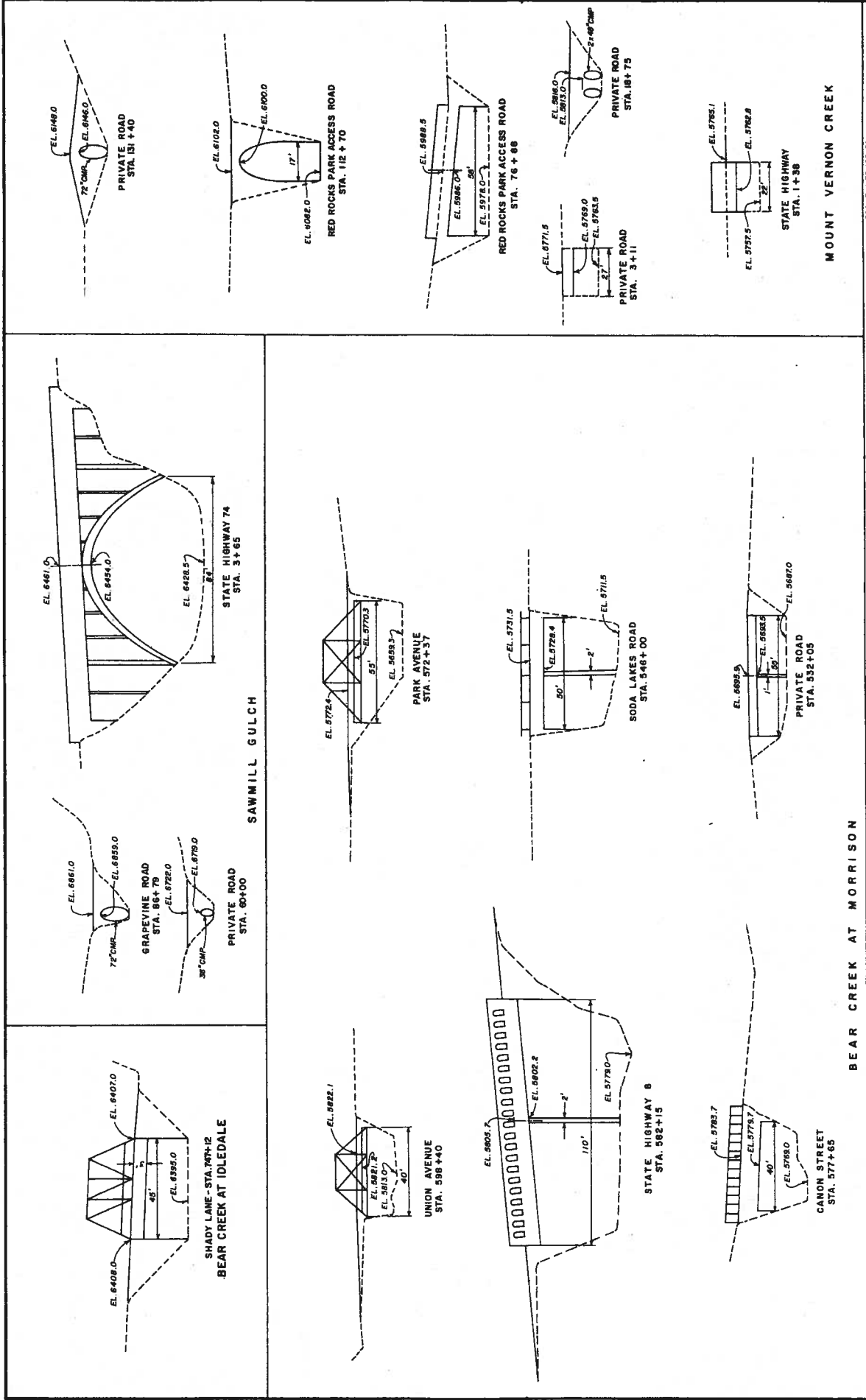
60+00
70+00
80+00

SECTION 60+00
SECTION 70+00
SECTION 80+00
SECTION 90+00

DATUM IS MEAN SEA LEVEL


PCIC
 Professional Consulting Engineers, Inc.
 1001 W. 10th St., Suite 200
 Oklahoma City, Oklahoma 73106-3500
 Phone: (405) 761-1100
 Fax: (405) 761-1101
 Website: www.pcic.com

DRAWN BY: J. L. WATKINS
 CHECKED BY: J. L. WATKINS
 DATE: 12-25-88
 SHEET: 9 OF 36
 PROJECT: MOUNT VERNON CREEK
 AREA: STA. 54+00 TO STA. 84+00
 COUNTY: SOUTHERN JEFFERSON COUNTY, JEFFERSON COUNTY



NOTE - SECTIONS ARE TAKEN AT U/S FACE OF BRIDGE

DRAWING NO. _____ DATE _____
 CHECKED BY _____ DATE _____
 DESIGNED BY _____ DATE _____

ENGINEERING CONSULTANTS, INC.
 Englewood, Colorado

SHEET
 35 OF 36

BEAR CREEK AT MORRISON

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
 JEFFERSON COUNTY

FLOOD HAZARD AREA DELINEATION
 SOUTHERN JEFFERSON COUNTY

BRIDGE SECTIONS
 BEAR CREEK, SAWMILL GULCH &
 MOUNT VERNON CREEK

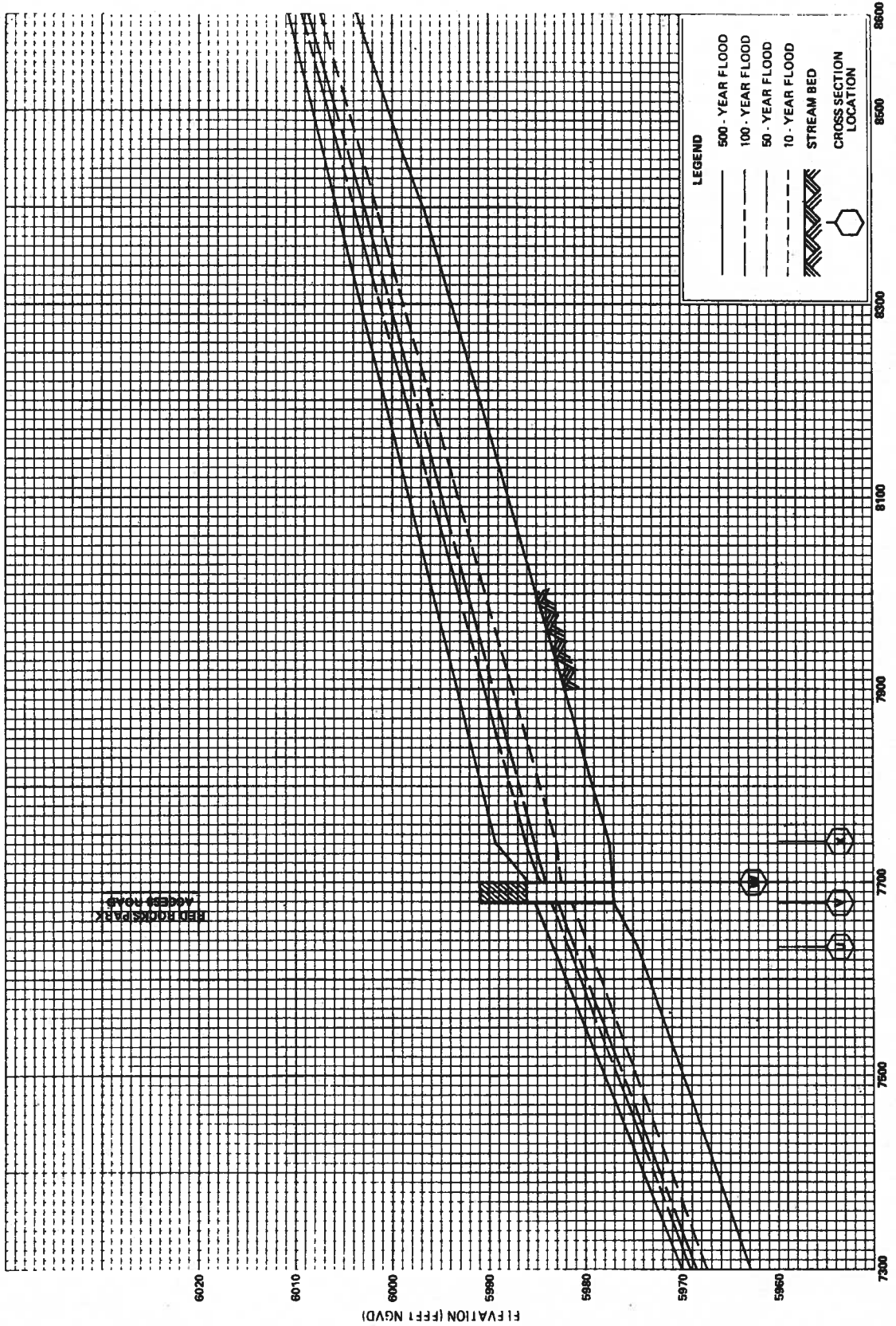
ORIGINAL SCALES BEFORE REDUCTION
 HOR. 1" = 20' VER. 1" = 10'

Table 4. Summary of Discharges (Cont'd)

<u>Flooding Source and Location</u>	<u>Drainage Area (Square Miles)</u>	<u>Peak Discharges (Cubic Feet per Second)</u>			
		<u>10-Year</u>	<u>50-Year</u>	<u>100-Year</u>	<u>500-Year</u>
Middle Branch Hylands Creek	1.27	480	1,050	1,280	2,237
At confluence with South Branch Highlands Creek		332	636	759	1,224
At confluence with North Branch Highlands Creek	-- ¹	141	167	228	680
Eighth Green Pond Outflow	-- ¹	104	135	147	571
Lowell Pond Outflow		20	40	50	82
At upstream study limit	0.02				
Middle Cotton Creek					
At confluence with Big Dry Creek	0.32	98	215	260	455
At upstream study limit	0.10	68	135	160	261
Mount Vernon Creek					
At mouth	9.66	2,030	3,630	4,395	6,400
Meyers Gulch					
At mouth	1.31	145	450	605	1,200
Nissen Reservoir Channel					
At confluence with Big Dry Creek	2.67	1,860	3,150	3,400	5,600
North Branch Coon Creek					
At mouth	0.64	410	570	625	800
North Branch Hylands Creek					
At confluence with Middle Branch Highlands Creek	0.49	130	300	370	671
At upstream study limit	0.08	78	155	190	319
North Branch Walnut Creek					
At confluence with Walnut Creek	1.14	150	410	520	1,024
At upstream study limit	0.62	170	410	510	960

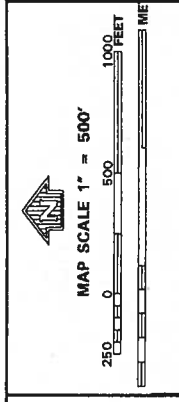
¹Data not available

FLOOD PROFILES



STREAM DISTANCE IN FEET ABOVE MOUTH

ELEVATION (FEET NGVD)



FIRM
FLOOD INSURANCE RATE MAP
 JEFFERSON COUNTY,
 COLORADO AND
 INCORPORATED AREAS

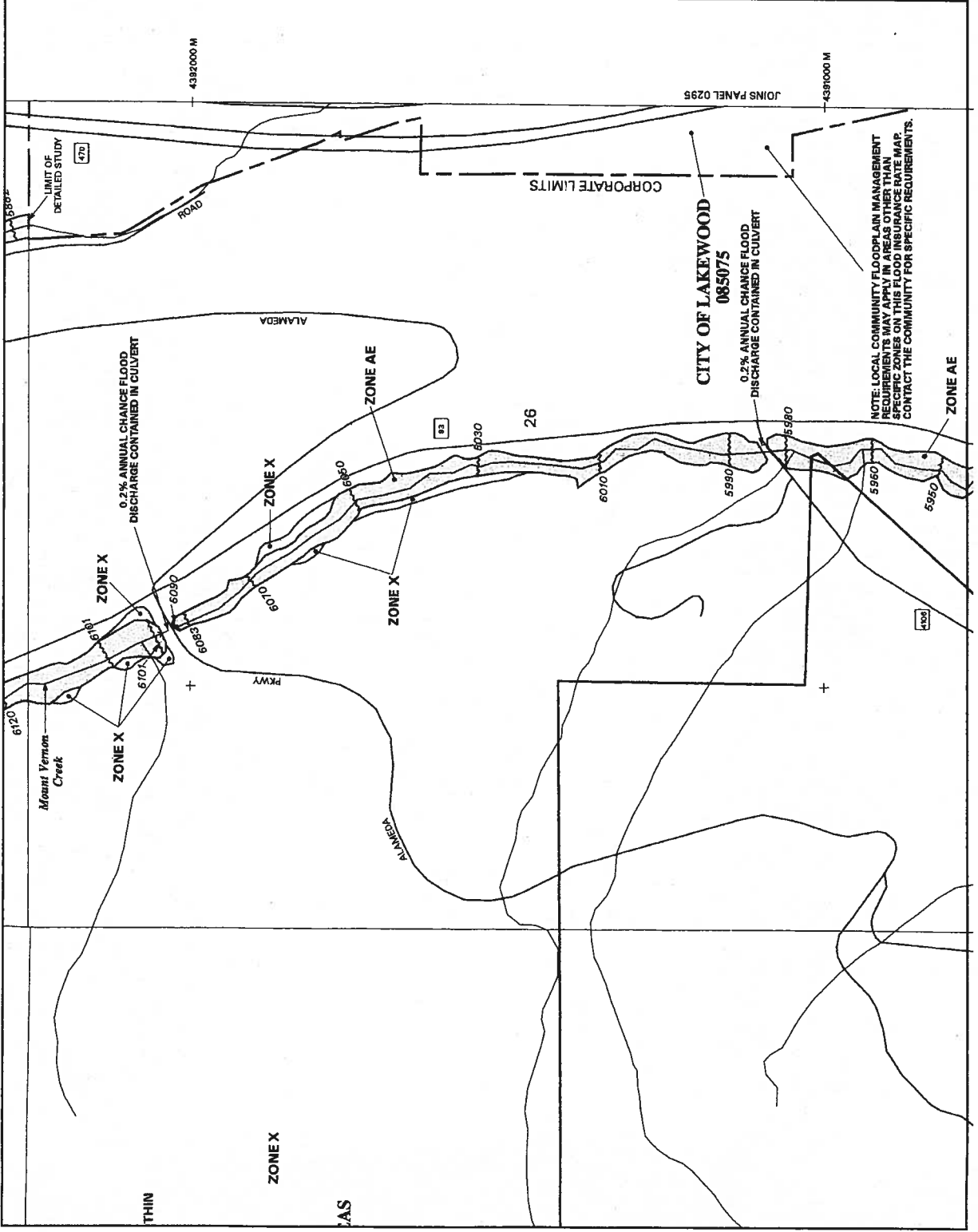
PANEL 287 OF 676
 SEE MAP INDEX FOR FIRM PANEL LAYOUT

COMPAÑY: JAMES L. DANIEL, JR. INC.
ADDRESS: 1000 S. W. 10TH ST., SUITE 100
 MIAMI, FL 33135
PHONE: (305) 551-1111
FAX: (305) 551-1112

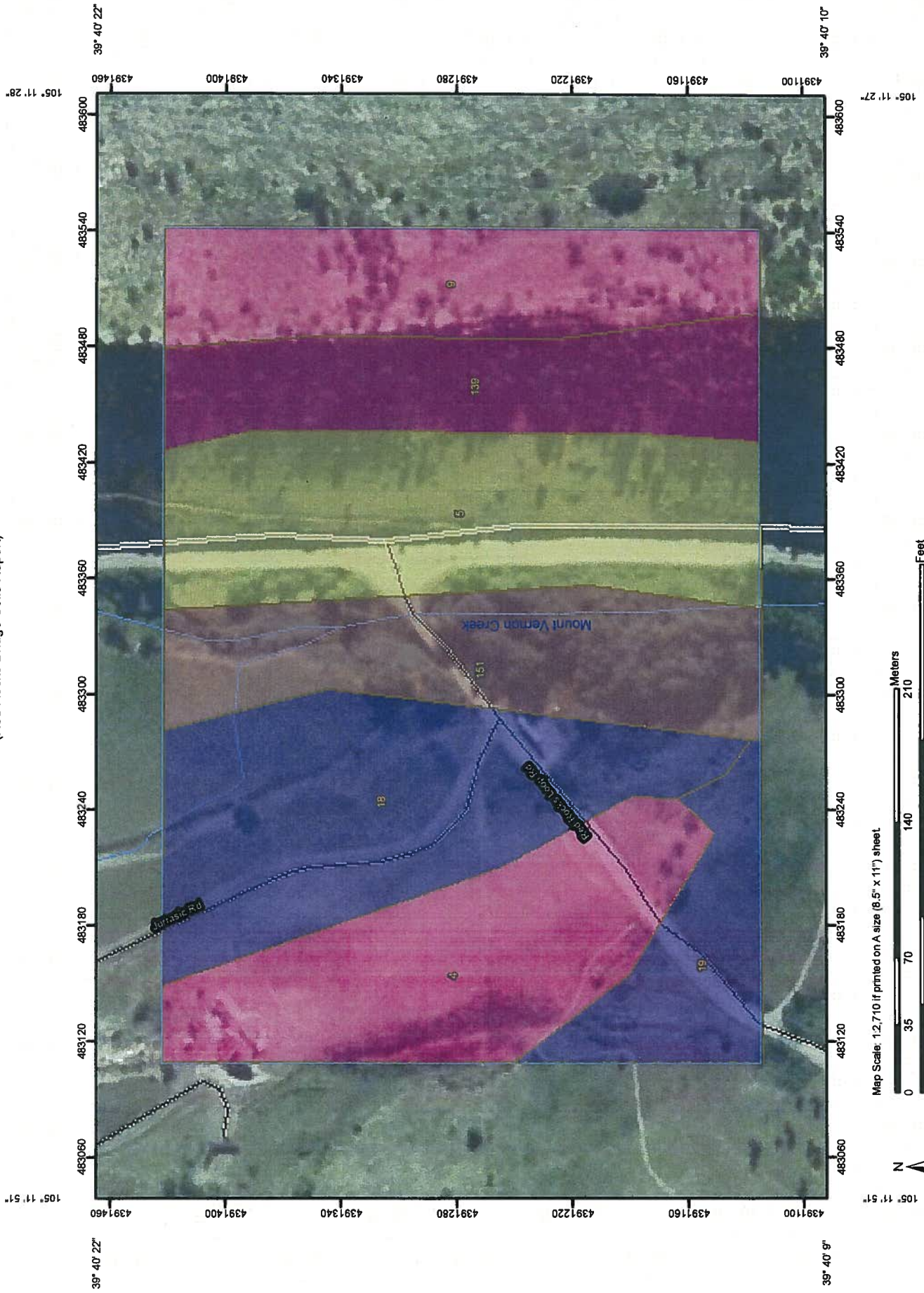
MAP NUMBER: 08085C0287 E
EFFECTIVE DATE: JUNE 17, 2008

Federal Emergency Management Agency

This is an official copy of the information shown on this map. It was prepared by the Federal Emergency Management Agency (FEMA) and is not to be used for any other purpose. The information shown on this map is based on the best available data and is not a guarantee of accuracy. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at www.fema.gov.






















Hydrologic Soil Group—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
(Red Rocks Bridge Soils Report)



Map Scale: 1:2,710 if printed on A size (8.5" x 11") sheet



MAP LEGEND

	Area of Interest (AOI)
	Soils
	Soil Map Units
Soil Ratings	
	A
	A/D
	B
	B/D
	C
	C/D
	D
	Not rated or not available
Political Features	
	Cities
Water Features	
	Oceans
	Streams and Canals
Transportation	
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads

MAP INFORMATION

Map Scale: 1:2,710 if printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:24,000.
 Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 13N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
 Survey Area Data: Version 7, May 1, 2009
 Date(s) aerial images were photographed: 8/6/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Argiustolls, loamy, 15 to 30 percent slopes	D	5.3	15.8%
5	Argiustolls-Rock outcrop complex, 15 to 60 percent slopes	C	6.5	19.5%
9	Baller-Rock outcrop complex, 15 to 50 percent slopes	D	4.3	13.0%
18	Critchell gravelly sandy loam, 3 to 9 percent slopes	B	6.4	19.2%
19	Critchell gravelly sandy loam, 9 to 15 percent slopes	B	2.3	6.8%
139	Rock outcrop, sedimentary	D	3.9	11.8%
151	Torrifluvents, very gravelly, 0 to 3 percent slope	A	4.6	13.9%
Totals for Area of Interest			33.2	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Particle Size and Coarse Fragments

This table shows estimates of particle size distribution and coarse fragment content of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (K_{sat}), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Total fragments is the content of fragments of rock and other materials larger than 2 millimeters in diameter on volumetric basis of the whole soil.

Fragments 2-74 mm refers to the content of coarse fragments in the 2 to 74 millimeter size fraction.

Fragments 75-249 mm refers to the content of coarse fragments in the 75 to 249 millimeter size fraction.

Fragments 250-599 mm refers to the content of coarse fragments in the 250 to 599 millimeter size fraction.

Fragments ≥ 600 mm refers to the content of coarse fragments in the greater than or equal to 600 millimeter size fraction.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service.
National soil survey handbook, title 430-VI. (<http://soils.usda.gov>)

Report—Particle Size and Coarse Fragments

Particle Size and Coarse Fragments—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties										
Map symbol and soil name	Horizon	Depth	Sand	Silt	Clay	Total fragments	Fragments 2-74 mm	Fragments 75-249 mm	Fragments 250-599 mm	Fragments >=600 mm
		In	L-RV-H Pct	L-RV-H Pct	L-RV-H Pct	RV Pct	RV Pct	RV Pct	RV Pct	RV Pct
4—Argiustolls, loamy, 15 to 30 percent slopes	H1	0-10	-66-	-19-	10-15- 20	29	23	3	—	3
	H2	10-25	-57-	-18-	15-25- 35	12	9	3	—	—
	H3	25-29	—	—	—	—	—	—	—	—
5—Argiustolls-Rock outcrop complex, 15 to 60 percent slopes	H1	0-10	-66-	-19-	10-15- 20	34	12	9	—	13
	H2	10-35	-61-	-14-	15-25- 35	41	36	5	—	—
	H3	35-39	—	—	—	—	—	—	—	—
Rock outcrop	H1	0-60	—	—	0-0-0	—	—	—	—	—
9—Baller-Rock outcrop complex, 15 to 50 percent slopes	H1	0-4	-68-	-20-	7-13- 18	58	25	26	—	7
	H2	4-14	-68-	-20-	7-13- 18	58	25	26	—	7
	H3	14-18	—	—	—	—	—	—	—	—
Rock outcrop	H1	0-60	—	—	0-0-0	—	—	—	—	—

Particle Size and Coarse Fragments—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties										
Map symbol and soil name	Horizon	Depth	Sand	Silt	Clay	Total fragments	Fragments 2-74 mm	Fragments 75-249 mm	Fragments 250-599 mm	Fragments >=600 mm
		<i>In</i>	L-RV-H Pct	L-RV-H Pct	L-RV-H Pct	RV Pct	RV Pct	RV Pct	RV Pct	RV Pct
18—Critchell gravelly sandy loam, 3 to 9 percent slopes										
Critchell	H1	0-6	-66-	-19-	10-15- 20	26	24	—	—	2
	H2	6-25	-55-	-17-	20-28- 35	27	24	3	—	—
	H3	25-35	-67-	-15-	10-18- 25	27	24	3	—	—
	H4	35-60	-67-	-23-	5-10- 15	27	24	3	—	—
19—Critchell gravelly sandy loam, 9 to 15 percent slopes										
Critchell	H1	0-6	-66-	-19-	10-15- 20	26	24	—	—	2
	H2	6-25	-55-	-17-	20-28- 35	27	24	3	—	—
	H3	25-35	-67-	-15-	10-18- 25	27	24	3	—	—
	H4	35-60	-67-	-23-	5-10- 15	27	24	3	—	—
139—Rock outcrop, sedimentary										
Rock outcrop, sedimentary	H1	0-60	—	—	0-0-0	—	—	—	—	—
151—Torrifluents, very gravelly, 0 to 3 percent slope										
Torrifluents	H1	0-6	—	—	—	—	—	—	—	—
	H2	6-60	—	—	0-5-10	47	38	6	—	3

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
 Survey Area Data: Version 7, May 1, 2009

The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

DATABASE = , PROGRAM = datasheet, VERSION = 7.85

1 National Geodetic Survey, Retrieval Date = APRIL 29, 2010

NGVD 29

KK1851 *****

KK1851 DESIGNATION - 67
 KK1851 PID - KK1851
 KK1851 STATE/COUNTY- CO/JEFFERSON
 KK1851 USGS QUAD - MORRISON (1994)

*6434-NAVD
 6437-88
 +3 8815
 3' higher*

KK1851 *CURRENT SURVEY CONTROL

KK1851* NAD 83(1992) - 39 40 48.85581(N) 105 11 40.54665(W) ADJUSTED
 KK1851* NAVD 88 - 1962.0 (meters) 6437. (feet) VERTCON

KK1851 LAPLACE CORR- -21.29 (seconds) DEFLEC09
 KK1851 GEOID HEIGHT- -15.58 (meters) GEOID09
 KK1851 HORZ ORDER - SECOND

KK1851.The horizontal coordinates were established by classical geodetic methods and adjusted by the National Geodetic Survey in January 1993.

KK1851.The NAVD 88 height was computed by applying the VERTCON shift value to the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)

KK1851.The Laplace correction was computed from DEFLEC09 derived deflections.

KK1851.The geoid height was determined by GEOID09.

	North	East	Units	Scale Factor	Converg.
KK1851;SPC CO C	- 509,870.442	940,602.278	MT	0.99998694	+0 11 33.4
KK1851;SPC CO C	- 1,672,799.94	3,085,959.31	sFT	0.99998694	+0 11 33.4
KK1851;UTM 13	- 4,392,285.810	483,312.093	MT	0.99960343	-0 07 27.3

KK1851! Elev Factor x Scale Factor = Combined Factor
 KK1851!SPC CO C - 0.99969473 x 0.99998694 = 0.99968168
 KK1851!UTM 13 - 0.99969473 x 0.99960343 = 0.99929828

	Primary Azimuth Mark	Grid Az
KK1851:SPC CO C	- 67 AZ MK	226 34 59.4
KK1851:UTM 13	- 67 AZ MK	226 54 00.1

PID	Reference Object	Distance	Geod. Az
CP7160 67 RM 1		6.338 METERS	03729
KK1816 LAKEWOOD FED CORR INST TANK		APPROX. 8.7 KM	1161152.6
CP7161 67 RM 2		8.259 METERS	15733
CP7159 67 AZ MK			2264632.8

KK1851 SUPERSEDED SURVEY CONTROL

KK1851 NAD 83(1986) - 39 40 48.85231(N) 105 11 40.54463(W) AD () 2
 KK1851 NAD 27 - 39 40 48.89492(N) 105 11 38.58723(W) AD () 2
 KK1851 NGVD 29 (07/19/86) 1961.0 (m) 6434. (f) VERT ANG

KK1851.Superseded values are not recommended for survey control.
 KK1851.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

Red Rocks Park Road Bridge Replacement
Final Hydraulics Report

APPENDIX B:
Hydraulic Computations Summary

HEC-RAS River: Mt. Vernon Creek Reach: 1 Profile: 100 - YR

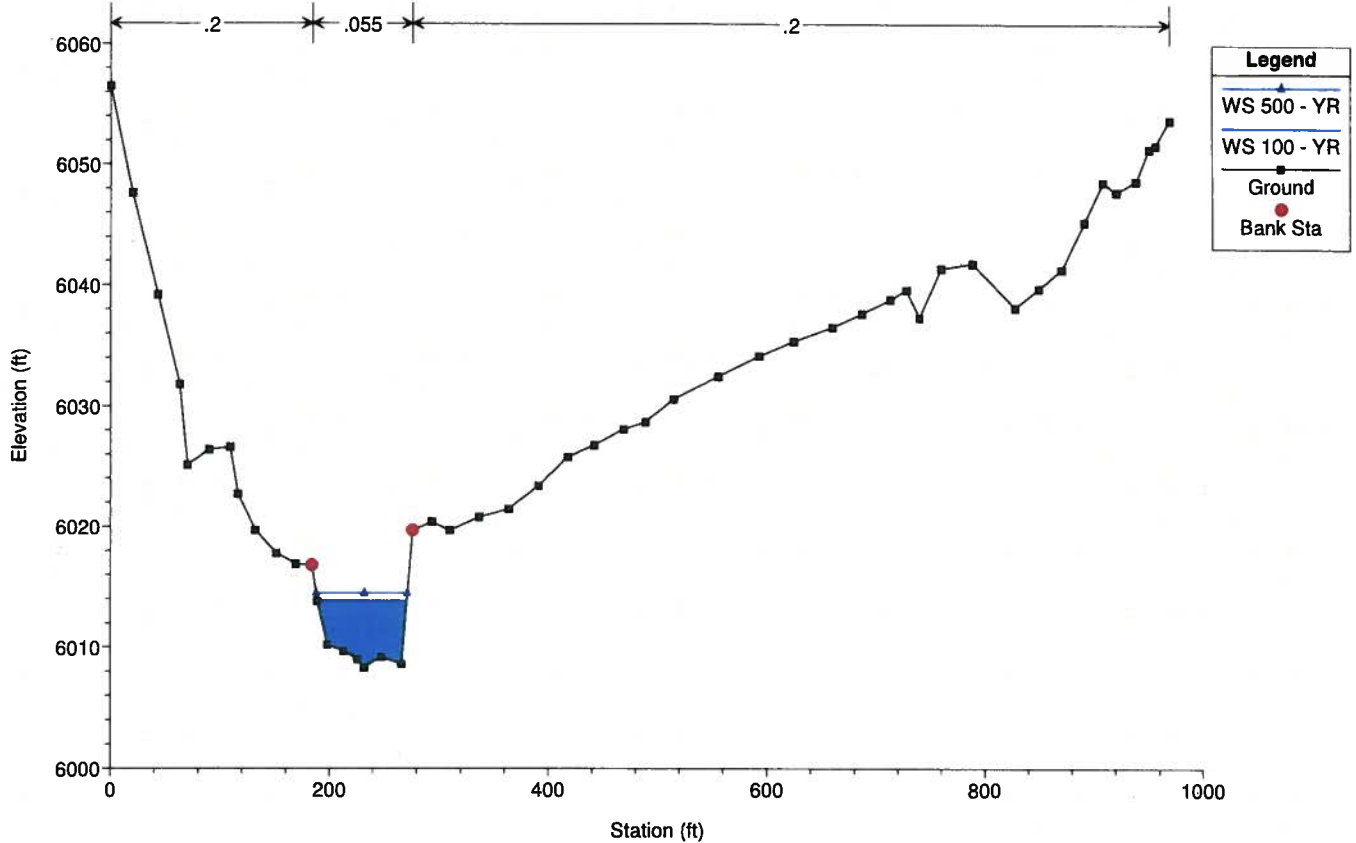
Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
1	8660	100 - YR	Corr. Effective	4160.00	6008.30	6013.90	6013.91	6016.07	0.028818	11.82	352.05	81.94	1.00
1	8660	100 - YR	Proposed Mod	4160.00	6008.30	6013.90	6013.91	6016.07	0.028818	11.82	352.05	81.94	1.00
1	7740	100 - YR	Corr. Effective	4160.00	5981.50	5990.34	5987.32	5990.81	0.004484	5.55	764.83	171.42	0.42
1	7740	100 - YR	Proposed Mod	4160.00	5981.50	5990.21	5987.32	5990.71	0.004739	5.68	744.31	166.20	0.43
1	7710	100 - YR	Corr. Effective	4160.00	5980.23	5989.32	5987.30	5990.54	0.005506	8.87	468.91	74.36	0.62
1	7710	100 - YR	Proposed Mod	4160.00	5980.23	5989.23	5987.30	5990.46	0.004508	8.95	476.90	76.82	0.60
1	7700	100 - YR	Corr. Effective	4160.00	5979.90	5988.78	5987.17	5990.43	0.007217	10.32	403.24	58.98	0.70
1	7685			Bridge									
1	7677	100 - YR	Corr. Effective	4160.00	5979.50	5987.05	5987.05	5989.85	0.015655	13.43	309.80	55.53	1.00
1	7652	100 - YR	Corr. Effective	4160.00	5978.85	5986.04	5986.40	5989.28	0.018182	14.47	287.58	53.65	1.10
1	7652	100 - YR	Proposed Mod	4160.00	5979.00	5986.05	5986.89	5989.46	0.026768	14.82	280.84	71.10	1.31
1	7635	100 - YR	Corr. Effective	4160.00	5978.51	5984.19	5985.55	5988.63	0.070756	16.91	246.07	66.57	1.55
1	7635	100 - YR	Proposed Mod	4160.00	5978.51	5984.17	5985.45	5988.48	0.079879	16.67	249.62	71.75	1.57
1	7180	100 - YR	Corr. Effective	4395.00	5961.80	5967.40	5967.35	5968.88	0.029406	9.78	449.60	144.08	0.98
1	7180	100 - YR	Proposed Mod	4395.00	5961.80	5967.40	5967.35	5968.88	0.029406	9.78	449.60	144.08	0.98

HEC-RAS River: Mt. Vernon Creek Reach: 1 Profile: 500 - YR

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
1	8660	500 - YR	Corr. Effective	6400.00	6008.30	6014.50	6015.37	6018.44	0.045307	15.93	401.68	83.48	1.28
1	8660	500 - YR	Proposed Mod	6400.00	6008.30	6014.50	6015.38	6018.44	0.045307	15.93	401.68	83.48	1.28
1	7740	500 - YR	Corr. Effective	6400.00	5981.50	5994.48	5988.60	5994.82	0.001528	4.67	1570.74	208.91	0.27
1	7740	500 - YR	Proposed Mod	6400.00	5981.50	5992.60	5988.60	5993.14	0.003286	5.90	1192.45	207.64	0.38
1	7710	500 - YR	Corr. Effective	6400.00	5980.23	5993.85		5994.69	0.002145	7.45	919.41	157.66	0.42
1	7710	500 - YR	Proposed Mod	6400.00	5980.23	5991.16	5988.99	5992.86	0.004583	10.62	634.26	89.64	0.63
1	7700	500 - YR	Corr. Effective	6400.00	5979.90	5993.62	5989.15	5994.65	0.002686	8.34	867.74	175.42	0.45
1	7685			Bridge									
1	7677	500 - YR	Corr. Effective	6400.00	5979.50	5989.02	5988.95	5992.58	0.014708	15.13	422.88	58.77	0.99
1	7652	500 - YR	Corr. Effective	6400.00	5978.85	5989.74	5989.74	5991.42	0.005720	11.14	761.89	259.81	0.66
1	7652	500 - YR	Proposed Mod	6400.00	5979.00	5987.26	5988.46	5991.96	0.026760	17.39	368.36	80.55	1.37
1	7635	500 - YR	Corr. Effective	6400.00	5978.51	5985.68	5987.27	5990.84	0.058493	18.23	351.72	84.41	1.47
1	7635	500 - YR	Proposed Mod	6400.00	5978.51	5985.29	5987.02	5990.96	0.073062	19.11	336.08	81.84	1.62
1	7180	500 - YR	Corr. Effective	6400.00	5961.80	5968.50	5968.22	5970.21	0.023348	10.50	609.73	147.05	0.91
1	7180	500 - YR	Proposed Mod	6400.00	5961.80	5968.50	5968.23	5970.21	0.023348	10.50	609.73	147.05	0.91

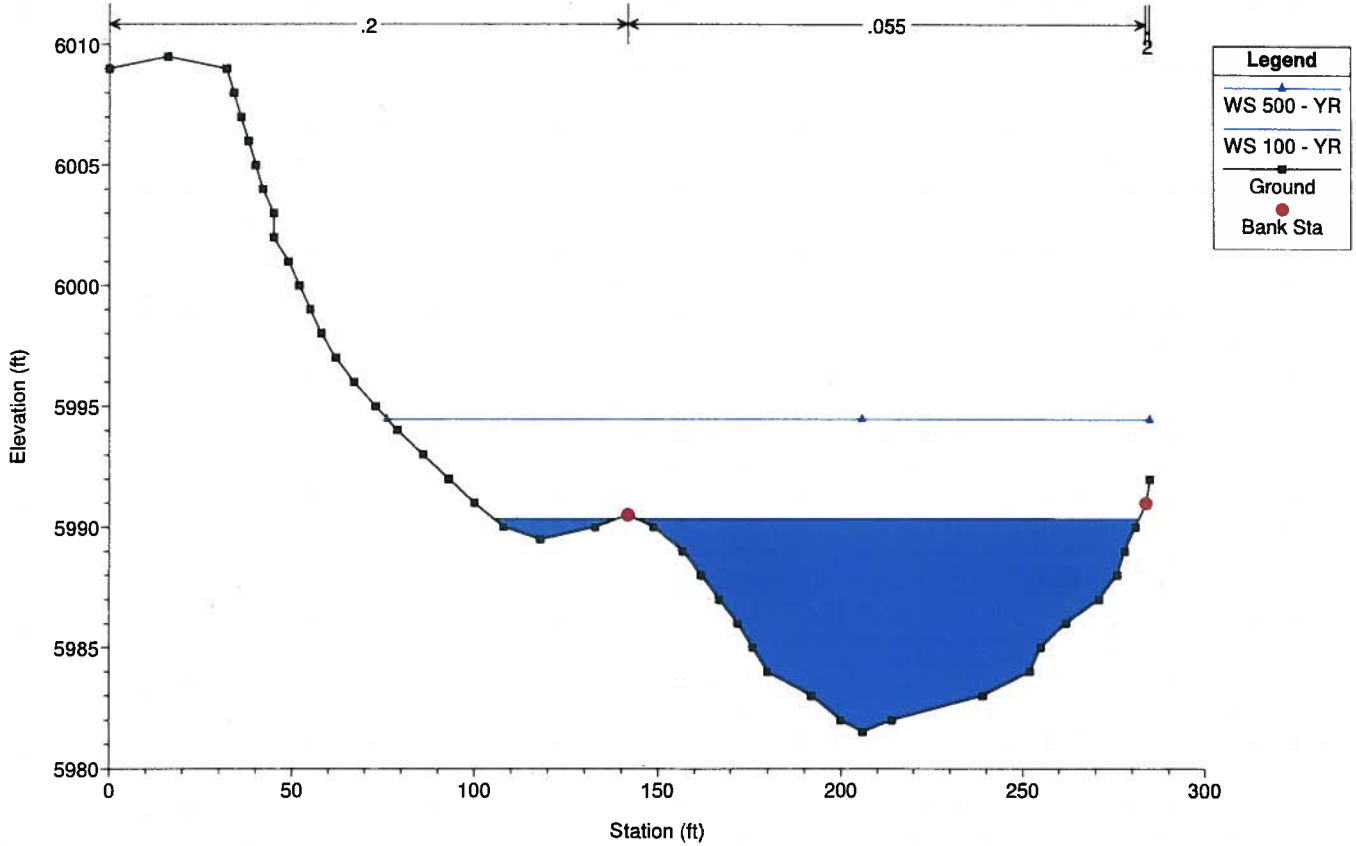
Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012

RS = 8660 Last upstream station

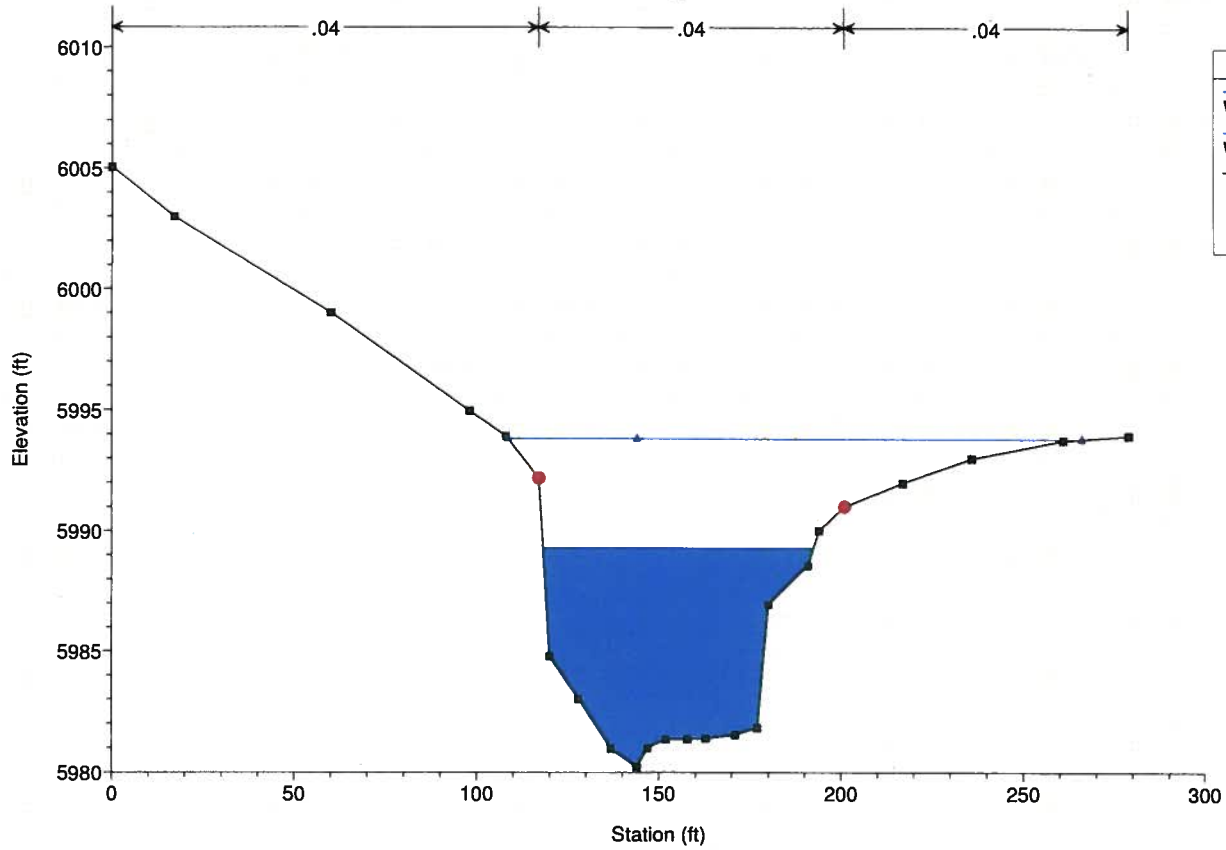


Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012

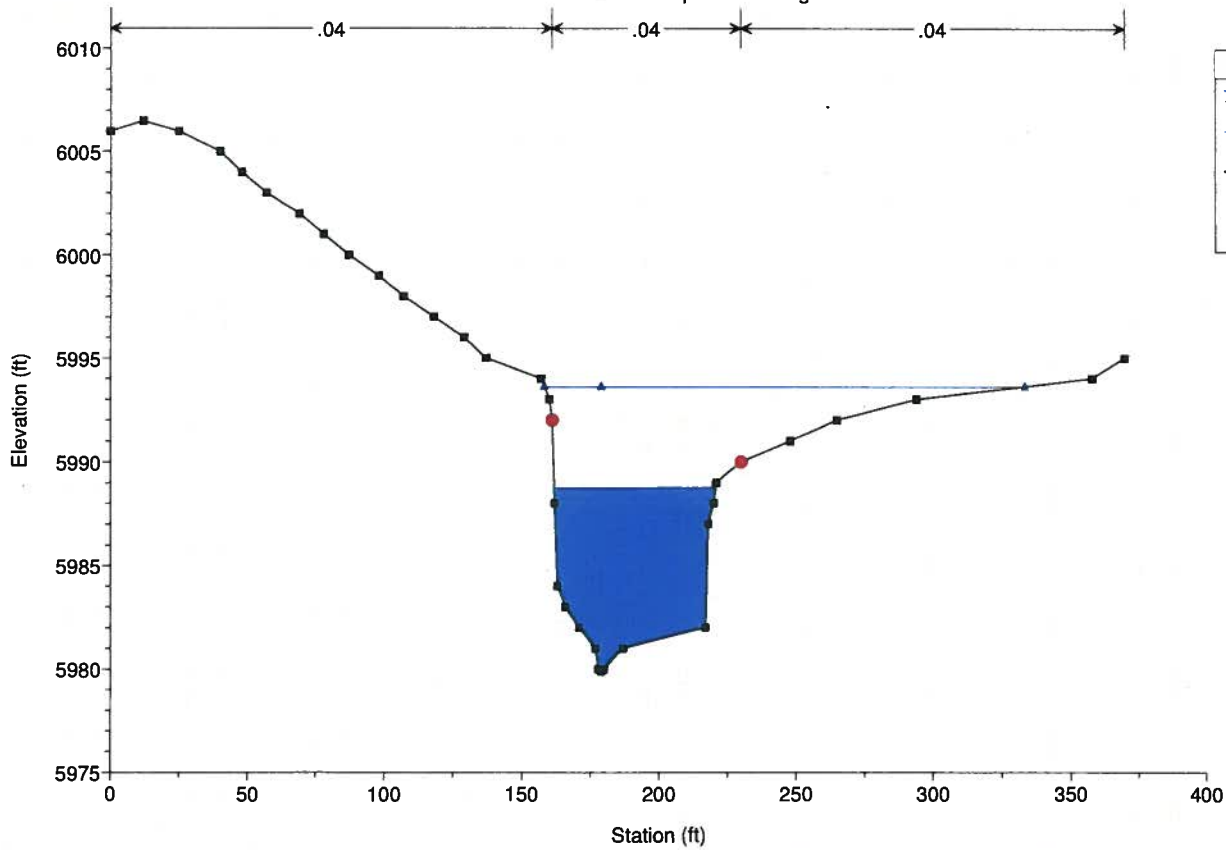
RS = 7740



Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
RS = 7710

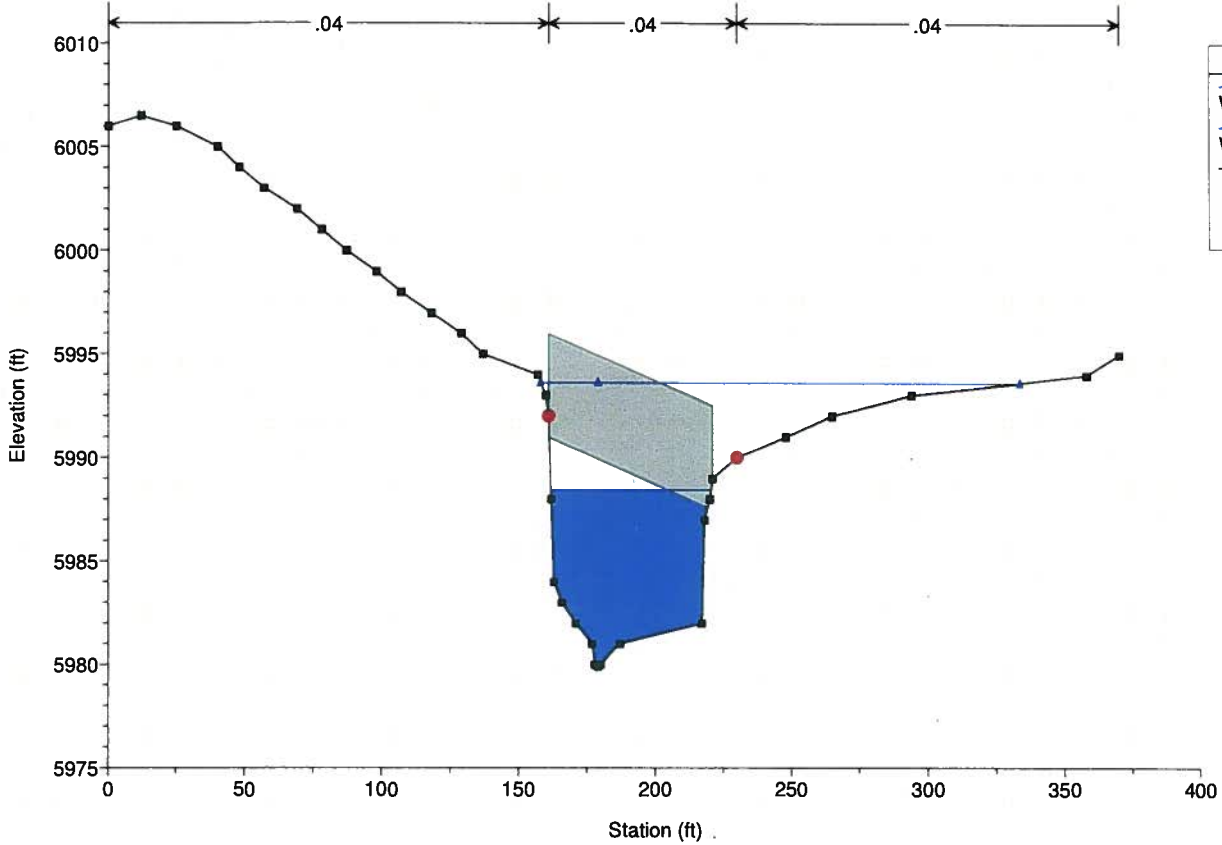


Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
RS = 7700 Upstream Bridge



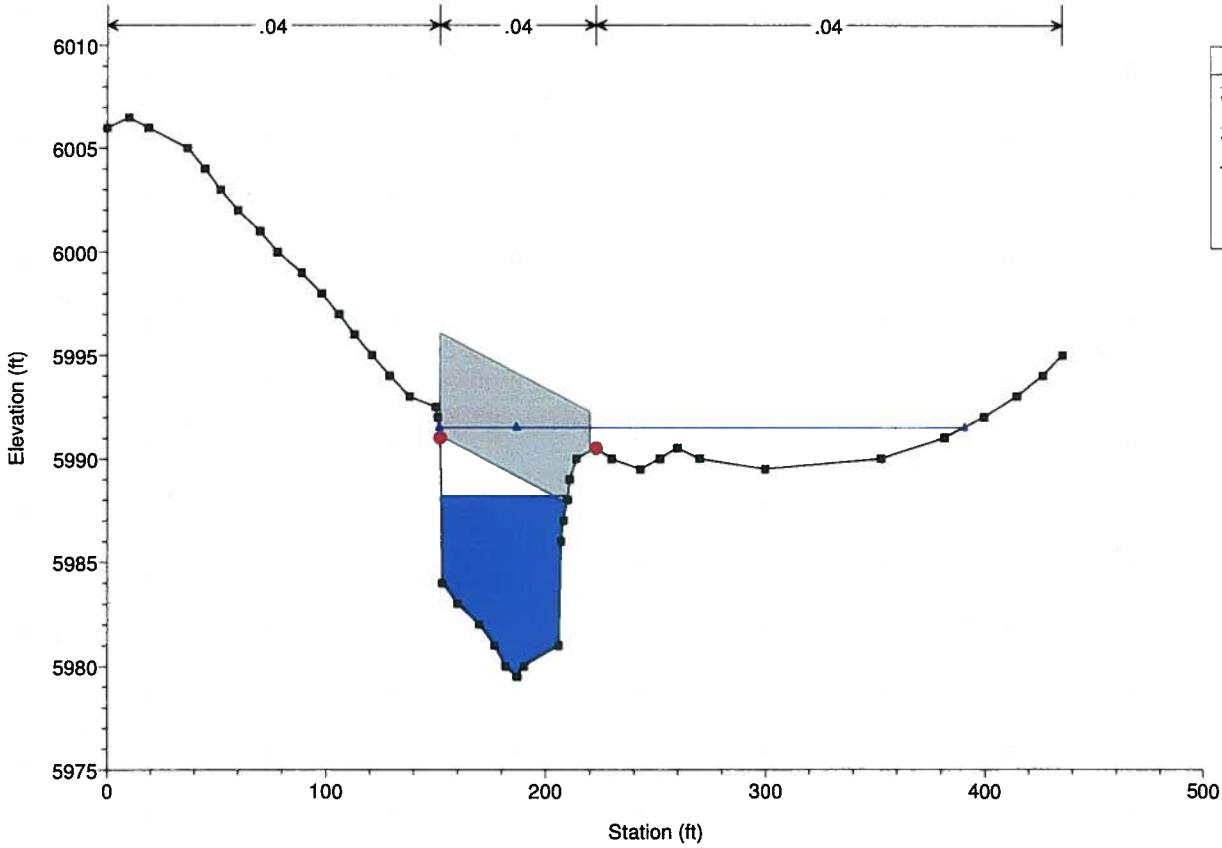
Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012

RS = 7685 BR

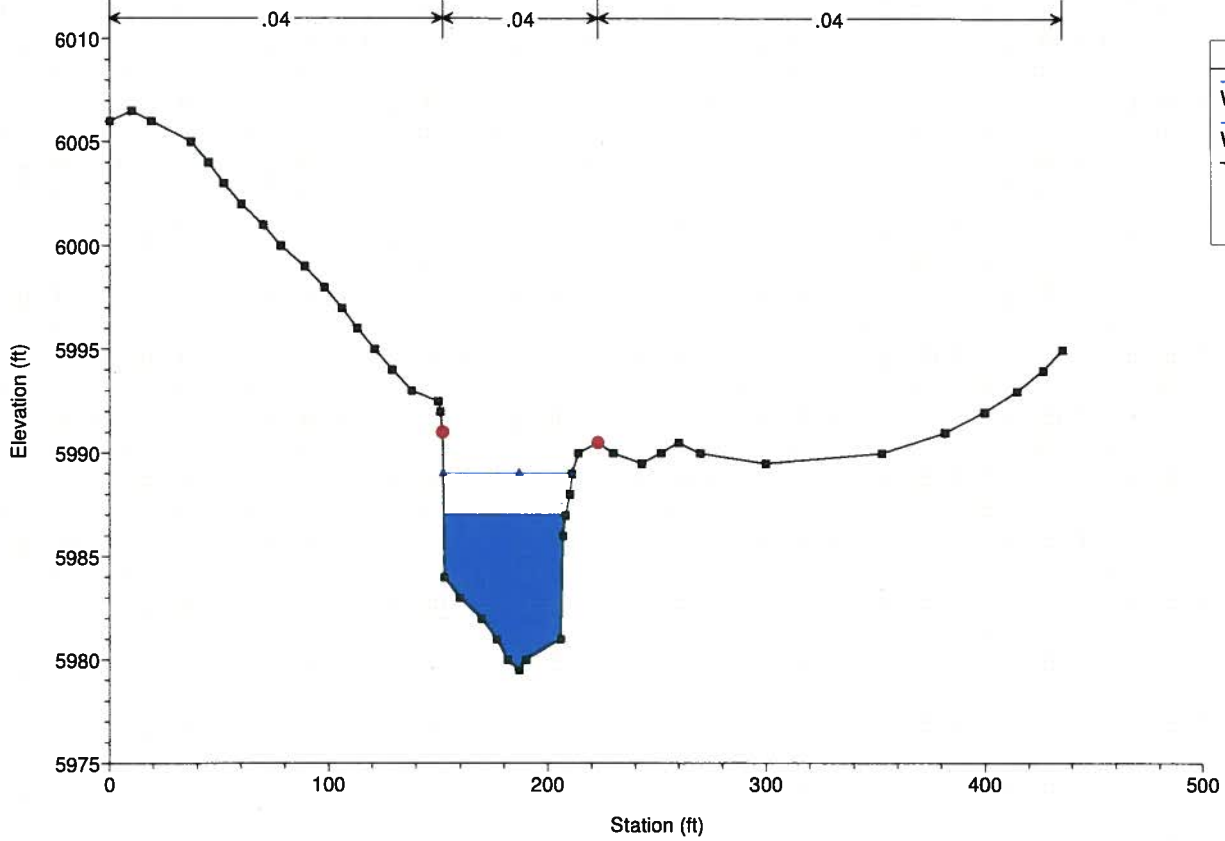


Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012

RS = 7685 BR

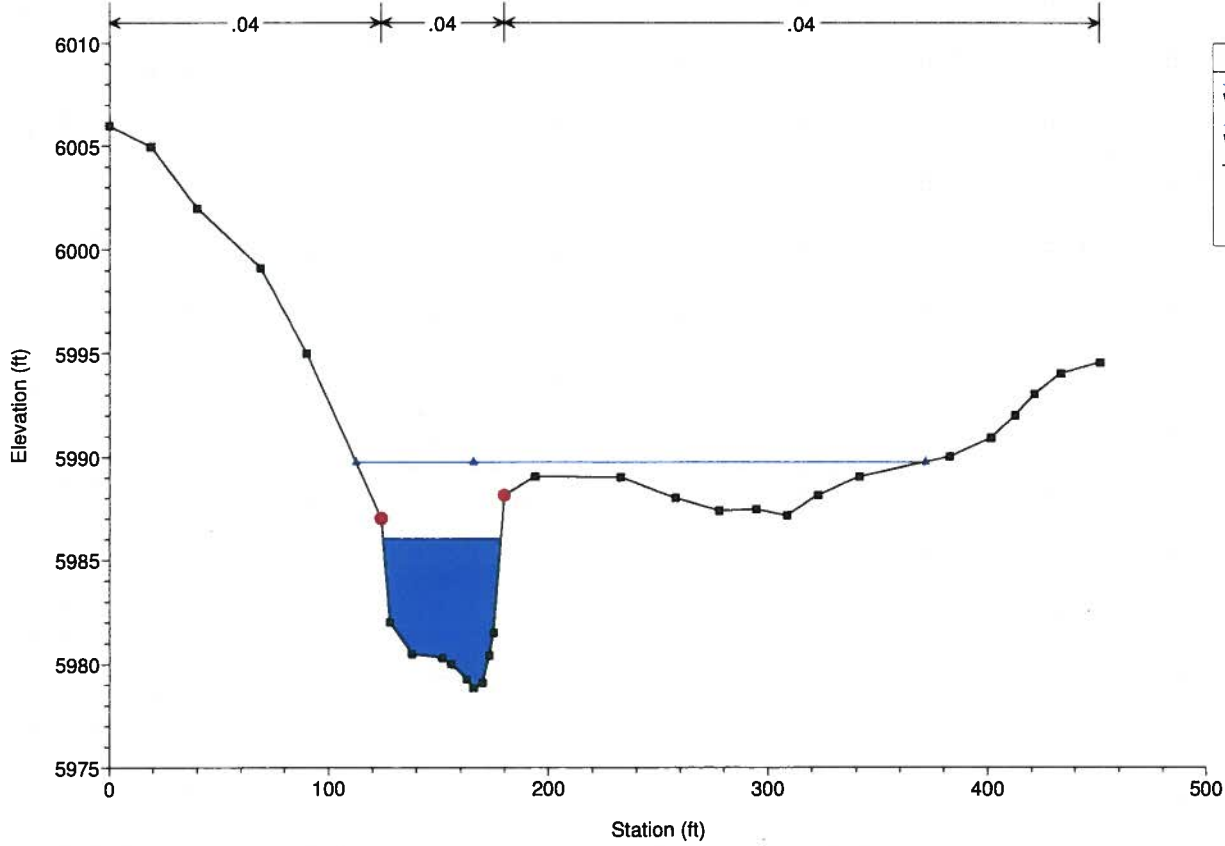


Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
 RS = 7677 Downstream Bridge



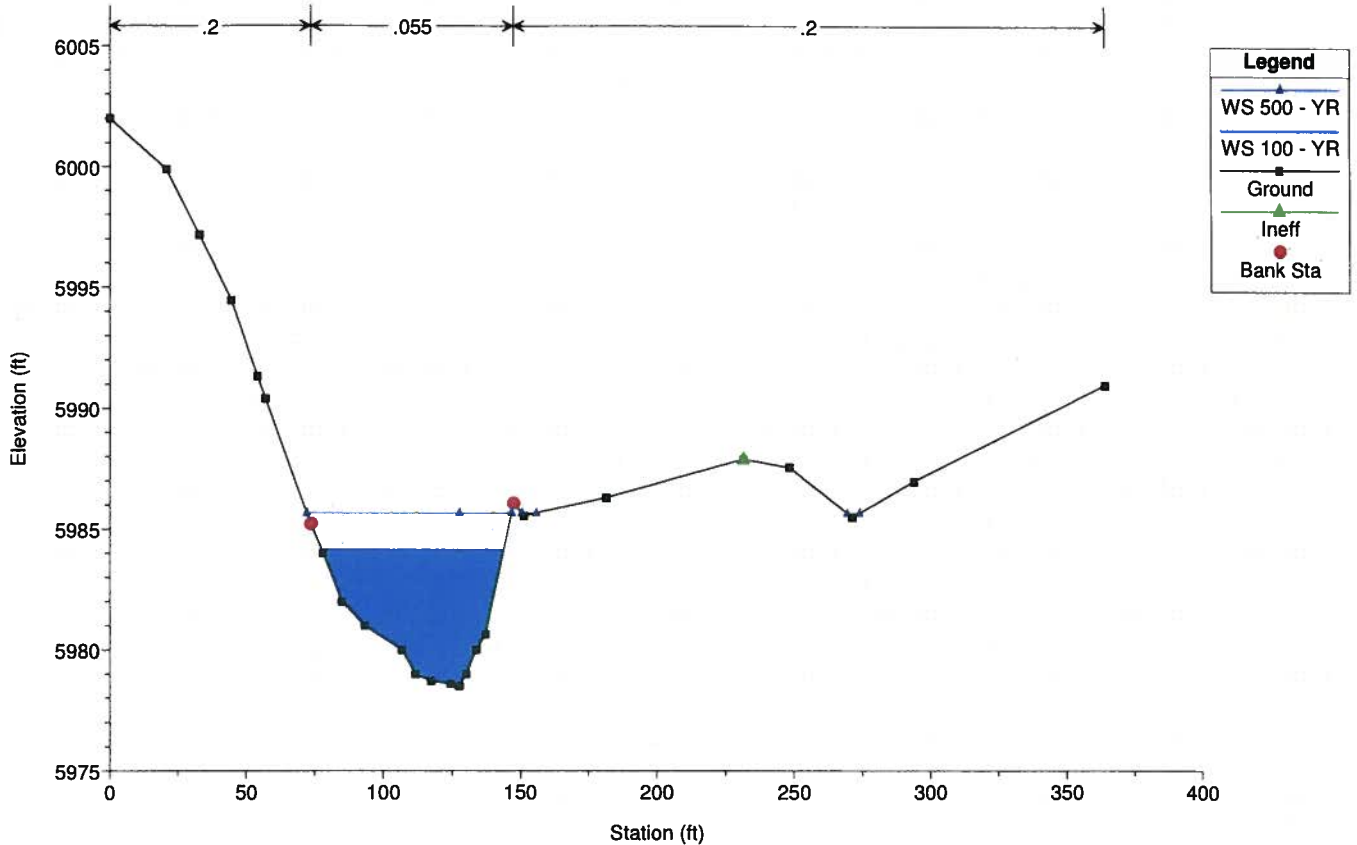
Legend	
WS 500 - YR	▲
WS 100 - YR	■
Ground	■
Bank Sta	●

Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
 RS = 7652

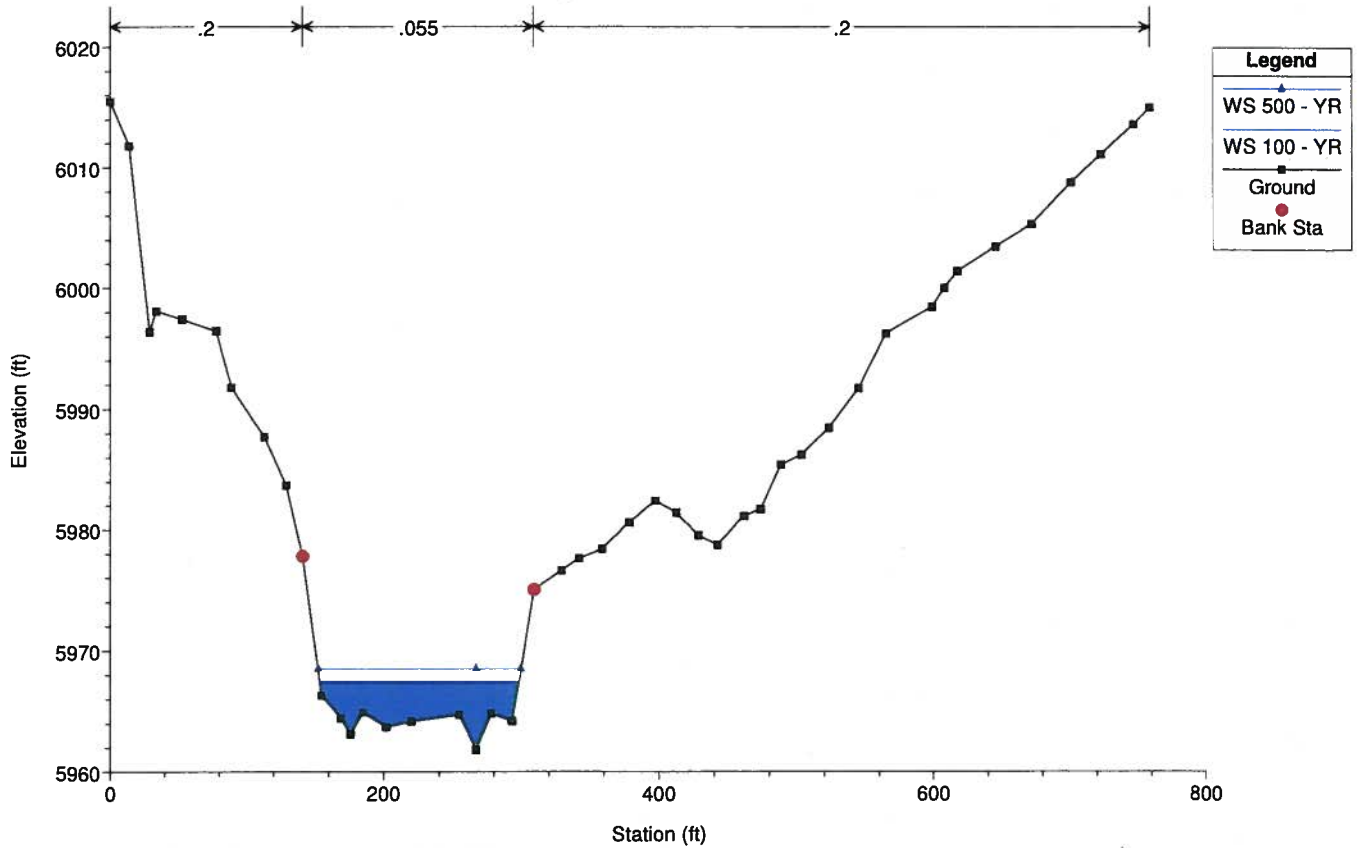


Legend	
WS 500 - YR	▲
WS 100 - YR	■
Ground	■
Bank Sta	●

Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
RS = 7635

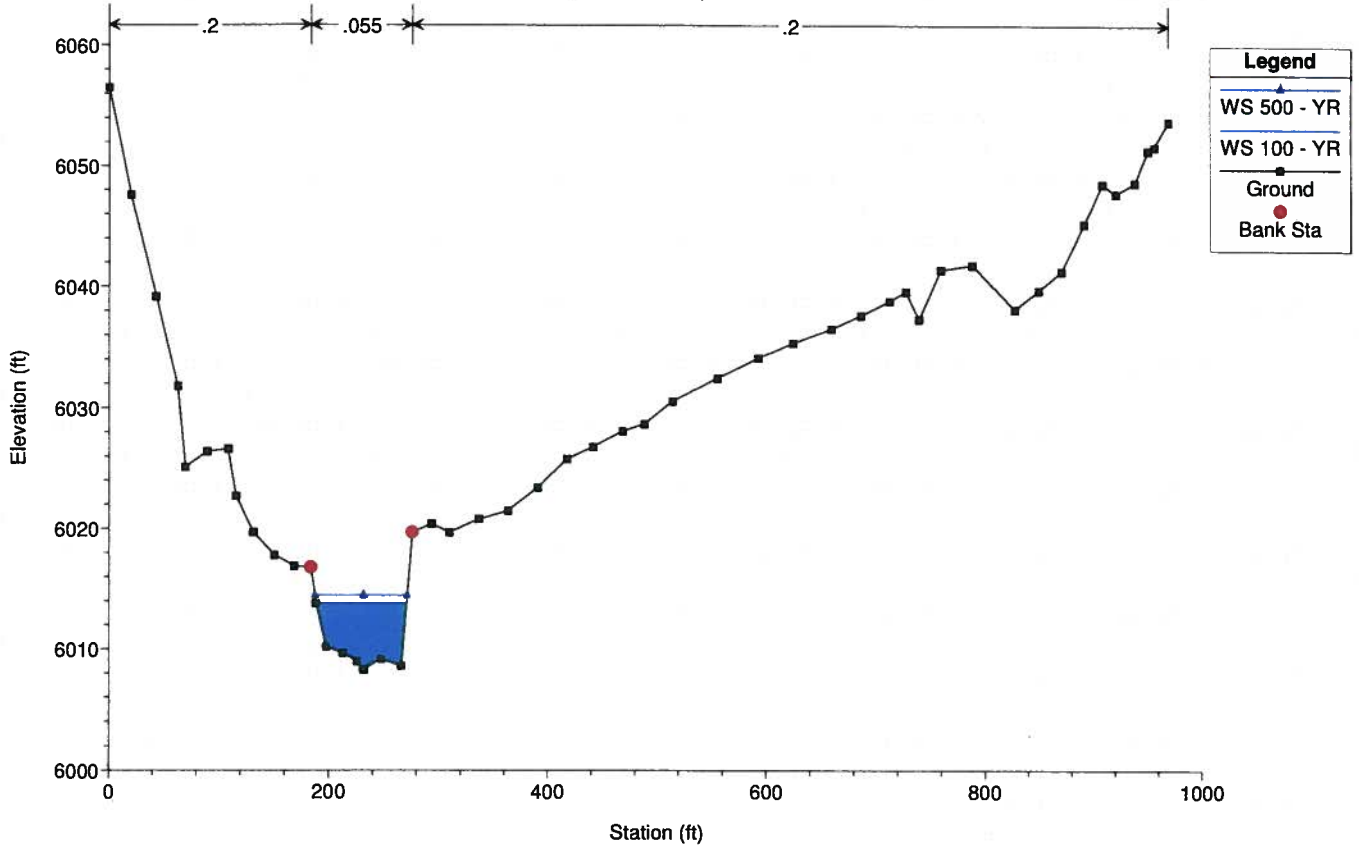


Red Rocks Bridge Plan: Corrective Effective Model 3/15/2012
RS = 7180 First downstream station



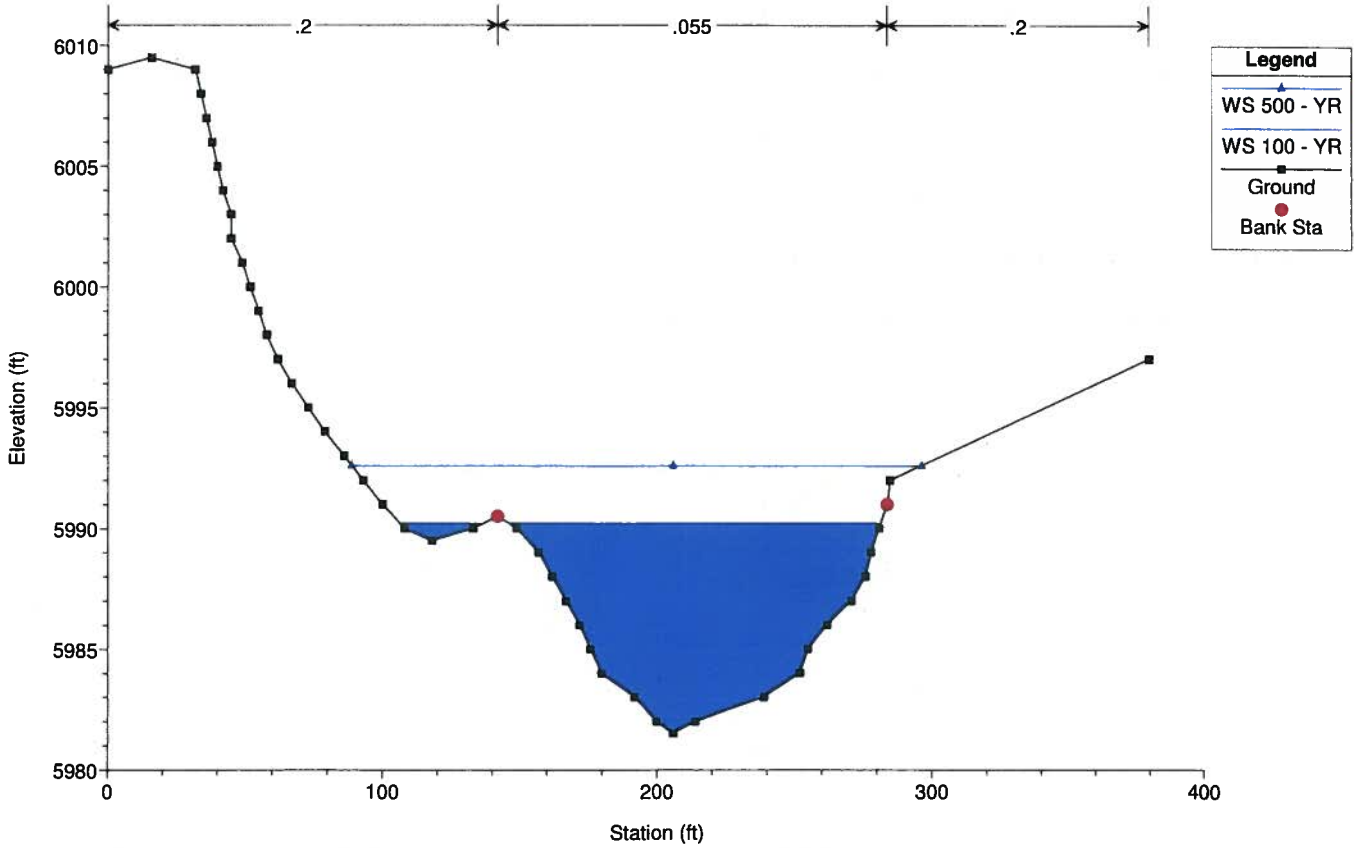
Red Rocks Bridge Plan: Proposed Model 3/15/2012

RS = 8660 Last upstream station

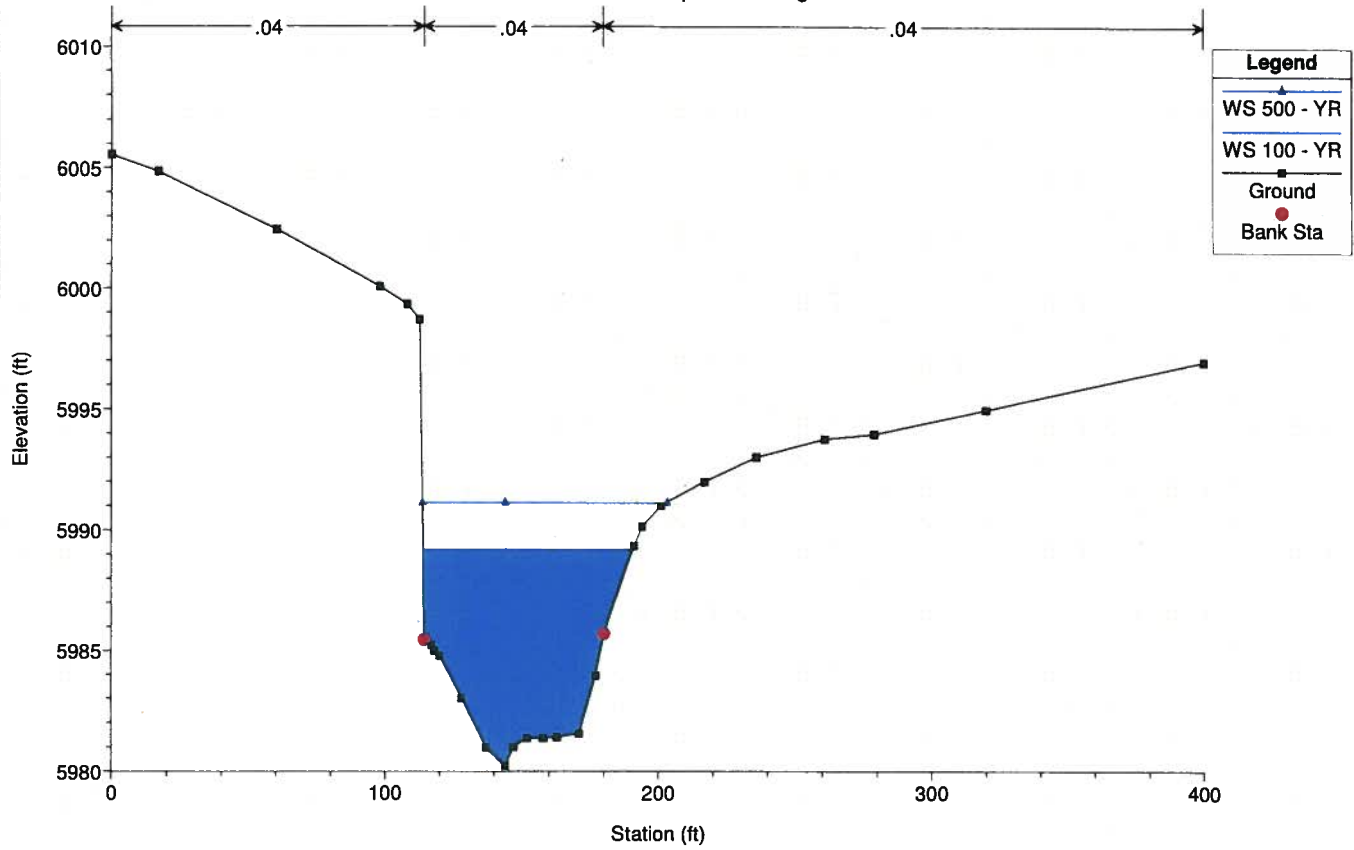


Red Rocks Bridge Plan: Proposed Model 3/15/2012

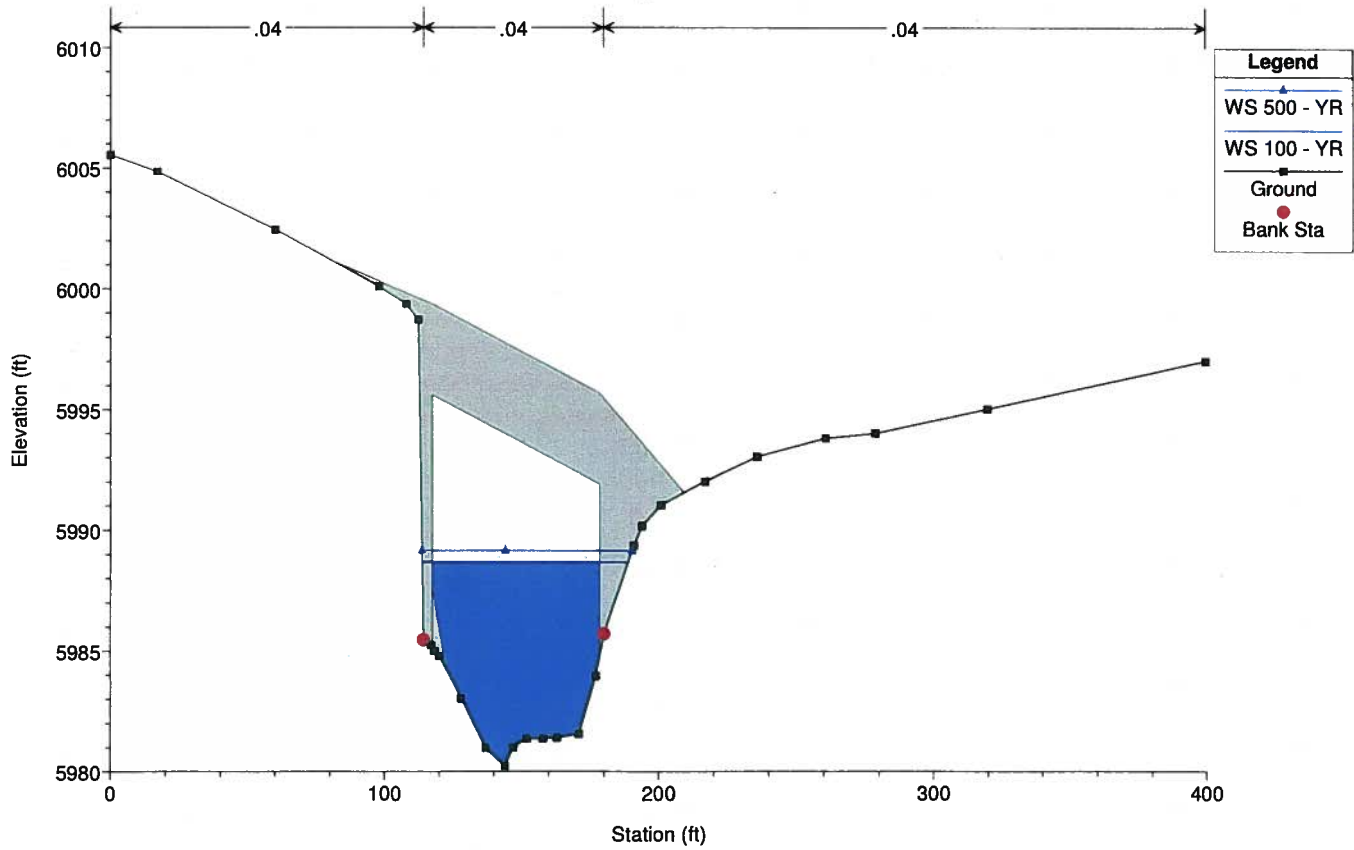
RS = 7740



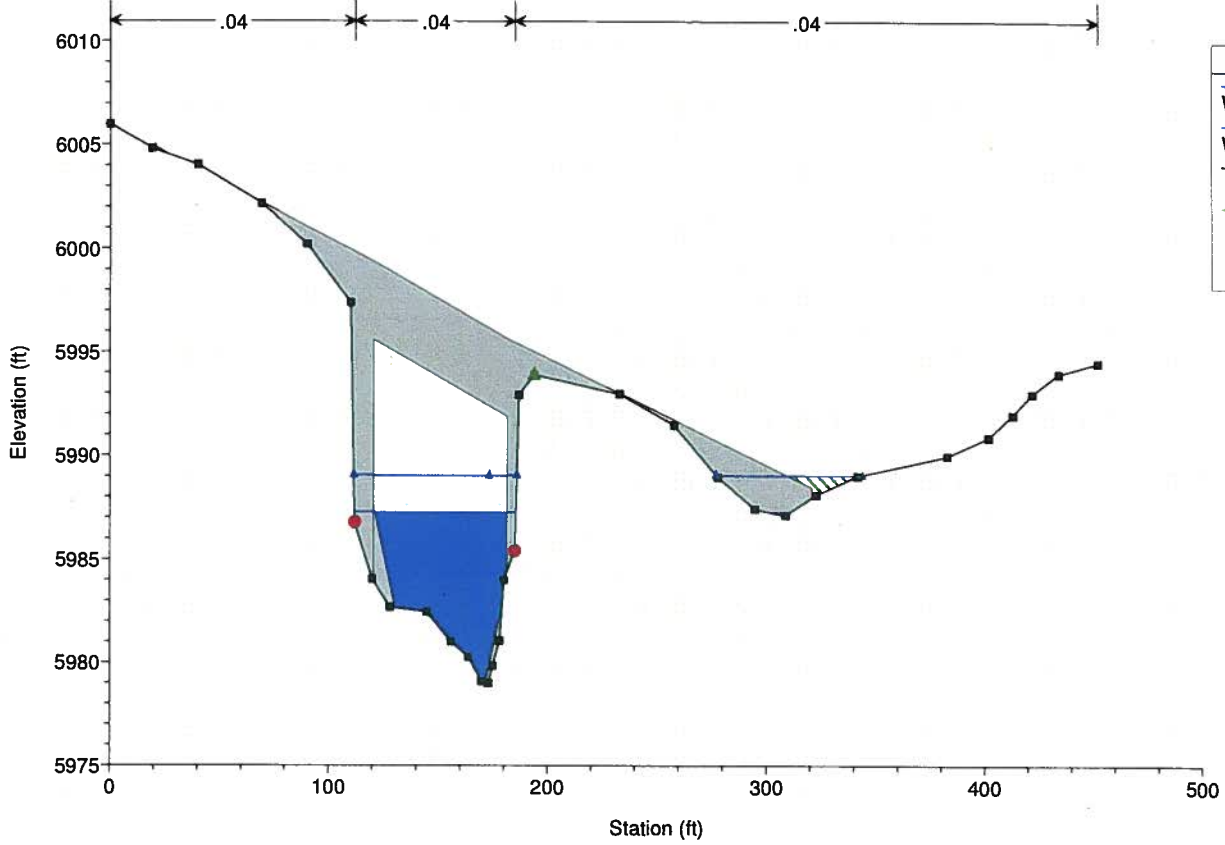
Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7710 Upstream Bridge



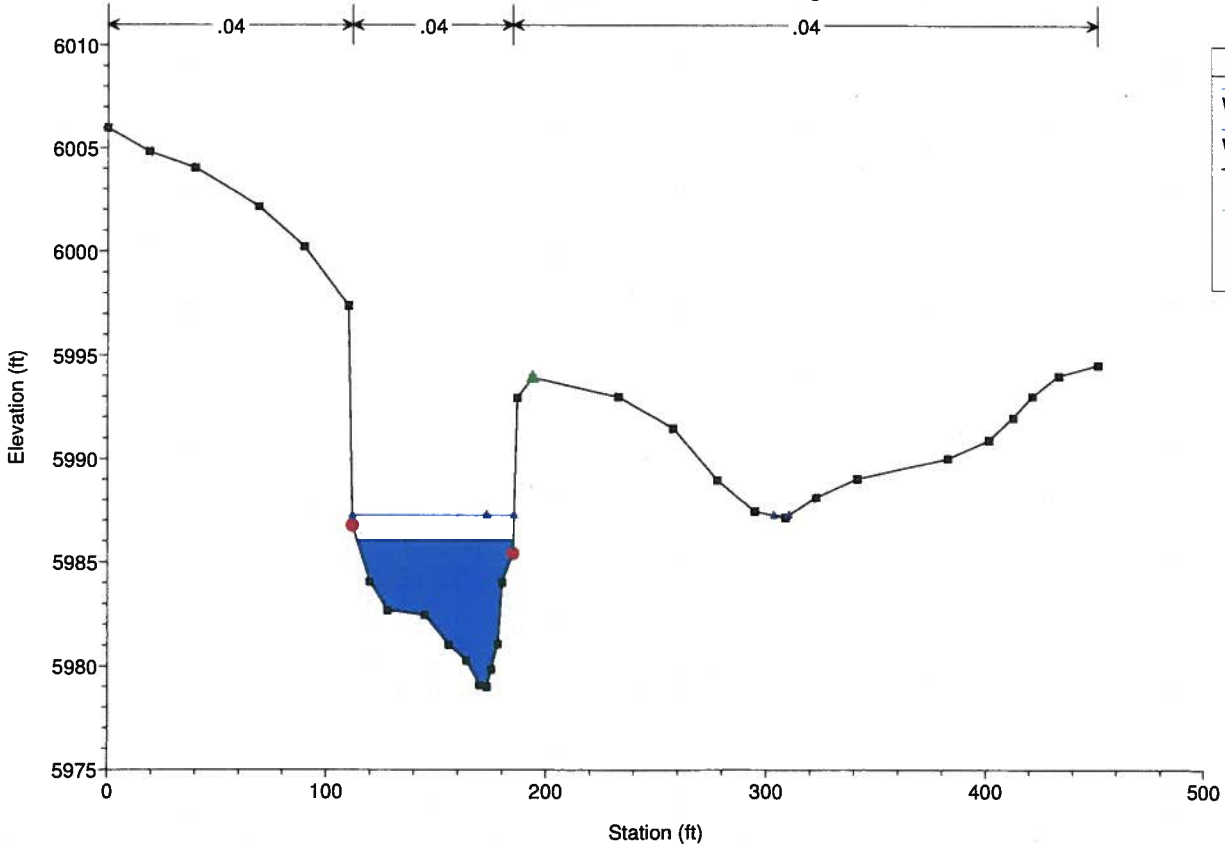
Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7685 BR



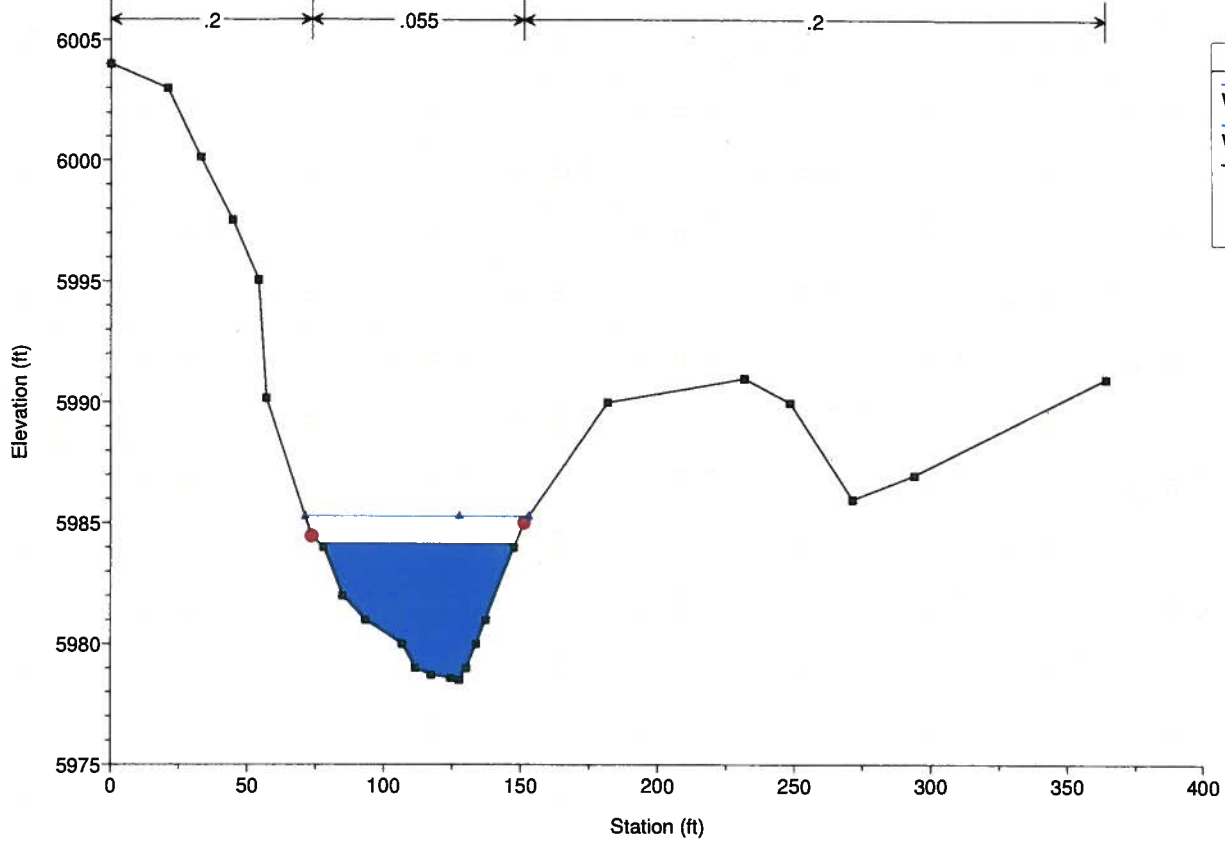
Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7685 BR



Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7652 Downstream Bridge

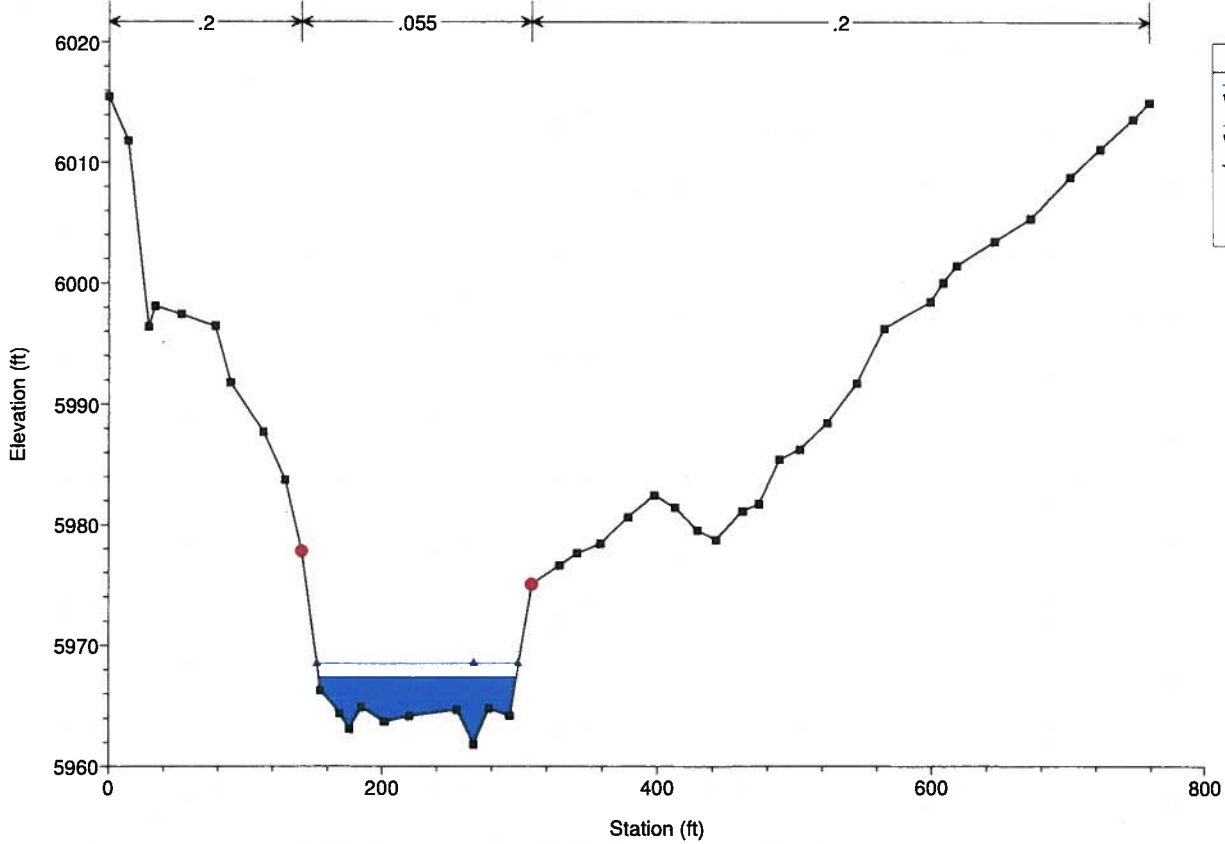


Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7635

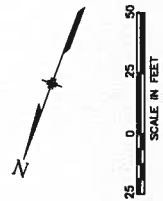
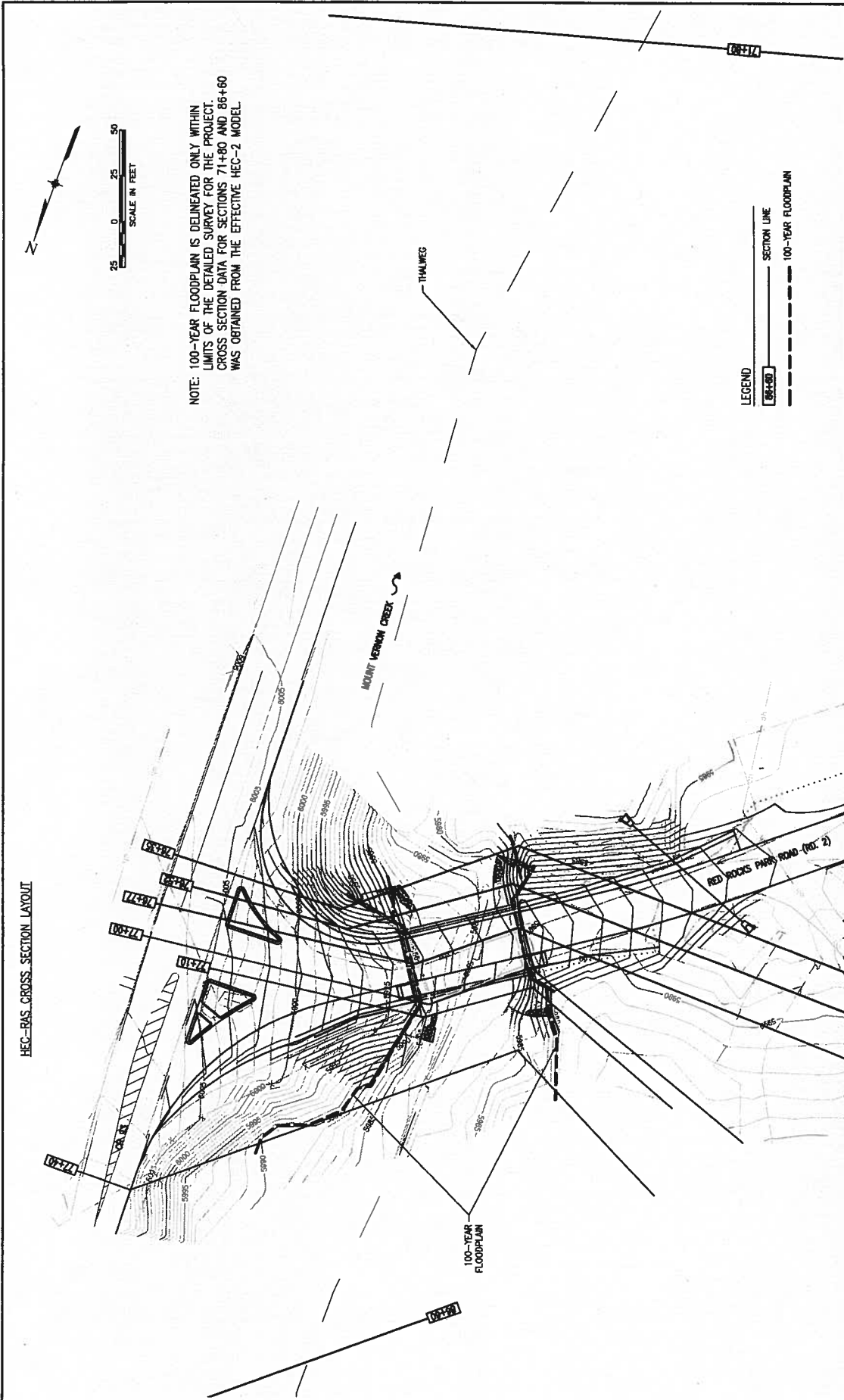


Legend	
WS 500 - YR	▲
WS 100 - YR	▲
Ground	■
Bank Sta	●

Red Rocks Bridge Plan: Proposed Model 3/15/2012
RS = 7180 First downstream station



Legend	
WS 500 - YR	▲
WS 100 - YR	▲
Ground	■
Bank Sta	●



NOTE: 100-YEAR FLOODPLAIN IS DELINEATED ONLY WITHIN LIMITS OF THE DETAILED SURVEY FOR THE PROJECT. CROSS SECTION DATA FOR SECTIONS 71+60 AND 86+60 WAS OBTAINED FROM THE EFFECTIVE HEC-2 MODEL.

LEGEND
 [Solid Line] SECTION LINE
 [Dashed Line] 100-YEAR FLOODPLAIN

HEC-RAS CROSS SECTION LAYOUT

100-YEAR FLOODPLAIN

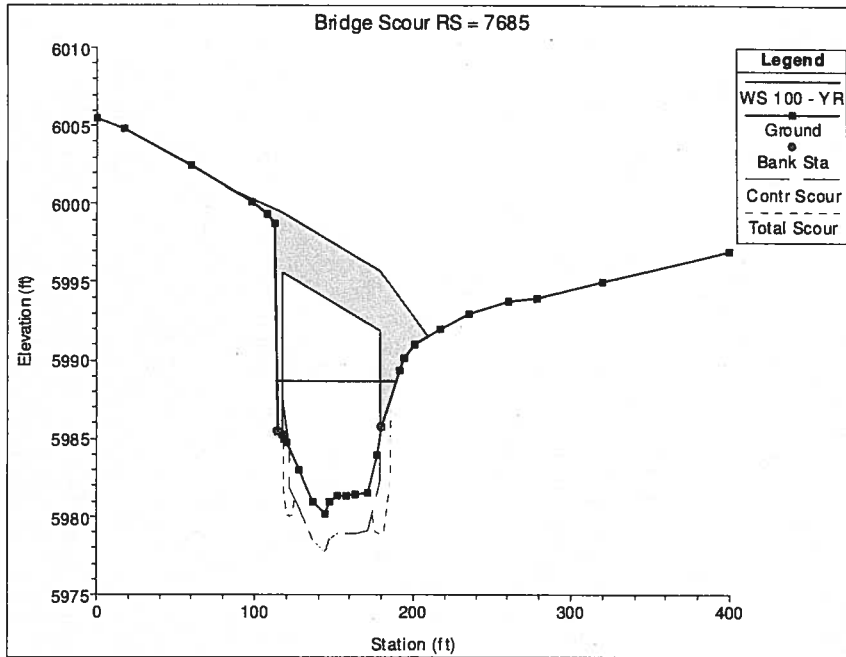
MOUNT VERNON CREEK

RED ROCKS PARK ROAD (RD. 2)

THALWEG

Computer File Information Creation Date: inboth Last Modification Date: inboth Full Path: inboth Drawing File Name: inboth Acad Ver: inboth Scale: As Shown Units: English		Sheet Revisions <table border="1"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																										As Constructed No Revisions: / / Revised: / / Void: / /		PROPOSED CONDITION MOUNT VERNON CREEK FLOODPLAIN Designer: / / Detailer: / / Sheet Subst: / / of		Project No./Code CE00896 Sheet Number





**HEC-RAS
Hydraulic Design - Bridge Scour Summary - 100 YR**

River=Mt. Vernon Creek
RS = 7685 BR

Contraction Scour

	Left	Channel	Right
Ys (ft):		2.47	
Vc (ft/s):		2.78	
Equation:		Live	

Abutment Scour

	Left	Right
Abutment Ys (ft):	1.81	3.43
Ve=	0.42	2.50
Froude #:	0.12	0.31
Equation:	Froehlich	Froehlich

Combined Scour Depths

Left abut + contr (ft): 4.29
Right abut + contr (ft): 5.90

Hydraulic Design Data – Bridge Scour Details – 100 YR

Contraction Scour

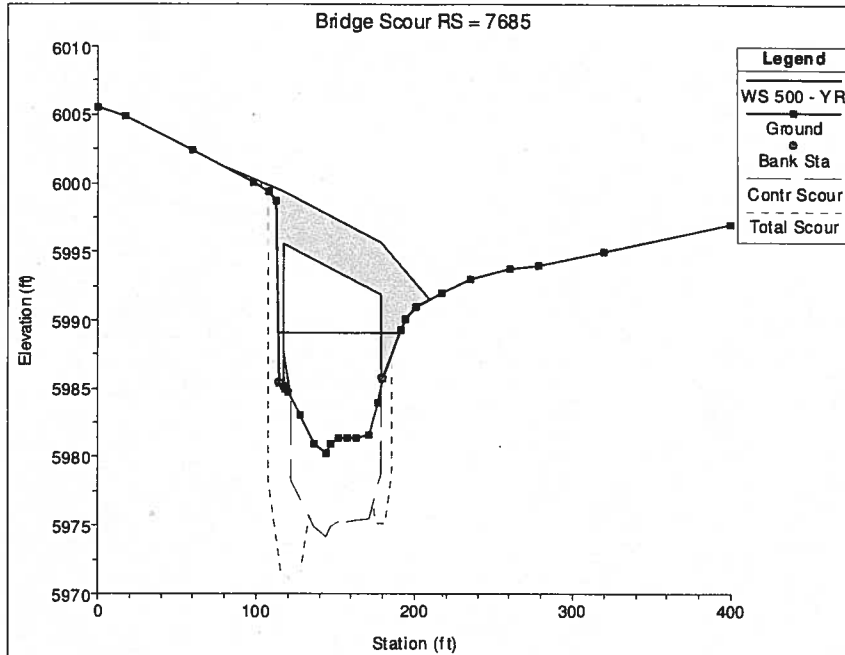
	Left	Channel	Right
Input Data			
Average Depth (ft):	0.40	5.40	
Approach Velocity (ft/s):	0.28	5.68	
Br Average Depth (ft):		6.54	
BR Opening Flow (cfs):		4160.00	
BR Top WD (ft):		61.00	
Grain Size D50 (mm):	2.00	2.00	2.00
Approach Flow (cfs):	3.38	4156.62	
Approach Top WD (ft):	30.56	135.64	
K1 Coefficient:	0.590	0.640	
Results			
Scour Depth Ys (ft):		2.47	
Critical Velocity (ft/s):		2.78	
Equation:		Live	

Abutment Scour

	Left	Right
Input Data		
Station at Toe (ft):	122.19	178.50
Toe Sta at appr (ft):	149.89	177.00
Abutment Length (ft):	36.23	30.00
Depth at Toe (ft):	4.91	4.39
K1 Shape Coef:	0.82 – Vert. with wing walls	
Degree of Skew (degrees):	90.00	90.00
K2 Skew Coef:	1.00	1.00
Projected Length L' (ft):	36.23	1.25
Avg Depth Obstructed Ya (ft):	0.41	1.95
Flow Obstructed Qe (cfs):	6.30	6.09
Area Obstructed Ae (sq ft):	15.03	2.44
Results		
Scour Depth Ys (ft):	1.81	3.43
Qe/Ae = Ve:	0.42	2.50
Froude #:	0.12	0.31
Equation:	Froehlich	Froehlich

Combined Scour Depths

Left abutment scour + contraction scour (ft): 4.29
 Right abutment scour + contraction scour (ft): 5.90



**HEC-RAS
Hydraulic Design - Bridge Scour Summary - 500 YR**

River=Mt. Vernon Creek
RS = 7685 BR

Contraction Scour

	Left	Channel	Right
Ys (ft):		6.09	
Vc (ft/s):		2.93	
Equation:		Live	

Abutment Scour

	Left	Right
Abutment Ys (ft):	7.10	3.64
Ve=	1.04	2.06
Froude #:	0.12	0.42
Equation:	Froehlich	Froehlich

Combined Scour Depths

Left abut + contr (ft): 13.17
Right abut + contr (ft): 9.71

Hydraulic Design Data – Bridge Scour Details – 500 YR

Contraction Scour

	Left	Channel	Right
Input Data			
Average Depth (ft):	2.22	7.53	0.37
Approach Velocity (ft/s):	0.78	5.90	0.21
Br Average Depth (ft):		7.01	
BR Opening Flow (cfs):		6400.00	
BR Top WD (ft):		61.00	
Grain Size D50 (mm):	2.00	2.00	2.00
Approach Flow (cfs):	85.53	6313.51	0.97
Approach Top WD (ft):	53.21	142.00	12.43
K1 Coefficient:	0.590	0.640	0.590
Results			
Scour Depth Ys (ft):		6.07	
Critical Velocity (ft/s):		2.93	
Equation:		Live	

Abutment Scour

	Left	Right
Input Data		
Station at Toe (ft):	122.19	178.50
Toe Sta at appr (ft):	149.89	282.50
Abutment Length (ft):	61.10	13.93
Depth at Toe (ft):	6.84	6.32
K1 Shape Coef:	0.82 – Vert. with wing walls	
Degree of Skew (degrees):	90.00	90.00
K2 Skew Coef:	1.00	1.00
Projected Length L' (ft):	61.10	13.93
Avg Depth Obstructed Ya (ft):	2.28	0.75
Flow Obstructed Qe (cfs):	144.94	21.62
Area Obstructed Ae (sq ft):	139.61	10.47
Results		
Scour Depth Ys (ft):	7.10	3.64
Qe/Ae = Ve:	1.04	2.06
Froude #:	0.12	0.42
Equation:	Froehlich	Froehlich

Combined Scour Depths

Left abutment scour + contraction scour (ft): 13.17
 Right abutment scour + contraction scour (ft): 9.71

Red Rocks Bridge
Riprap Sizing
3/20/12

Sizing Rock Riprap at Abutments per HEC-23

For Froude # ≤ 0.80 :

$$\frac{D_{50}}{y} = \frac{K}{S_s - 1} \left[\frac{V^2}{g y} \right]$$

D_{50} = median stone dia (ft)

V = velocity (ft/s)

S_s = specific gravity of riprap

g = gravitational constant

y = depth of flow (ft)

K = 1.02 for vertical abutments

$$\frac{D_{50}}{9.0} = \frac{1.02}{(2.65 - 1)} \left[\frac{8.95^2}{(32.2)(9.0)} \right]$$

$$D_{50} = 1.54'$$

Use 18" Riprap

Red Rocks Park Road Bridge Replacement
Final Hydraulics Report

APPENDIX C:

Bridge Hydraulic Information Sheet



DEPARTMENT OF PUBLIC WORKS

Drawings

Contract No. 201312778

**RED ROCKS ROAD BRIDGE AND ROADWAY
PROJECT**

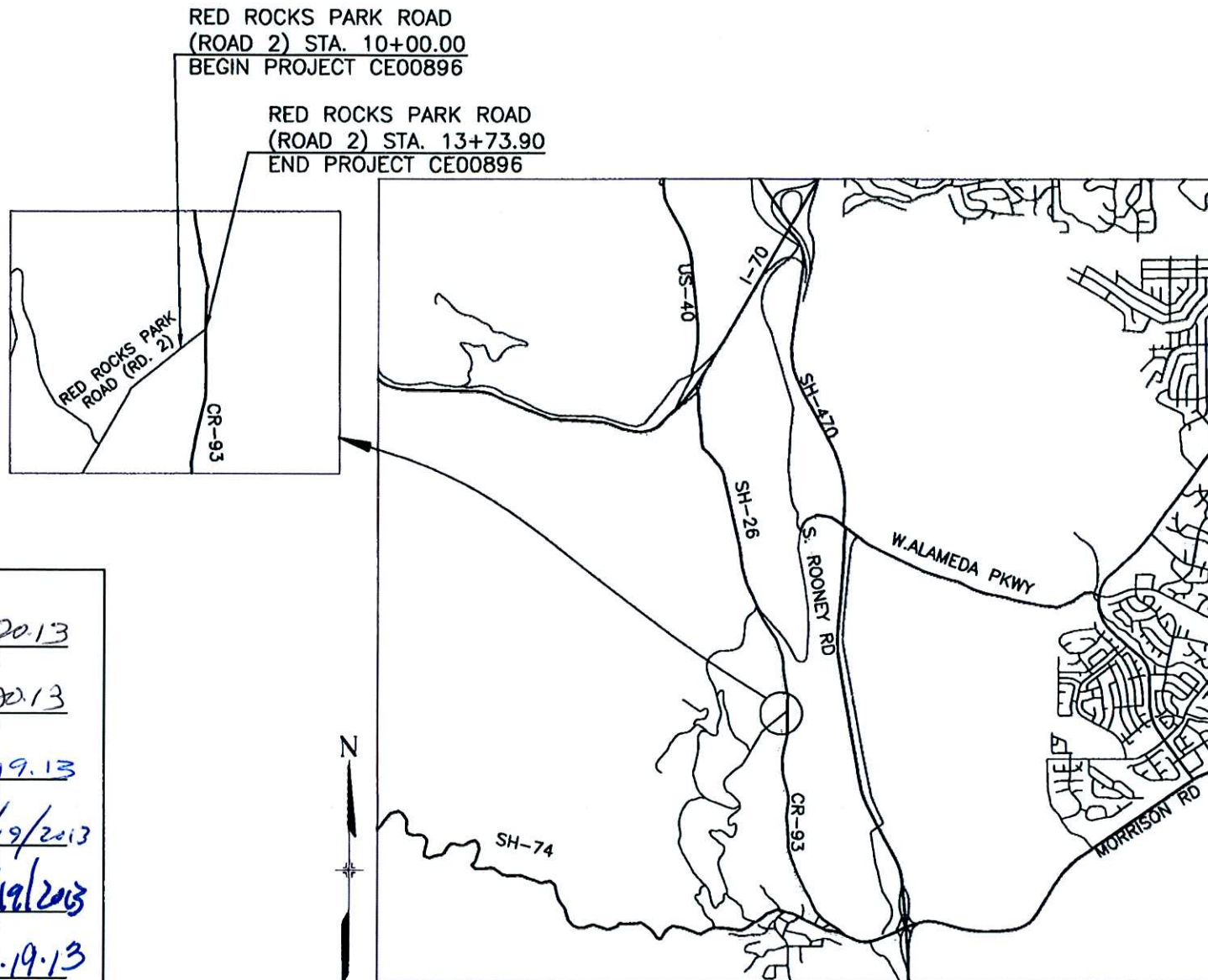
SEPTEMBER 3, 2013

CITY AND COUNTY OF DENVER DEPARTMENT OF PUBLIC WORKS

TABULATION OF LENGTH & DESIGN DATA

STATION	LINEAR FEET	
	ROADWAY	MAJOR STR.
BEGIN PROJECT CE00896 STA 10+00.00	196.69	
STA 11+96.69 BEGIN STRUCTURE NO. D-27-MP-010A		
STA 12+63.69 END STRUCTURE NO. D-27-MP-010A		67.00
END PROJECT CE00896 STA 13+73.90	110.21	
SUMMARY OF PROJECT LENGTH	FEET	MILES
ROADWAY (NET LENGTH)	306.90	0.058
MAJOR STRUCTURES (NET LENGTH)	67.00	0.013
PROJECT GROSS LENGTH	373.90	0.071
DESIGN DATA	RED ROCKS PARK ROAD	
MAXIMUM RADIUS OF CURVE	800'	
MAXIMUM GRADE	5.94%	
MINIMUM S.S.D. HORIZONTAL	200'	
MINIMUM S.S.D. VERTICAL	116'	
MAXIMUM DESIGN SPEED	20 MPH	
2030 DESIGN TRAFFIC	300	
DHV TRUCKS %	2%	


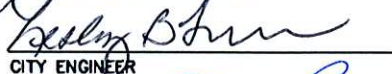




Red Rocks Park Road (Road 2) Bridge Replacement
CITY AND COUNTY OF DENVER CONTRACT NO. CE00896
PCO TRACKING NO. PRC 2011-8001, PILAR NO. 2011-0506-01
CDOT PROJECT NO. BRO M320-072, SUB-ACCOUNT NO. 18375



VICINITY MAP
N.T.S.

SHEET NO.	INDEX OF SHEETS
1	TITLE SHEET
2	STANDARD PLANS LIST
3-4	GENERAL NOTES
5	TYPICAL SECTIONS
6	SUMMARY OF APPROXIMATE QUANTITIES
7	CONTROL DIAGRAM
8	REMOVAL PLAN
9	HORIZONTAL CONTROL PLAN
10	ROADWAY PLAN
11	INTERSECTION DETAIL
12	GEOMETRY POINTS
13	ROADWAY PROFILE
14	GENERAL INFORMATION
15	GENERAL LAYOUT
16	ENGINEERING GEOLOGY
17	LAB DATA
18	BRIDGE HYDRAULIC INFORMATION SHEET
19	CONSTRUCTION LAYOUT
20	FOUNDATION LAYOUT
21	ABUTMENT PLAN & ELEVATION
22	ABUTMENT DETAILS
23	WINGWALL DETAILS
24	MECHANICALLY STABILIZED BACKFILL
25	SUPERSTRUCTURE DETAILS
26	APPROACH SLAB
27	BRIDGE RAIL TYPE 3
28	PEDESTRIAN RAILING DETAILS
29	BRIDGE DECK ELEVATIONS
30	RETAINING WALL PLAN & ELEVATION
31	RETAINING WALL DETAILS
32	GRADING PLAN
33	CULVERT PLAN AND PROFILE
34	DRAINAGE DETAILS
35-36	STORM WATER MANAGEMENT PLAN
37	EROSION CONTROL PLAN
38	LANDSCAPE PLAN
39	LANDSCAPE NOTES AND DETAILS
40	TRAFFIC TABULATIONS
41	SIGNING & STRIPING PLAN
42	CR 93 SIGNING & STRIPING PLAN
43	AREA-WIDE DETOUR PLAN
44	ENTRANCE 1 DETOUR PLAN
45	SPECIAL SIGN DETAILS
46-49	ROADWAY CROSS SECTIONS

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

APPROVED:	
	8.20.13
MANAGER OF PUBLIC WORKS	DATE
	8.20.13
CITY ENGINEER	DATE
	8.19.13
DIRECTOR OF ENGINEERING/CAPITAL PROJECTS	DATE
	8/19/2013
CITY TRAFFIC ENGINEER	DATE
	8/19/2013
DIRECTOR OF PARKS AND RECREATION	DATE
	8.19.13
DIVISION OF SMALL BUSINESS OPPORTUNITY	DATE



Computer File Information				Sheet Revisions				As Constructed		RED ROCKS PARK ROAD (RD. 2) TITLE SHEET				Project No./Code		
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Last Modification Date:	05/17/13	Initials:	AML	(R)	/	/	.	Revised:	/	/	Detailer:	DLH	Numbers			
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Drawing File Name:	REDROCKS_TITLESHEET.DWG															
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PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
M-203-1		APPROACH ROADS	8
M-203-2		DITCH TYPES	9
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
M-208-1		TEMPORARY EROSION CONTROL (12 SHEETS)	19-30
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32
M-214-1		PLANTING DETAILS	33
M-412-1	<input type="checkbox"/>	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	34-38
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39
M-601-1		SINGLE CONCRETE BOX CULVERT (2 SHEETS)	40-41
M-601-2		DOUBLE CONCRETE BOX CULVERT (2 SHEETS)	42-43
M-601-3		TRIPLE CONCRETE BOX CULVERT (2 SHEETS)	44-45
M-601-10		HEADWALL FOR PIPES	46
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49
M-603-1		METAL PIPE (4 SHEETS)	50-53
M-603-2		REINFORCED CONCRETE PIPE	54
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4		CORRUGATED POLYETHYLENE PIPE (AASHTO M294)	56
M-603-5		POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304)	57
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59
M-604-10		INLET, TYPE C	60
M-604-11		INLET, TYPE D	61
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63
M-604-13		CONCRETE INLET TYPE 13	64
M-604-20		MANHOLES (3 SHEETS)	65-67
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72
M-605-1		SUBSURFACE DRAINS	73
M-606-1		GUARDRAIL TYPE 3 W-BEAM (19 SHEETS)	74-92
M-606-13		GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS)	93-96
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102
M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105
M-607-3		BARRIER FENCE	106
M-607-4		DEER FENCE AND GATES (3 SHEETS)	107-109
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1		CURB RAMPS (6 SHEETS)	120-125
M-609-1	<input checked="" type="checkbox"/>	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012)	126-129
M-611-1		CATTLE GUARD (2 SHEETS)	130-131
M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135
M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138
M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140
M-615-1		EMBANKMENT PROTECTOR TYPE 3	141
M-615-2		EMBANKMENT PROTECTOR TYPE 5	142
M-616-1		INVERTED SIPHON	143
M-620-1		FIELD LABORATORY CLASS 1	144
M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146
M-620-11		FIELD OFFICE CLASS 1	147
M-620-12		FIELD OFFICE CLASS 2	148
M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150

PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
S-612-1		DELINEATOR INSTALLATIONS (7 SHEETS)	151-157
S-614-1	<input checked="" type="checkbox"/>	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON JULY 24, 2012)	158-159
S-614-2		CLASS I SIGNS	160
S-614-3		CLASS II SIGNS	161
S-614-4		CLASS III SIGNS (3 SHEETS)	162-164
S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	165-166
S-614-6		CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)	167-168
S-614-8	<input type="checkbox"/>	TUBULAR STEEL SIGN SUPPORT DETAILS (5 SHEETS) (REVISED ON MARCH 5, 2013)	169-173
S-614-9		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	174
S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
S-614-12		STRUCTURE NUMBER INSTALLATION	177
S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS	182
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40		TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS)	184-188
S-614-40A	<input type="checkbox"/>	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON SEPTEMBER 25, 2012)	189-192
S-614-41		PEDESTAL POLE AND TEMPORARY SPAN WIRE SIGNALS	193
S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
S-614-50	<input type="checkbox"/>	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON NOVEMBER 28, 2012)	208-219
S-614-60	<input type="checkbox"/>	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON NOVEMBER 28, 2012)	220-233
S-627-1	<input checked="" type="checkbox"/>	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON OCTOBER 18, 2012)	234-238
S-630-1	<input checked="" type="checkbox"/>	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (20 SHEETS) (REVISED ON FEBRUARY 27, 2013)	239-258
S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	259
S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	261-262
S-630-5	<input type="checkbox"/>	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON JANUARY 24, 2013)	263-264
S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268

COLORADO
DEPARTMENT OF TRANSPORTATION
M&S STANDARDS PLANS LIST

July 04, 2012

Revised on March 5, 2013

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX , WILL BE ATTACHED TO THE PLANS.



Computer File Information				Sheet Revisions				As Constructed		RED ROCKS PARK ROAD (RD. 2) STANDARD PLANS LIST		Project No./Code			
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Acad Ver. R17.0s	Scale: As Shown	Units:	English	<input type="checkbox"/>	/	/	.								



City & County of Denver

JACOBS

GENERAL NOTES

SURVEYING

1. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR SHALL PERFORM A SURVEY TO REFERENCE ALL SURVEY CONTROL POINTS, SECTION CORNERS, AND BENCHMARKS. AFTER CONSTRUCTION, THE CONTRACTOR SHALL RE-ESTABLISH ALL SURVEY CONTROL MONUMENTATION DISTURBED BY CONSTRUCTION. ALL RANGE POINTS, SECTION CORNERS, AND BENCHMARKS SHALL BE SET IN RANGE POINT BOXES AND THE CONTRACTOR SHALL ADJUST THESE BOXES TO THE FINAL GRADE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND MONUMENTS DISRUPTED BY CONSTRUCTION ACTIVITIES OR BY NEGLIGENCE ON THE PART OF THE CONTRACTOR. THE CONTRACTOR IS REQUIRED TO FOLLOW COLORADO STATE LAW REGARDING SURVEY MONUMENTS. FOR CITY OF DENVER MONUMENTS, THE CONTRACTOR SHALL RETAIN A SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. FOR FURTHER INFORMATION, CONTACT THE CITY OF DENVER SURVEYOR, JEFF JONES AT 720-865-3121.
3. ALL STATIONS AND OFFSETS SHOWN ON THE PLANS ARE TO THE CONTROL LINES UNLESS OTHERWISE NOTED. THE USE OF CONTROL MONUMENTS FOR CONSTRUCTION STAKING OTHER THAN THOSE SHOWN ON THE PLANS OR APPROVED BY THE ENGINEER IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.
4. ALL SLOPES SHOWN ARE APPROXIMATE AND DIMENSIONS ARE TYPICAL.
5. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET, OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

REMOVALS, EXISTING ITEMS, SAW CUTTING

1. ALL ITEMS TO BE REMOVED AND NOT RESET OR DESIGNATED FOR STOCKPILING SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE OR DISPOSED OF PROPERLY.
2. SIGNS DESIGNATED AS REMOVAL ITEMS SHALL BE CAREFULLY REMOVED AND DELIVERED BY THE CONTRACTOR TO THE CITY YARD AT 5440 ROSLYN STREET, BUILDING E. ANY MATERIAL DESIGNATED FOR SALVAGE THAT IS DAMAGED AFTER REMOVAL SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. NO SEPARATE PAYMENT SHALL BE MADE FOR LOADING, HAULING, UNLOADING, OR PLACING SALVAGED MATERIALS IN THE CITY YARD.
3. WHERE IT IS REQUIRED TO REMOVE EXISTING CONCRETE OR ASPHALT, CUTTING SHALL BE DONE TO A NEAT WORK LINE TO FULL DEPTH USING A SAW, CUTTING WHEEL, OR OTHER METHOD APPROVED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF REMOVAL ITEMS. ALL SAW WATER SHALL BE PROPERLY CONTAINED AND NOT ALLOWED TO ENTER ANY STORM DRAINS OR SURFACE WATER.
4. RELOCATING EXISTING ITEMS NOT SPECIFIED IN THESE PLANS FOR CONSTRUCTION PURPOSES SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

EARTHWORK

1. DEPTH OF RECONDITIONING AND MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE 6 INCHES FOR BASES OF CUTS AND FILLS AND FULL DEPTH FOR ALL EMBANKMENTS. EXCAVATION AND COMPACTION FOR BASES OF CUTS AND FILLS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF UNCLASSIFIED EXCAVATION OR EMBANKMENT MATERIAL. RECONDITIONING SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF UNCLASSIFIED EXCAVATION OR EMBANKMENT MATERIAL.
2. TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-180, COMPACTION FOR EMBANKMENT AND RECONDITIONING FOR THIS PROJECT SHALL BE 95% OF MODIFIED PROCTOR DENSITY (AASHTO T-180) AT +/- 2% OF OPTIMUM MOISTURE.
3. SUBGRADE MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED, DISPOSED OF AND REPLACED WITH CLASS 6 AGGREGATE BASE COURSE, SOIL WITH AN AASHTO CLASSIFICATION OF A-2-4(0) OR BETTER, OR APPROVED MATERIALS. EXCAVATION OF SUCH MATERIALS SHALL BE PAID FOR AS MUCK EXCAVATION.
4. WATER SHALL BE USED AS A DUST PALLATIVE WHEN REQUIRED AND WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
5. ALL FILL PLACED WITHIN 2 FEET OF THE PAVEMENT SECTION SHOULD CONSIST OF SOILS WITH AN AASHTO CLASSIFICATION OF A-2-4(0) OR BETTER.
6. DISPOSAL OF MATERIAL, OFF-SITE, REGARDLESS OF PROPERTY OWNERSHIP, MUST BE DONE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS AND THE CDOT PRAIRIE DOG POLICY. IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT WHETHER OR NOT THEY ARE IN COMPLIANCE, THEY SHOULD CALL JIM EUSSEN OF CDOT ENVIRONMENTAL, AT 303-365-7041 PRIOR TO REMOVAL AND DISPOSAL OF THE MATERIAL.
7. THE SUBGRADE SHALL BE PROOF ROLLED AFTER THE REQUIRED COMPACTION HAS BEEN OBTAINED AND THE SUBGRADE HAS BEEN SHAPED TO THE REQUIRED CROSS SLOPE. SEE CDOT STANDARD SPECIFICATION SUB-SECTION 203.09

LIMITS OF WORK

1. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPE AS SHOWN ON THE PLANS AND/OR CROSS SECTIONS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT HIS OWN EXPENSE. CONSTRUCTION ACTIVITIES, IN ADDITION TO NORMAL CONSTRUCTION PROCEDURES, SHALL INCLUDE THE PARKING OF VEHICLES AND EQUIPMENT, DISPOSAL OF LITTER, AND ALL OTHER ACTIONS THAT WOULD ALTER EXISTING CONDITIONS.
2. THE CONTRACTOR IS REQUIRED TO RESET, ADJUST, OR REPLACE ANY FEATURES THAT ARE IMPACTED BY CONSTRUCTION AND ARE NOT DESIGNATED TO BE REMOVED. THE CONTRACTOR WILL NOT BE COMPENSATED FOR WORK OUTSIDE THE PROJECT LIMITS.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT LANDSCAPE PRE-CONSTRUCTION CONFERENCE WITH DENVER MOUNTAIN PARKS TO IDENTIFY ZONES OF DISTURBANCE, VEGETATION TO BE PRESERVED, AND GENERAL STRATEGIES FOR PLANTING AND SEEDING.

PROTECTION OF WORK

1. THE CONTRACTOR SHALL PROTECT ALL WORK AREAS AND FACILITIES FROM WATER AT ALL TIMES. AREAS AND FACILITIES SUBJECTED TO FLOODING, REGARDLESS OF THE SOURCE OF WATER, SHALL BE PROMPTLY DEWATERED AND RESTORED AT NO COST TO THE CITY.

GENERAL

1. ALL EQUIPMENT IS TO REMAIN ON THE ROAD SURFACE, PARKING AREAS, OR AREAS OF DISTURBANCE AS SHOWN IN THE PLANS. ANY OFF-ROAD STAGING AREAS MUST BE PRE-APPROVED BY THE ENGINEER. IF THE ENGINEER APPROVES A STAGING AREA, IT MUST BE RETURNED TO ITS EXISTING CONDITION AFTER IT IS NO LONGER NEEDED AT NO ADDITIONAL COST TO THE PROJECT.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHALL BE TO THE CONTROL LINE.
3. ALL EROSION/SEDIMENT CONTROL AND STORMWATER RESPONSIBILITIES STATED IN THE STORMWATER MANAGEMENT PLAN AND IN SECTION 208 SHALL BE FOLLOWED OR AMENDED AS APPROVED BY THE ENGINEER.
4. CONSTRUCTION OF CURB RAMPS SHALL REFERENCE CITY AND COUNTY OF DENVER STANDARD DRAWING NO. 7.1 AND CONSTRUCTION OF HOT MIX ASPHALT SHALL REFERENCE CITY AND COUNTY OF DENVER STANDARD DRAWING NO. 12.3.
5. CONSTRUCTION SCHEDULE: IN ACCORDANCE WITH GENERAL CONTRACT CONDITION 306, THE CONTRACTOR SHALL SUBMIT TO THE PROJECT MANAGER WITHIN TEN (10) DAYS OF THE ISSUANCE OF NOTICE TO PROCEED A CONSTRUCTION SCHEDULE, AND THE CONTRACTOR SHALL, ONCE A MONTH SUBMIT TO THE PROJECT MANAGER A PROGRESS REPORT AND AN UPDATED CONSTRUCTION SCHEDULE. ALL PROVISIONS OF THE GENERAL CONTRACT CONDITIONS SHALL APPLY. ALL OF THE CONTRACTOR'S COSTS TO SATISFY THESE REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
6. AS-BUILT DRAWINGS: IN ACCORDANCE WITH GENERAL CONTRACT CONDITIONS 324 AND 402, THE CONTRACTOR SHALL MAINTAIN AND KEEP CURRENT A SET OF AS-BUILT DRAWINGS WHICH DOCUMENT ALL CHANGES MADE DURING CONSTRUCTION, AND UPON COMPLETION OF THE WORK, THE AS-BUILT DRAWINGS SHALL BECOME THE PROPERTY OF THE CITY. ALL PROVISIONS OF THE GENERAL CONTRACT CONDITIONS SHALL APPLY. ALL OF THE CONTRACTOR'S COSTS TO SATISFY THESE REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
7. PROGRESS MEETING MINUTES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING AND KEEPING MINUTES OF ALL CONSTRUCTION MEETINGS. THE CONTRACTOR SHALL DISTRIBUTE THE MEETING MINUTES TO ALL RELEVANT PARTIES WITHIN 4 WORKING DAYS OF THE MEETING, AND THE CONTRACTOR SHALL MAKE PROVISION FOR MODIFYING THE MINUTES IF NECESSARY WITHIN THREE DAYS. ALL OF THE CONTRACTOR'S COSTS TO SATISFY THESE REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
8. REQUIRED FORMS AND STATEMENTS: THE CONTRACTOR SHALL SUBMIT A "CERTIFICATE OF CONTRACTOR'S COMPLIANCE TO BUY AMERICAN CLAUSE", AND THE CONTRACTOR SHALL FILL OUT ANY OTHER REQUIRED CDOT OR FHWA MANDATED FORMS OR CERTIFICATES, OR ANY OTHER DOCUMENTS, AS DIRECTED BY THE ENGINEER. ALL OF THE CONTRACTOR'S COSTS TO SATISFY THESE REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
9. PERMIT REQUIREMENTS: THE FOLLOWING PERMITS FOR THIS PROJECT HAVE BEEN OBTAINED BY CITY AND COUNTY OF DENVER AND WILL BE TRANSFERRED TO THE CONTRACTOR UPON AWARD. COPIES ARE IN THE APPENDICES TO THE SPECIAL PROVISIONS: GRADING PERMIT FROM JEFFERSON COUNTY, FLOODPLAIN PERMIT FROM JEFFERSON COUNTY. PRIOR TO COMMENCING GRADING, CONTACT SHAUN SMITH OF THE JEFFERSON COUNTY TRANSPORTATION AND ENGINEERING DIVISION FOR THE ISSUANCE OF THE CONSTRUCTION PERMIT. THE CONTRACTOR MUST OBTAIN THE FOLLOWING PERMITS AT THE CONTRACTOR'S COST: TEMPORARY CONSTRUCTION AND ACCESS PERMIT FROM DENVER PARKS DEPARTMENT, DEWATERING PERMIT. THERE MAY BE ADDITIONAL PERMITS WHICH ARE REQUIRED BUT ARE NOT LISTED. ALL COSTS OF WHATSOEVER NATURE REQUIRED TO OBTAIN AND ADHERE TO THE PROVISIONS OF ANY PERMIT SHALL BE BORNE SOLELY BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE PROJECT.
10. SURVEY NOTE: ALL RANGE POINTS, TIES, BENCHMARKS, OR OTHER SURVEY CONTROL POINTS WHICH ARE ENCOUNTERED DURING CONSTRUCTION MUST BE PRESERVED BY THE CONTRACTOR. COSTS TO SATISFY THESE REQUIREMENTS SHALL BE BORNE SOLELY BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE PROJECT.
11. NOTIFICATION FOR MATERIALS TESTING: THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR NOTIFYING THE MATERIALS TESTING COMPANY (AS DESIGNATED BY THE ENGINEER) IN A TIMELY FASHION OF THE NEED FOR ANY MATERIALS TESTS OR OTHER TESTS THAT NEED TO OCCUR. THE CONTRACTOR SHALL NOTIFY THE TESTING COMPANY OF THE NEED FOR ANY TESTING (OR PERSONNEL FROM THE TESTING COMPANY) BY THE CLOSE OF BUSINESS THE DAY BEFORE THE TEST (OR PERSON) IS NEEDED, UNLESS THE MATERIALS TESTING COMPANY REQUESTS EARLIER NOTIFICATION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING THE MATERIALS TESTING COMPANY OF ANY TESTING THAT NEEDS TO BE CANCELLED IN A TIMELY MANNER. ALL OF THE CONTRACTOR'S COSTS OF WHATSOEVER NATURE REQUIRED TO COMPLY WITH THESE REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
12. THE FINAL GEOTECHNICAL REPORT, GEOTECHNICAL REPORT RED ROCKS PARK ROAD BRIDGE OVER MT. VERNON CREEK, JEFFERSON COUNTY, COLORADO, CDOT PROJECT NO. BR0 M320-072, JULY 17, 2012, PREPARED BY YEH AND ASSOCIATES, INC. IS INCLUDED IN THE APPENDICES TO THE SPECIAL PROVISIONS FOR REFERENCE ONLY.

SURFACING

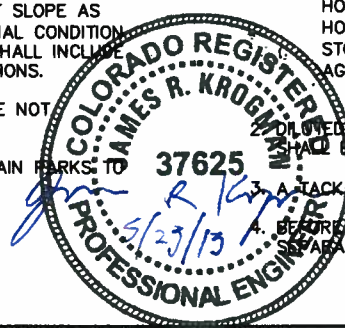
1. FOR PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

TACK COAT EMULSIFIED ASPHALT (SLOW-SETTING) @ 0.1 GALS./SQ.YD. (DILUTED)
 HOT MIX ASPHALT (GR. SX) (75) @ 110 LBS./SQ.YD./INCH
 HOT MIX ASPHALT (GR. S) (75) @ 110 LBS./SQ.YD./INCH
 STONE MATRIX ASPHALT @ 145 LBS./CU.FT
 AGGREGATE BASE COURSE (CLASS 6) @ 133 LBS./CU.FT

2. DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. RATES OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.
3. A TACK COAT OF EMULSIFIED ASPHALT (SLOW SETTING) SHALL BE PLACED PRIOR TO THE PLACEMENT OF SUBSEQUENT LIFTS OF H.M.A.
4. BEFORE PLACEMENT OF THE TACK COAT, THE CONTRACTOR SHALL CLEAN THE ROADWAY AS DIRECTED. CLEANING SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.



CALL UNCC
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
534-6700 METRO DENVER AREA
UTILITY NOTIFICATION CENTER OF COLORADO



JACOBS

Computer File Information		Sheet Revisions		As Constructed	RED ROCKS PARK ROAD (RD. 2)		Project No./Code
Creation Date:	01/11/11 Initials: DLH	(R) / / .			GENERAL NOTES		
Last Modification Date:	05/23/13 Initials: AML	(R) / / .			No Revisions:	/ /	Designer: BLT Structure D-27-MP-010A
Full Path:	...\\VXV0519_CCD_REDROCKSBRIDGE\CAD\CIV\DWG\	(R) / / .			Revised:	/ /	Detailer: DLH Numbers
Drawing File Name:	REDROCKS_GN_01.DWG	(R) / / .		Void:	/ /	Sheet Subset: GE Subset Sheets: 3 of 4	Sheet Number 3
Acad VerR17.0s	Scale: As Shown Units: English	(R) / / .					

GENERAL NOTES (CONTINUED)

ENVIRONMENTAL

THE CONTRACTOR SHALL MEET THE FOLLOWING CONDITIONS AS PART OF THE NATIONWIDE PERMIT 14 AND APPLICABLE REGIONAL CONDITIONS:
NATIONWIDE 14 - LINEAR TRANSPORTATION PROJECTS:

- APPROPRIATE MEASURES MUST BE TAKEN TO MAINTAIN NORMAL DOWNSTREAM FLOWS AND MINIMIZE FLOODING TO THE MAXIMUM EXTENT PRACTICABLE, WHEN TEMPORARY STRUCTURES, WORK, AND DISCHARGES, INCLUDING COFFERDAMS, ARE NECESSARY FOR CONSTRUCTION ACTIVITIES, ACCESS FILLS, OR DEWATERING OF CONSTRUCTION SITES.
- TEMPORARY FILLS MUST CONSIST OF MATERIALS, AND BE PLACED IN A MANNER, THAT WILL NOT BE ERODED BY EXPECTED HIGH FLOWS. TEMPORARY FILLS MUST BE REMOVED IN THEIR ENTIRETY AND THE AFFECTED AREAS RETURNED TO PRE-CONSTRUCTION ELEVATIONS.
- THE AREAS AFFECTED BY TEMPORARY FILLS MUST BE REVEGETATED, AS APPROPRIATE.

REGIONAL CONDITIONS APPLICABLE TO ALL NATIONWIDE PERMITS WITHIN THE STATE OF COLORADO:

8. REMOVAL OF TEMPORARY FILLS. GC NO. 13 (REMOVAL OF TEMPORARY FILLS) IS AMENDED BY ADDING THE FOLLOWING: WHEN TEMPORARY FILLS ARE PLACED IN WETLANDS, A HORIZONTAL MARKER (I.E. FABRIC, CERTIFIED WEED-FREE STRAW, ETC.) MUST BE USED TO DELINEATE THE EXISTING GROUND ELEVATION OF WETLANDS THAT WILL BE TEMPORARILY FILLED DURING CONSTRUCTION.

ADDITIONAL INFORMATION:

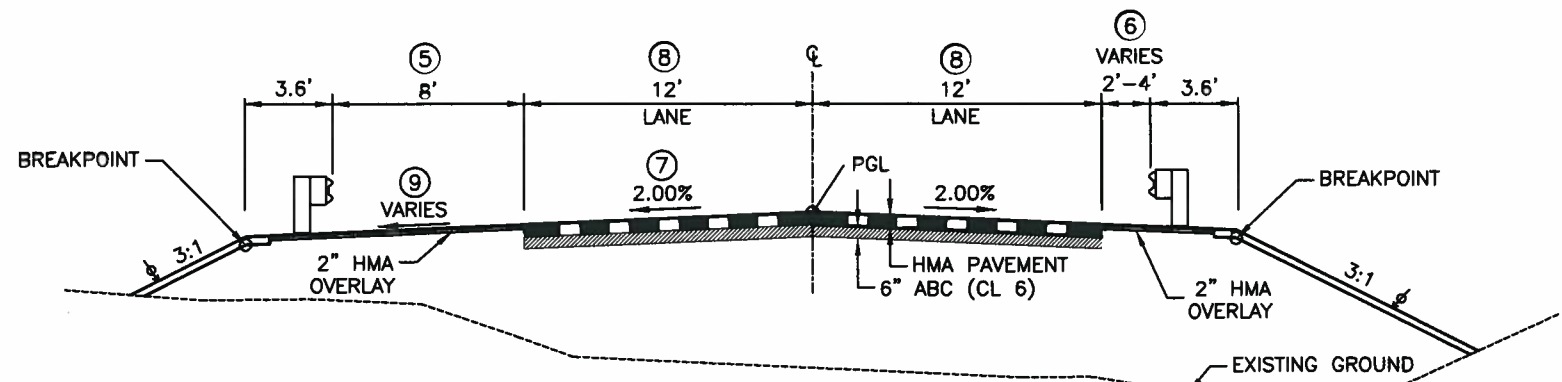
THE FOLLOWING ADDITIONAL INFORMATION RELATES TO MINIMIZATION OF IMPACTS TO JURISDICTIONAL WATERS OF THE UNITED STATES AND COMPLIANCE WITH THE GENERAL CONDITIONS:

1. PERMITTEES ARE REMINDED THAT APPROPRIATE EROSION AND SEDIMENT CONTROLS ARE REQUIRED IN ACCORDANCE WITH GC NO. 12 IN ORDER TO PROPERLY STABILIZE THE SITE AND PREVENT EROSION AND SILTATION INTO WETLANDS AND OTHER WATERS DOWNSTREAM. STREAMBED MATERIAL OR OTHER SMALL AGGREGATE MATERIAL PLACED ALONE FOR BANK STABILIZATION WILL NOT MEET GC NO. 12.
3. PERMITTEES ARE ENCOURAGED TO CLEAN HEAVY EQUIPMENT PRIOR TO AND AFTER CONSTRUCTION IF EQUIPMENT WAS PREVIOUSLY USED IN ANOTHER STREAM, RIVER, LAKE, POND OR WETLAND WITHIN 10 DAYS OF INITIATING WORK IN ORDER TO PREVENT THE SPREAD OF NEW ZEALAND MUD SNAILS AND OTHER AQUATIC HITCHHIKERS:

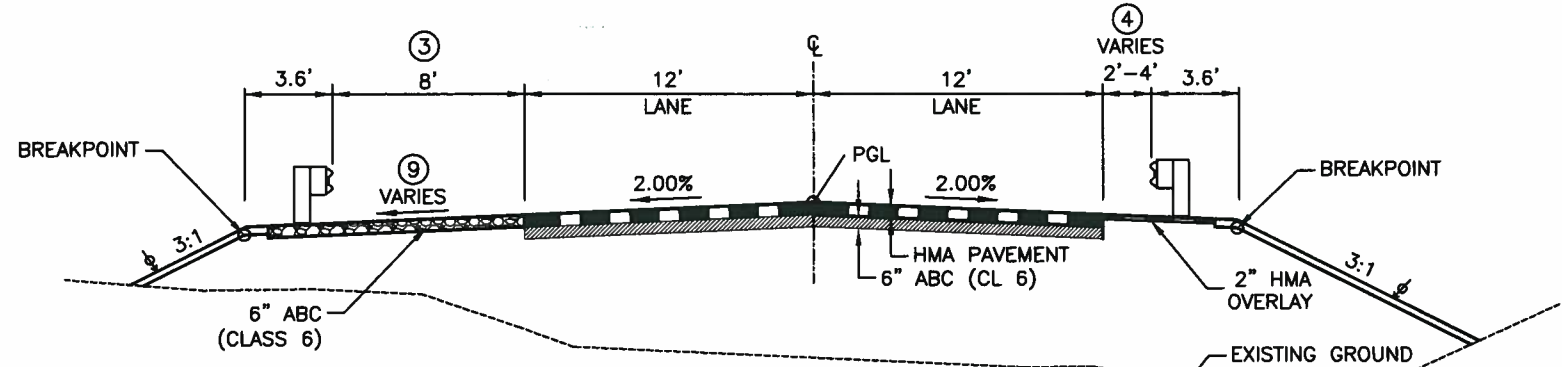
- A. REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND KEEP THE EQUIPMENT DRY FOR 10 DAYS; OR
- B. REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY/SOAK EQUIPMENT WITH EITHER A 1:1 SOLUTION OF FORMULA 409 HOUSEHOLD CLEANER AND WATER, OR OTHER APPROVED CHEMICAL SOLUTIONS. TREATED EQUIPMENT MUST BE KEPT MOIST FOR AT LEAST 10 MINUTES; OR
- C. REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY/SOAK EQUIPMENT WITH WATER GREATER THAN 120 DEGREES F FOR AT LEAST 10 MINUTES.



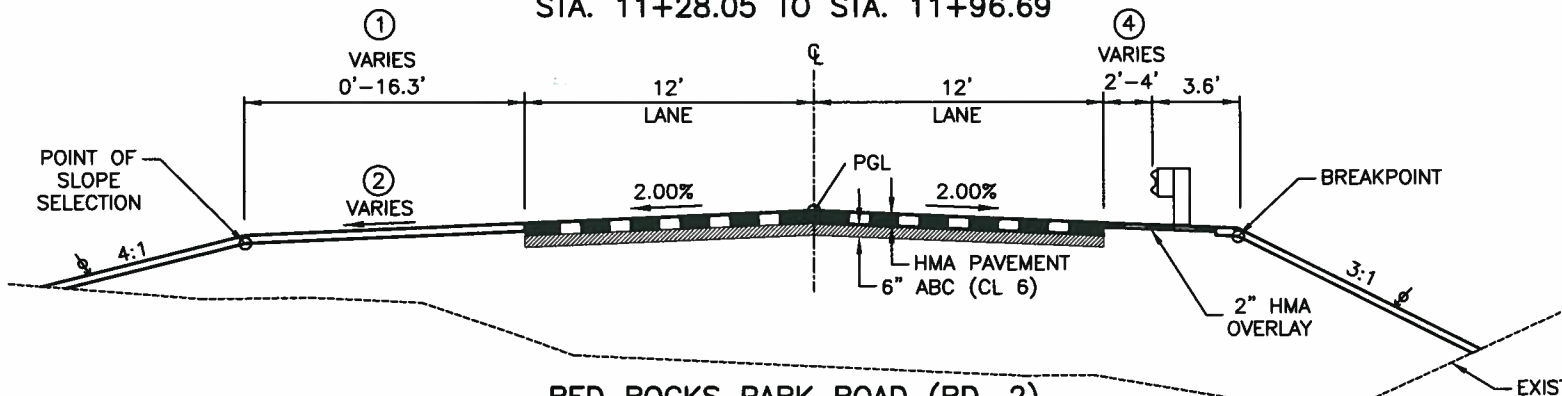
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Last Modification Date:	04/08/13 Initials: AML	<input type="checkbox"/>	///		Revised:	///	Designer:	BLT	Structure	D-27-MP-010A
Full Path:	...\\WVX0519_CCD_REDROCKSBRIDGE\CAD\CIV\DWG\	<input type="checkbox"/>	///		Void:	///	Detailer:	DLH	Numbers	
Drawing File Name:	REDROCKS_GN_01.DWG	<input type="checkbox"/>	///			Sheet Subset:	GE	Subset Sheets:	4 of 4	
Acad Ver17.0s	Scale: As Shown Units: English	<input type="checkbox"/>	///					Sheet Number	4	



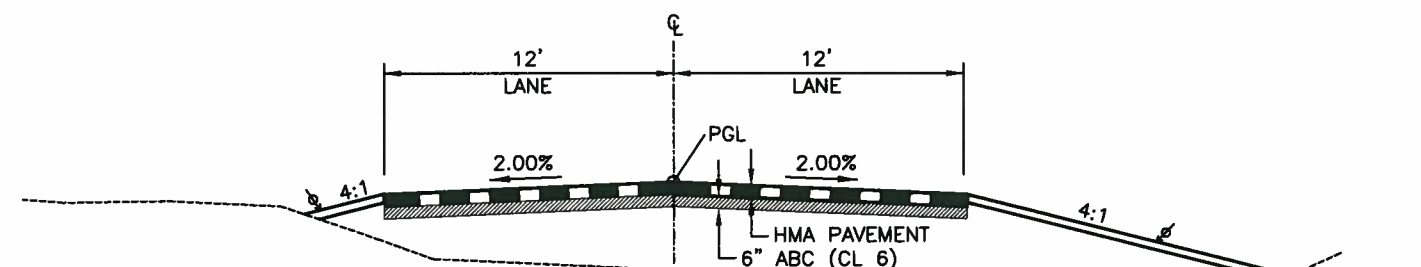
RED ROCKS PARK ROAD (RD. 2)
STA. 12+63.69 TO STA. 13+73.90
STA. 13+38 TO 13+73.90 VARIES - SEE INTERSECTION PLAN AND CROSS SECTIONS



RED ROCKS PARK ROAD (RD. 2)
STA. 11+28.05 TO STA. 11+96.69

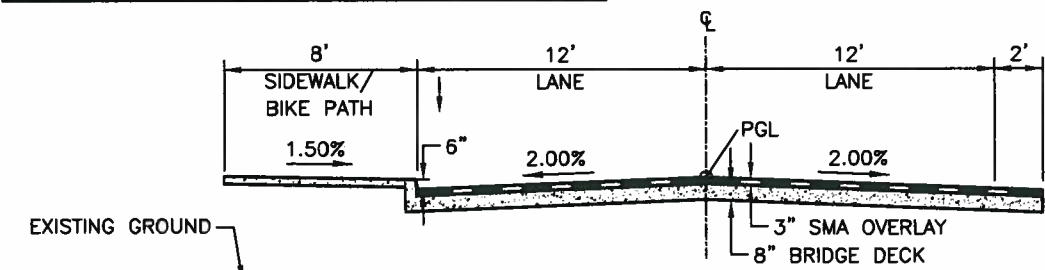
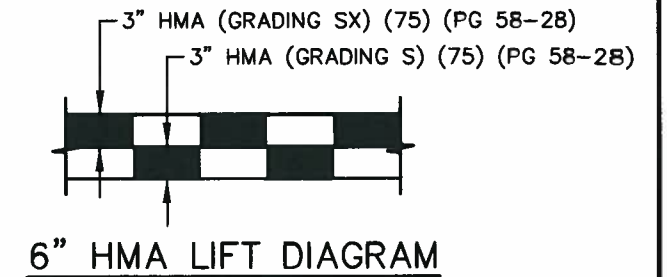


RED ROCKS PARK ROAD (RD. 2)
STA. 10+70.12 TO STA. 11+28.05



RED ROCKS PARK ROAD (RD. 2)
STA. 10+00 TO STA. 10+70.12

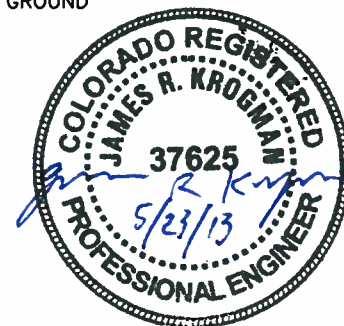
Design Parameter	HMA
Design life (years):	20
18k ESAL:	100,105
% Trucks:	2
Initial Serviceability:	4.5
Terminal Serviceability:	2.5
% Reliability:	90
R-Value Design:	6
Soil Resilient Modulus (psi):	3,126
Structural Coefficient:	0.44
Required Structural Number (in):	3.22
Drainage Coefficient:	1
Pavement thickness (in):	6.0"
Overlay thickness (in):	-
Milling thickness (in):	-
Base Thickness (in):	6 ABC CL 6
HMA Grading:	S(75)(PG 58-28)
Lift thickness (bottom lifts):	3.0"
HMA Grading:	SX(75)(PG 58-28)
Lift thickness (top lift):	3.0"



RED ROCKS PARK ROAD (RD. 2)
STA. 11+96.69 TO STA. 12+63.69
SEE BRIDGE GENERAL LAYOUT SHEET FOR MORE INFORMATION

NOTES:

- ① TRANSITION SLOPE WIDENING WIDTH VARIES FROM:
STA. 10+75.00 - 0' TO 15' - STA. 11+10.00
STA. 11+10.00 - 15' TO 16.3' - STA. 11+28.05
 - ② TRANSITION SLOPE VARIES FROM:
STA. 10+75.00 - -5:1 TO -2.0% - STA. 11+28.05
 - ③ AGGREGATE BASE WIDTH VARIES FROM:
STA. 11+28.05 - 12.7' TO 8' - STA. 11+63.94
STA. 11+63.94 - 8' TO 8' - STA. 11+82.69
 - ④ GUARDRAIL WIDENING WIDTH VARIES FROM:
STA. 10+70.12 - 8.7' TO 4' - STA. 11+08.24
STA. 11+08.24 - 4' TO 2' - STA. 11+82.69
 - ⑤ GUARDRAIL WIDENING WIDTH VARIES FROM:
STA. 12+77.69 - 8' TO 8' - STA. 12+95.64
STA. 12+95.64 - 8' TO 12.4' - STA. 13+21.05
 - ⑥ GUARDRAIL WIDENING WIDTH VARIES FROM:
STA. 12+77.69 - 2' TO 7.7' - STA. 14+33.33
 - ⑦ CROSS SLOPE VARIES FROM:
STA. 12+95.65 - -2.0% TO 1.8% - STA. 13+73.90
 - ⑧ SEE HORIZONTAL CONTROL TABLE AND INTERSECTION FOR EDGE OF PAVEMENT GEOMETRY AT INTERSECTION
 - ⑨ GUARDRAIL WIDENING CROSS SLOPE VARIES FROM:
STA. 11+28.05 - -2.0% TO -2.0% - STA. 11+63.94
STA. 11+63.94 - -2.0% TO 2.0% - STA. 11+74.69
- ⚡ THE CONTRACTOR WILL BE REQUIRED TO PLACE 8 INCHES OF TOPSOIL TO THIS LINE AFTER COMPLETION OF PAVING OPERATION.



Computer File Information	
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Last Modification Date:	04/08/13 Initials: AML
Full Path:	... \WXV0519_CCD_REDROCKSBRIDGE\CAD\CIV\DWG\
Drawing File Name:	REDROCKS_TS_01.DWG
Acad Ver. R17.0s	Scale: As Shown Units: English

Sheet Revisions	
CR	///
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CR	///



As Constructed	///
No Revisions:	///
Revised:	///
Void:	///

RED ROCKS PARK ROAD (RD. 2) TYPICAL SECTIONS				Project No./Code
				CE00896
Designer:	AML	Structure	D-27-MP-010A	
Detailer:	AML	Numbers		
Sheet Subset:	TY	Subset Sheets:	1 of 1	Sheet Number 5

SUMMARY OF APPROXIMATE QUANTITIES

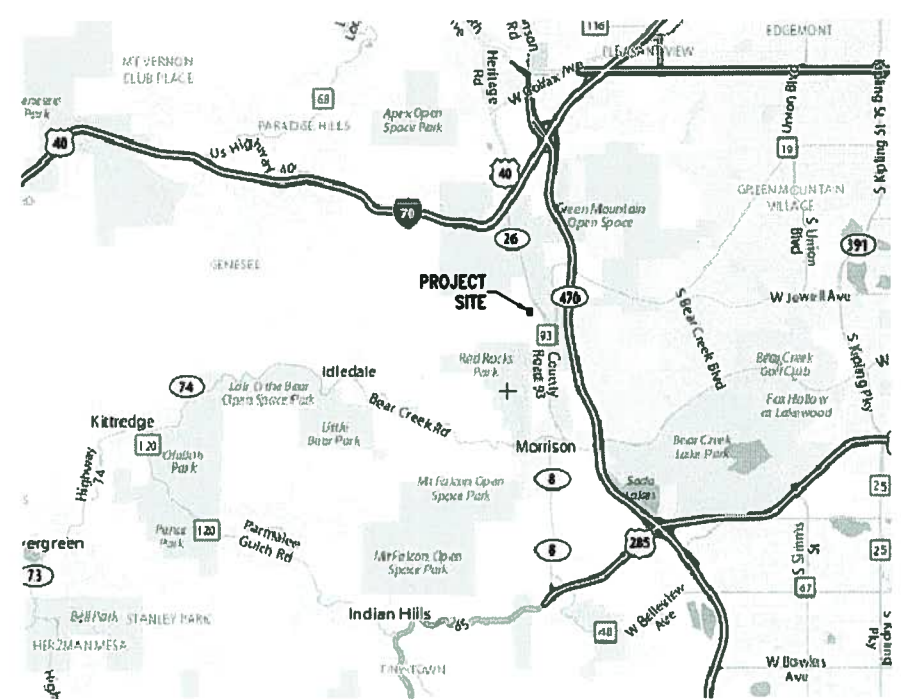
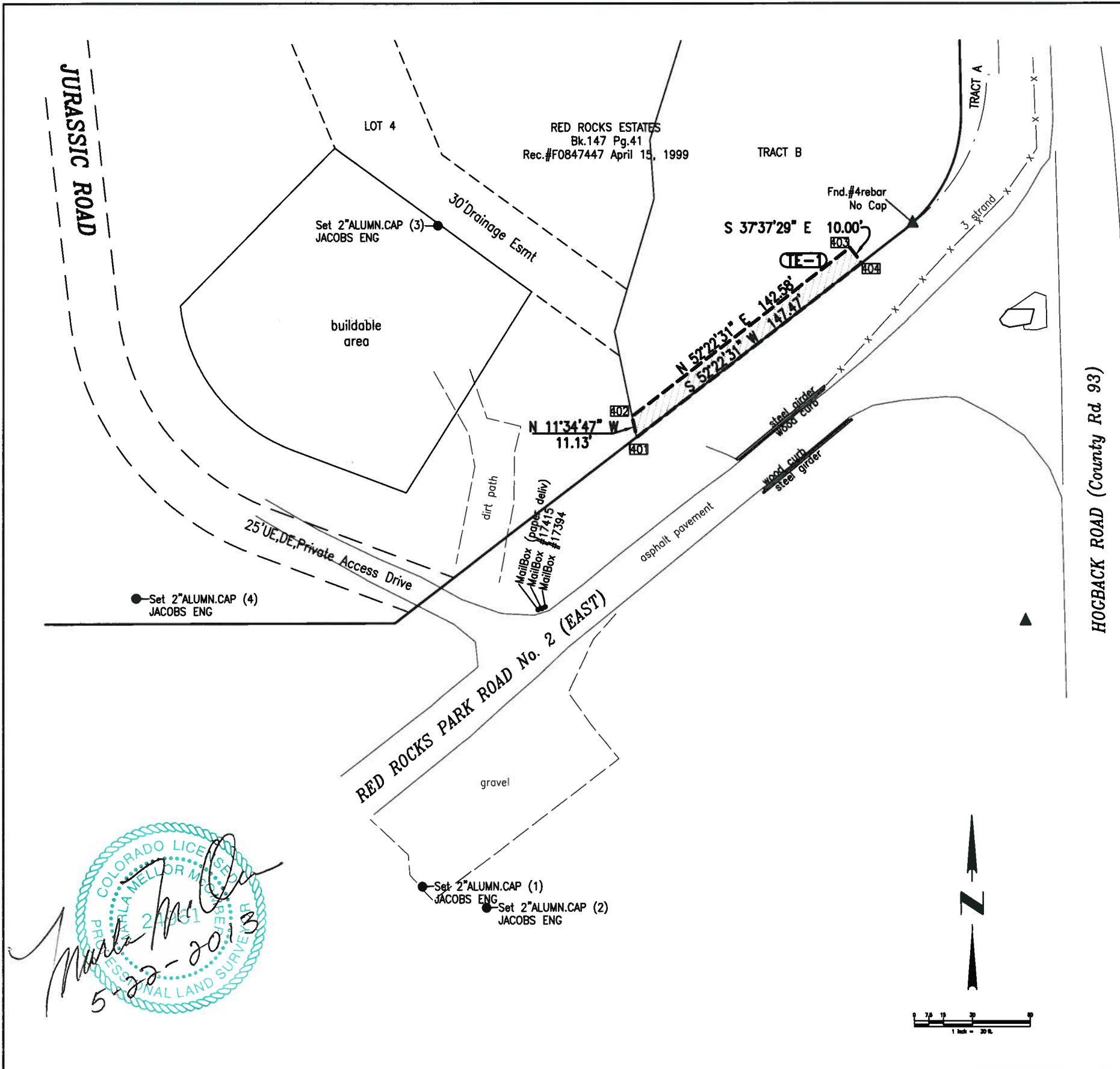
Item	Description	Unit	Quantity
201	Clearing and Grubbing	LS	1
202	Removal of Pipe	EA	1
202	Remove Ground Sign	EA	10
202	Removal of Asphalt Mat	SY	1,341
202	Removal of Asphalt Mat (Planing)	SY	26
202	Removal of Bridge	EA	1
202	Removal of Guardrail Type 3	LF	107
203	Embankment Material (Complete in Place)	CY	1,483
206	Structure Excavation	CY	1,425
206	Structure Backfill (Class 1)	CY	1,900
206	Structure Backfill (Class 2)	CY	30
206	Mechanical Reinforcement of Soil	CY	1,300
206	Filter Material (Class B)	CY	18
207	Topsoil	CY	300
207	Stockpile Topsoil	CY	300
207	Sweeping (Sediment Removal)	HR	30
208	Removal Of Trash	HR	30
208	Erosion Log (12 inch)	LF	80
208	Gravel Bag	LF	100
208	Silt Fence	LF	1,400
208	Concrete Washout Structure	EA	1
208	Vehicle Tracking Pad	EA	2
208	Removal and Disposal Of Sediment (Equipment)	HR	30
208	Removal and Disposal Of Sediment (Labor)	HR	30
210	Reset Light Pole	EA	1
210	Reset Ground Sign	EA	7
210	Reset Fence	LF	45
210	Reset Structure (Headwall)	EA	2
210	Reset Structure (Red Rocks Sign)	EA	2
211	Dewatering	LS	1
212	Seeding	AC	0.35
212	Soil Conditioning	AC	0.35
213	Mulching	AC	0.31
213	Mulch Tackifier	LB	58
214	Deciduous Tree (1" cal.)	EA	8
214	Deciduous Shrub (5 gal.)	EA	82
214	Perennial (1 gal.)	EA	12
214	Brush Layer Cutting	EA	65
216	Soil Retention Blanket (Straw/Coconut)(Biodegradable Class1)	SY	350
217	Herbicide Treatment	SY	550
217	Noxious Weed Management	SY	1,700
250	Materials Sampling and Delivery	EA	4
250	Coating Lead-Based Paint	LS	1
304	Aggregate Base Course (Class 6)	TON	442
403	Stone Matrix Asphalt	TON	41
403	Hot Mix Asphalt (Grading S)	TON	185
403	Hot Mix Asphalt (Grading SX)	TON	228
411	Emulsified Asphalt (Slow-Setting)	GAL	74
420	Geotextile (Erosion Control) (Class 1)	SY	459
420	Geotextile (Drainage) (Class 2)	SY	26
503	Drilled Caisson (30 inch)	LF	384
506	Riprap (6 inch)	CY	16
506	Riprap (9 inch)	CY	4
506	Soil Riprap (18 inch)	CY	266
514	Pipe Railing	LF	66
515	Waterproofing Membrane	SY	280
515	Concrete Sealer	SY	132
518	Bridge Expansion Device (0-4 inch)	LF	37
601	Concrete Class D (Bridge)	CY	372
602	Reinforcing Steel (Epoxy Coated)	LB	36,100
603	24" Storm Drain Pipe (RCP) (Complete in Place)	LF	62
606	Transition Type 3L	EA	4
606	Guardrail Type 3 (6-3 Post Spacing)	LF	62
606	End Anchorage (Flared)	EA	4
606	Bridge Rail Type 3	LF	190
607	Fence (Plastic)	LF	1,400
608	Concrete Curb Ramp	SY	14
609	Concrete Curb and Gutter (Type 2) (Section IM)	LF	205
609	Concrete Sidewalk	SY	16
610	Median Cover Material (Patterned Concrete)	SF	624
612	Delinestor Type I (Flexible) Crystal	EA	8
612	Delinestor Type I Crystal	EA	3
612	Delinestor Type III Yellow	EA	7
613	2 inch Electrical Conduit (Plastic)	LF	50
614	Post Type 2 IN. Telespar Tubing	LF	116
614	Sign Panel Class I	SF	67
625	Construction Surveying	LS	1
626	Mobilization	LS	1
627	Epoxy Pavement Marking (Permanent)(Yellow)	GAL	12
627	Epoxy Pavement Marking (Permanent)(White)	GAL	17
627	Preformed Thermoplastic Pavement Marking (Stopline - Yield Line)	SF	254
628	Structural Steel Unit (Through Truss)	EA	1
630	Traffic Control Inspection (2 HR Per Work Day)	DAY	132
630	Traffic Control Management (2 HR Per Work Day)	DAY	52
630	Construction Traffic Sign (Panel Size A)	EA	48
630	Construction Traffic Sign (Panel Size B)	EA	5
630	Construction Traffic Sign (Special)	SF	78
630	Barricade (Type II) (Temporary)	EA	4
630	Barricade (Type III M-B) (Temporary)	EA	6
700	Erosion Control	LS	1

Summary of Earthwork			RED ROCKS PARK ROAD (RD. 2)	
INDEX			PLAN	AS CON
BOOK	PAGE	SHEET	CY	CY
			EMBANKMENT MATERIAL (COMPLETE IN PLACE)	
			Embankment Material For roadway (from computer) RED ROCKS PARK ROAD (RD. 2)	
			1483	
			Total Embankment Material (CIP)	
			1483	
			For Information Only	
			Unclassified Excavation For roadway (from computer) RED ROCKS PARK ROAD (RD. 2)	
			117	
			Total Unclassified Excavation	
			117	
			Wetting (for information only)	
			M. gal.	
			1.3	
			Earthwork Quantities Balance (For information only)	
			Excavation	
			Total Unclassified Excavation	117
			Structure Excavation	1425
			Total	1542
			Embankment	
			Total Embankment Material	1483
			Total	1483
			Total Embankment (net)	
			Total Embankment (net) times compaction factor	1780
			Required Borrow Material	236

NOTE: EARTHWORK VOLUMES DO NOT INCLUDE REMOVAL OF EXISTING PAVEMENT WHICH IS PAID FOR AS REMOVAL OF ASPHALT MAT (ITEM 202).



Computer File Information		Sheet Revisions			As Constructed	RED ROCKS PARK ROAD (RD. 2) SUMMARY OF APPROXIMATE QUANTITIES	Project No./Code		
Creation Date:	05/04/11 Initials: BDC	R-	/ / .		No Revisions:		/ /	CE00896	
Last Modification Date:	05/23/13 Initials: AML	R-	/ / .	Revised:	/ /	Designer:	EMK	Structure	D-27-MP-010A
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Drawing File Name:	REDROCKS_SAQ_01.DWG	R-	/ / .			Sheet Subset:	TB	Subset Sheets:	1 of 1
Acad Ver. R17.0s	Scale: As Shown Units: English	R-	/ / .						Sheet Number 6



PROJECT DATUM

Geodetic coordinates are based on NAD 83 (CONUS)
 Orthometric Heights are based on the GPS Ellipsoid
 State Plane coordinates are based on the Colorado Central Zone (0502)
 Units are US Survey Feet (sft)

Project (Ground) coordinates are Modified State Plane
 Project Combined factor = 0.999701500
 Reciprocal = 1.0002985891

Project coordinates were modified to ground at:
 Latitude = 39° 40' 14.33880" North
 Longitude = 105° 11' 42.36561" West

Project coordinates were not truncated.

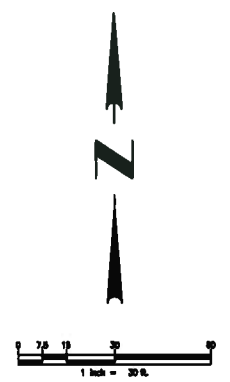
Project Ellipsoid Height = 5936.054 survey feet
 Project Elevation = 5987.086 survey feet

Example:

Pt#	Northing(ft)	Easting(ft)
401	1670038.04	3086861.22
402	1670048.94	3086858.99
403	1670135.98	3086971.91
404	1670128.06	3086978.02

Pt#	MODIFIED STATE PLANE		Elev(NAVD'88)	Latitude	Longitude	Ellipsoid Ht	Description
	Northing	Easting					
1	1669805.368	3086750.210	5987.09	39°40'14.338795378"N	105°11'42.365609999"W	5936.054	SET 2"Alumn.Cap(CONTROL)typical
2	1669794.656	3086783.364	5987.31	39°40'14.231885282"N	105°11'41.942198286"W	5936.275	SET 2"Alumn.Cap(CONTROL)typical
3	1670147.372	3086758.531	6001.65	39°40'17.717535284"N	105°11'42.244541134"W	5950.608	SET 2"Alumn.Cap(CONTROL)typical
4	1669954.459	3086802.157	6001.58	39°40'15.816731423"N	105°11'44.252039118"W	5950.562	SET 2"Alumn.Cap(CONTROL)typical

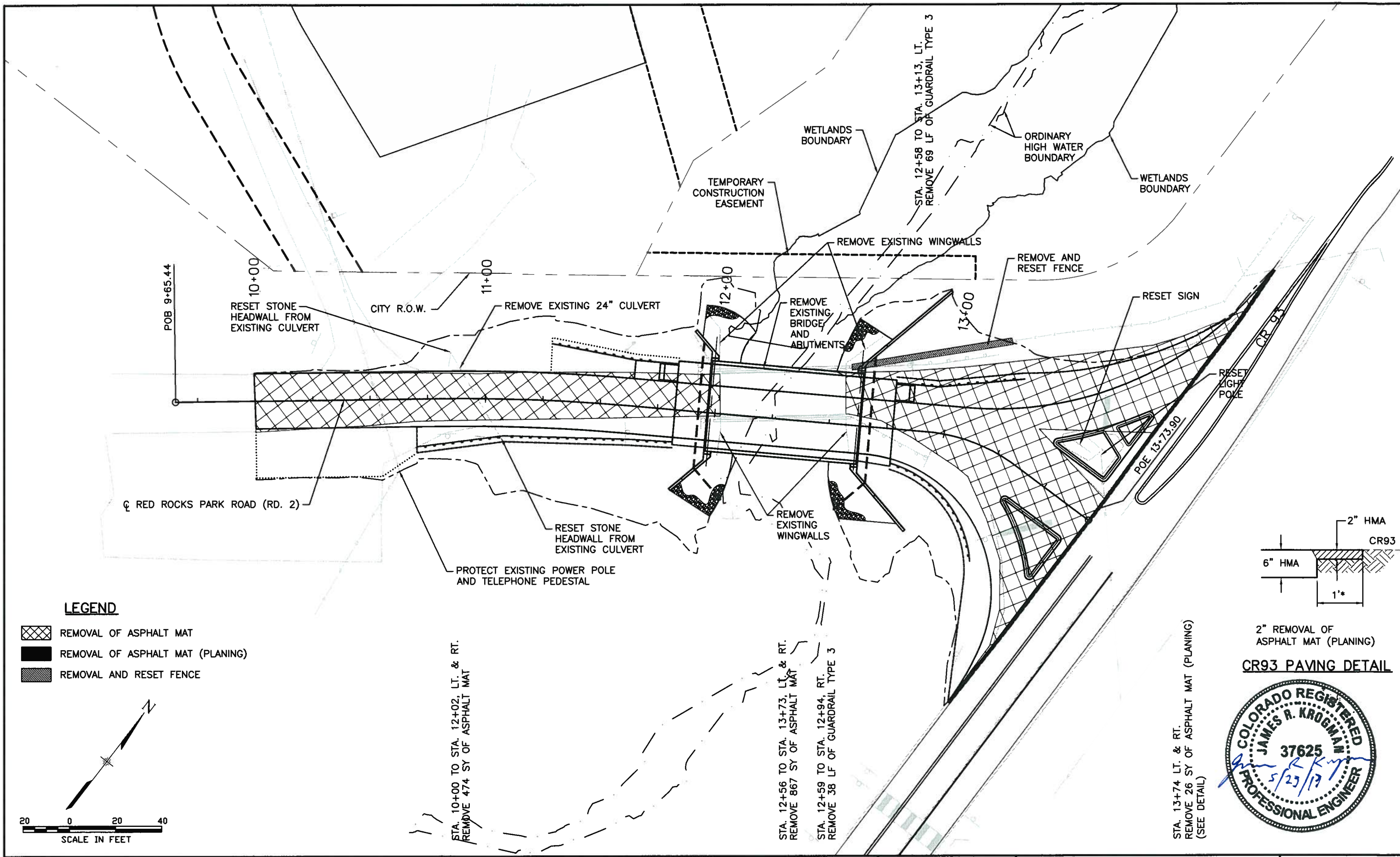
Colorado License
 Professional Land Surveyor
 5-22-2013



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Last Modification Date: 07/27/2011	Initials: jam
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Drawing File Name: PrimaryControl.dwg	
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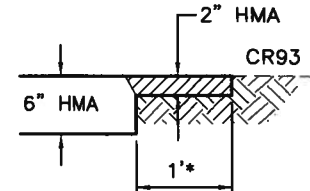
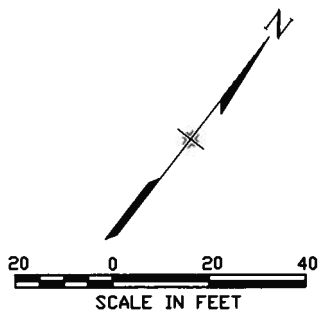
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As Constructed	RED ROCKS PARK BRIDGE CONTROL DIAGRAM		Project No./Code
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Revised: //	Designer: MMM	Structure: D-27-MP-010A	
Void: //	Detailer: jam	Numbers:	
	Sheet Subset: GM	Subset Sheets: 1 of 1	Sheet Number 7



LEGEND

- REMOVAL OF ASPHALT MAT
- REMOVAL OF ASPHALT MAT (PLANNING)
- REMOVAL AND RESET FENCE



2" REMOVAL OF ASPHALT MAT (PLANNING)
CR93 PAVING DETAIL



Computer File Information	
Creation Date:	05/04/11 Initials: BDC
Last Modification Date:	04/08/13 Initials: AML
Full Path:	...\\WVXV0519_CCD_REDROCKSBIDGE\CAD\CIV\DWG\
Drawing File Name:	REDROCKS_RM_01.DWG
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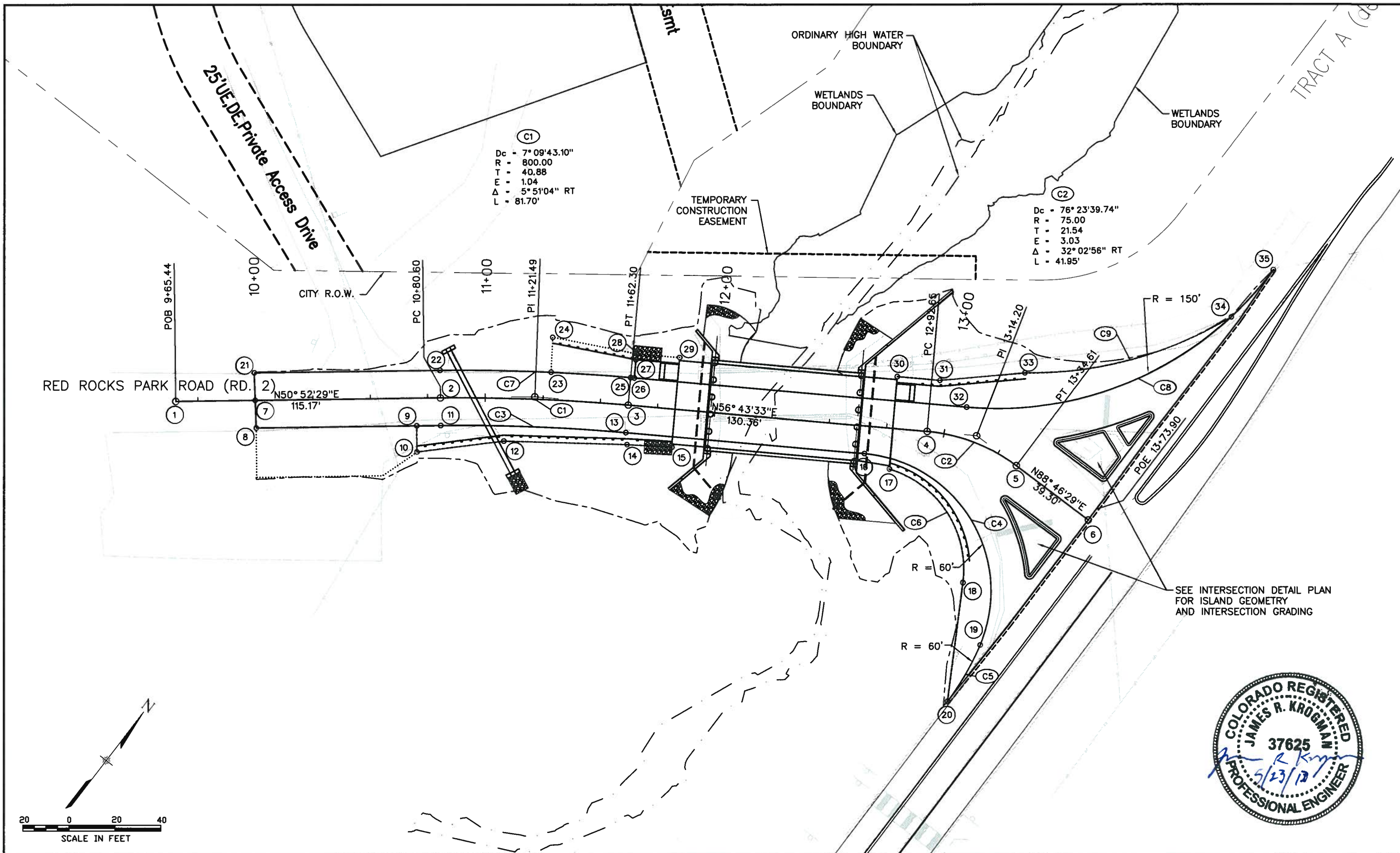
Sheet Revisions	



As Constructed	
No Revisions:	
Revised:	
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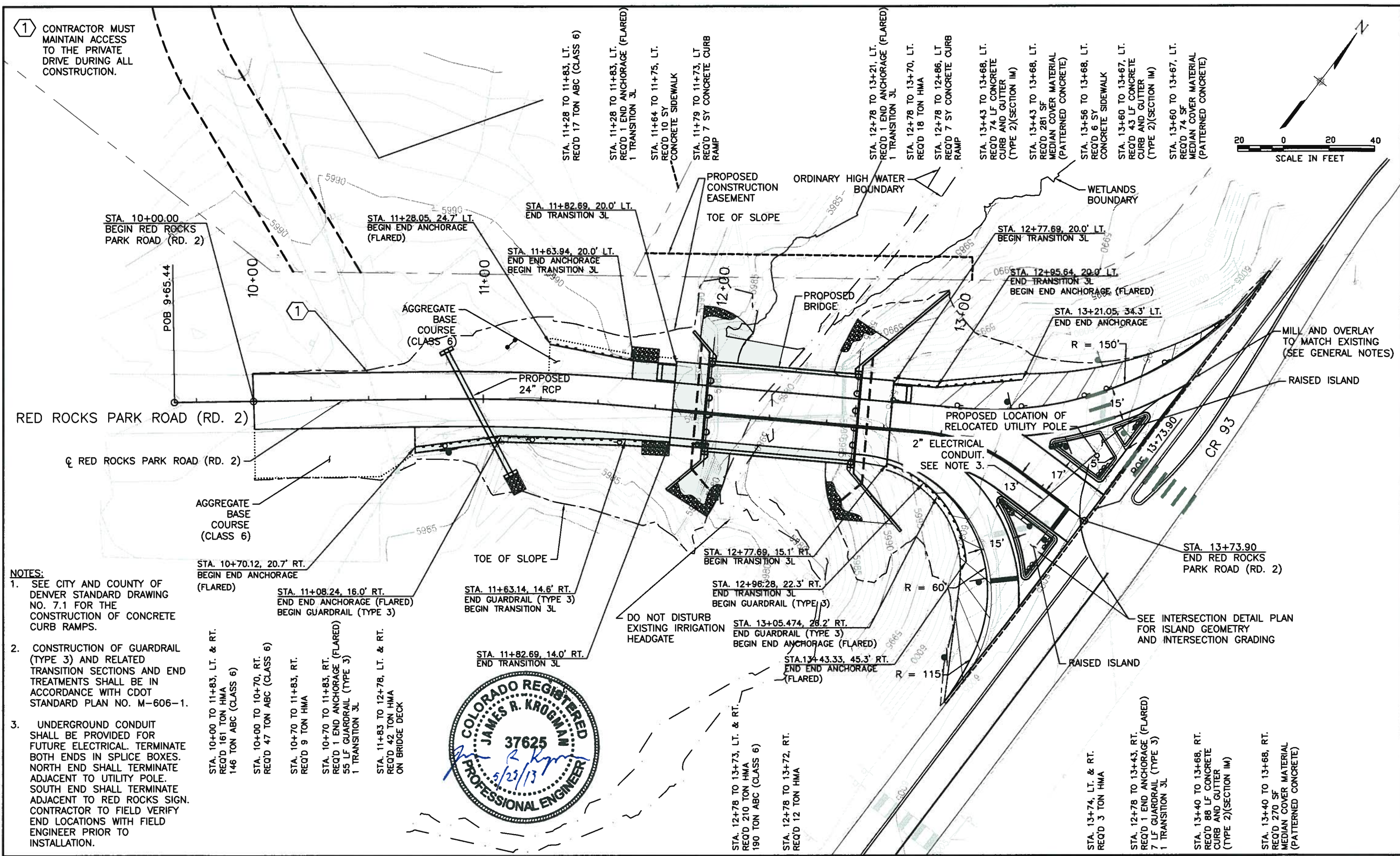
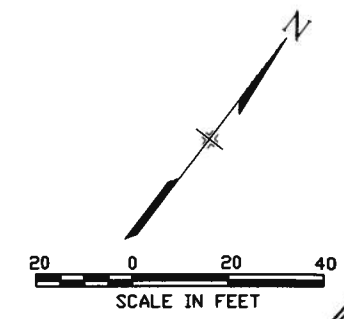
RED ROCKS PARK ROAD (RD. 2) REMOVAL PLAN			
Designer:	AML	Structure	D-27-MP-010A
Detailer:	AML	Numbers	
Sheet Subset:	RV	Subset Sheets:	1 of 1

Project No./Code	
	CE00896



Computer File Information		Sheet Revisions		 JACOBS City & County of Denver	As Constructed		RED ROCKS PARK ROAD (RD. 2)		Project No./Code		
Creation Date:	05/04/11	Initials:	BDC		R-	/	/	No Revisions:	/	/	CE00896
Last Modification Date:	04/08/13	Initials:	AML		R-	/	/	Revised:	/	/	
Full Path:	...\\WVXV0519_CCD_REDROCKSBIDGE\CAD\CIV\DWG\				R-	/	/	Void:	/	/	
Drawing File Name:	REDROCKS_HC_01.DWG				R-	/	/	Designer: AML Structure D-27-MP-010A Detailer: AML Numbers Sheet Subset: R Subset Sheets: 1 of 5		Sheet Number	9
Acad Ver. R17.0s	Scale: As Shown	Units:	English	R-	/	/					

1 CONTRACTOR MUST MAINTAIN ACCESS TO THE PRIVATE DRIVE DURING ALL CONSTRUCTION.



NOTES:

- SEE CITY AND COUNTY OF DENVER STANDARD DRAWING NO. 7.1 FOR THE CONSTRUCTION OF CONCRETE CURB RAMPS.
- CONSTRUCTION OF GUARDRAIL (TYPE 3) AND RELATED TRANSITION SECTIONS AND END TREATMENTS SHALL BE IN ACCORDANCE WITH CDOT STANDARD PLAN NO. M-606-1.
- UNDERGROUND CONDUIT SHALL BE PROVIDED FOR FUTURE ELECTRICAL. TERMINATE BOTH ENDS IN SPLICE BOXES. NORTH END SHALL TERMINATE ADJACENT TO UTILITY POLE. SOUTH END SHALL TERMINATE ADJACENT TO RED ROCKS SIGN. CONTRACTOR TO FIELD VERIFY END LOCATIONS WITH FIELD ENGINEER PRIOR TO INSTALLATION.

- STA. 10+00 TO 11+83, LT. & RT. REQ'D 161 TON HMA 146 TON ABC (CLASS 6)
- STA. 10+70 TO 10+70, RT. REQ'D 47 TON ABC (CLASS 6)
- STA. 10+70 TO 11+83, RT. REQ'D 9 TON HMA
- STA. 10+70 TO 11+83, RT. REQ'D 1 END ANCHORAGE (FLARED) 55 LF GUARDRAIL (TYPE 3) 1 TRANSITION 3L
- STA. 11+83 TO 12+78, LT. & RT. REQ'D 42 TON HMA ON BRIDGE DECK



Computer File Information	
Creation Date:	05/04/11 Initials: BDC
Last Modification Date:	05/17/13 Initials: AML
Full Path:	...\\WXXV0519_CCD_REDROCKSBRIDGE\CAD\CIV\DWG\
Drawing File Name:	REDROCKS_RD_01.DWG
Acad Ver. R17.0s	Scale: As Shown Units: English

Sheet Revisions	

JACOBS
City & County of Denver

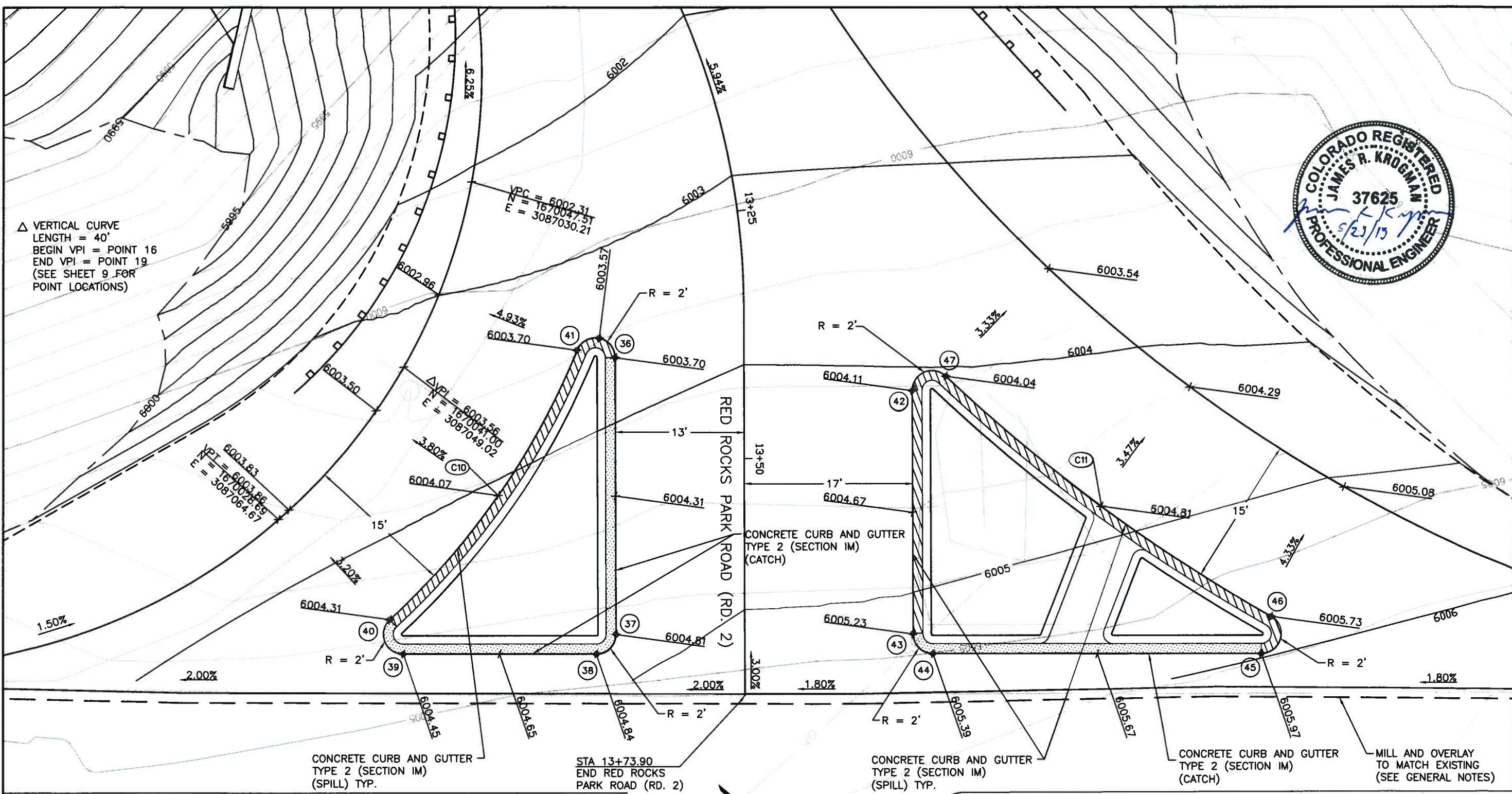
As Constructed	
No Revisions:	
Revised:	
Void:	

RED ROCKS PARK ROAD (RD. 2) ROADWAY PLAN			
Designer:	AML	Structure	D-27-MP-010A
Detailer:	AML	Numbers	
Sheet Subset:	R	Subset Sheets:	2 of 5

Project No./Code	CE00896
Sheet Number	10



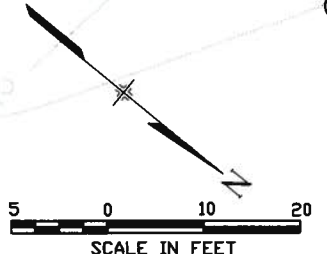
△ VERTICAL CURVE
 LENGTH = 40'
 BEGIN VPI = POINT 16
 END VPI = POINT 19
 (SEE SHEET 9 FOR
 POINT LOCATIONS)



LEGEND

- SPILL CURB AND GUTTER
- CATCH CURB AND GUTTER

NOTE:
 ALL ELEVATIONS ARE TO LIP OF PAN OR EDGE OF PAVEMENT



Computer File Information	
Creation Date:	05/04/11 Initials: BDC
Last Modification Date:	05/14/13 Initials: AML
Full Path:	...\\WV0519_CCD_REDROCKSBRIDGE\CAD\CIV\DWG\
Drawing File Name:	REDROCKS_INT_01.DWG
Acad Ver. R17.0s	Scale: As Shown Units: English

Sheet Revisions	
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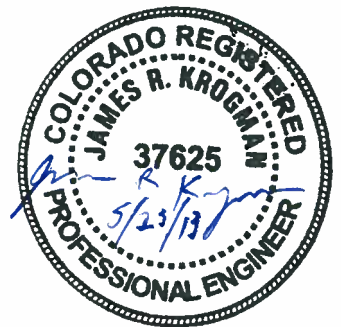
JACOBS

As Constructed	No Revisions: / /	Revised: / /	Void: / /
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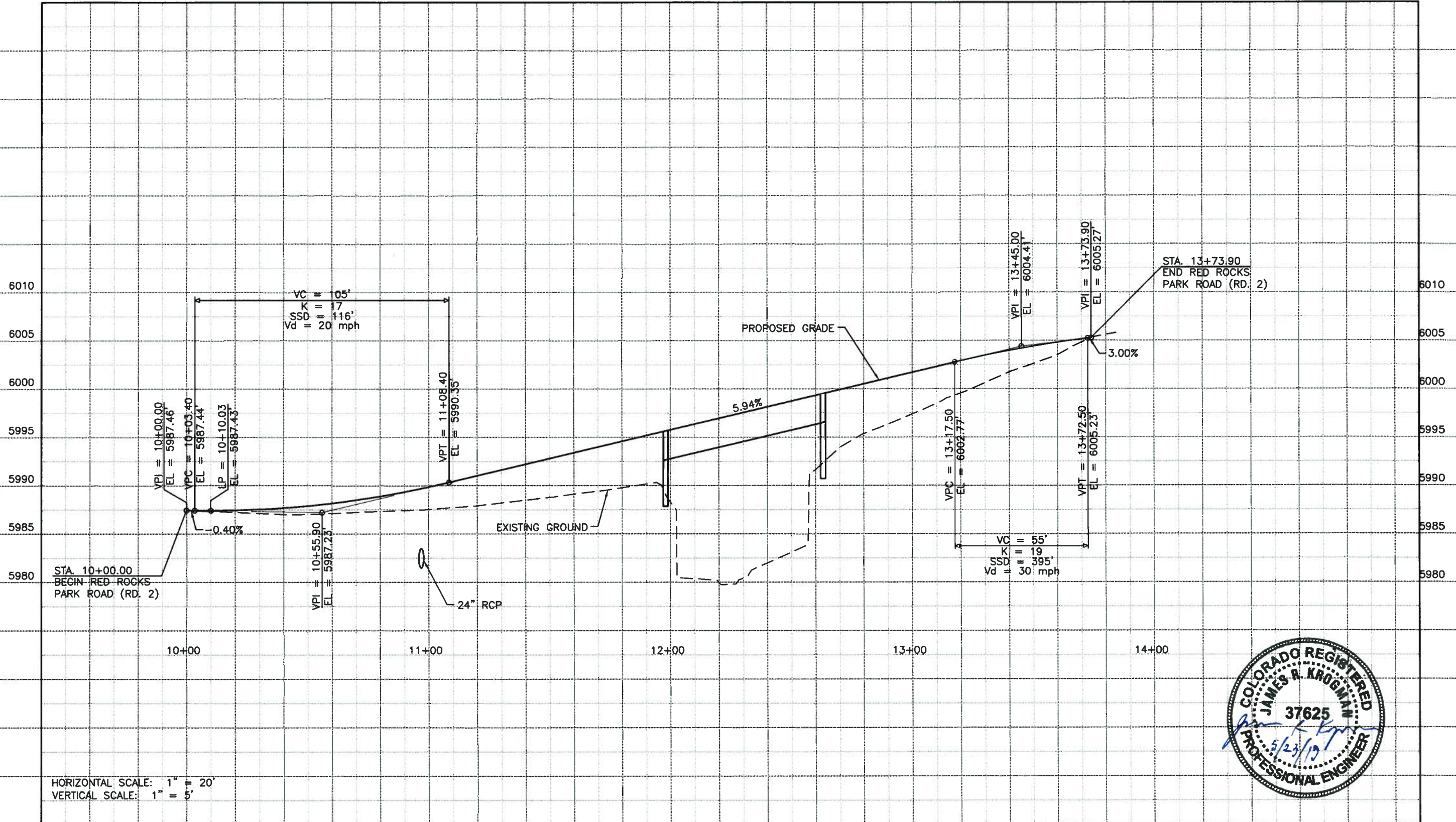
RED ROCKS PARK ROAD (RD. 2) INTERSECTION PLAN			
Designer:	AML	Structure	D-27-MP-010A
Detailer:	AML	Numbers	
Sheet Subset:	R	Subset Sheets:	3 of 5

Project No./Code	CE00896
Sheet Number	11

POINT	CURVE	STATION	OFFSET/SIDE	NORTHING	EASTING	ELEVATION	DESCRIPTION	DELTA	TANGENT	LENGTH	RADIUS
1		9+65.44	0	1669870.48	3086738.41	NA	POB				
2	C1	10+80.60	0	1669943.15	3086827.75	5988.94	PC	5° 51'04" Right	40.88	81.70	800.00
3		11+62.30	0	1669991.38	3086893.65	5993.55	PT				
4	C2	12+92.65	0	1670062.90	3087002.64	6001.30	PC	32° 02'56" Right	21.54	41.95	75.00
5		13+34.61	0	1670075.17	3087042.18	6003.71	PT				
6		13+73.90	0	1670076.01	3087081.47	NA	POE				
7		10+00.00	0	1669892.29	3086765.22	MATCH EX.	EOP BEGIN PAVE.				
8		10+00.28	12.00 / RT.	1669883.15	3086773.01	MATCH EX.	EOP BEGIN PAVE.				
9		10+70.12	12.00 / RT.	1669927.22	3086827.19	5988.28	EOP / BEGIN G.R. WIDENING				
10		10+70.12	23.35 / RT.	1669918.42	3086834.36	5988.05	EOP G.R. WIDENING				
11	C3	10+80.60	12.00 / RT.	1669933.84	3086835.33	5988.70	EOP / PC	5° 51'04" Right	40.27	80.47	788.00
12		11+08.43	18.60 / RT.	1669945.50	3086860.87	5989.98	EOP G.R. WIDENING				
13		11+62.30	12.00 / RT.	1669981.34	3086900.23	5993.31	EOP / PT				
14		11+63.25	17.17 / RT.	1669977.54	3086903.87	5993.27	EOP G.R. WIDENING				
15		11+82.73	16.60 / RT.	1669988.71	3086919.84	5994.50	EOP G.R. WIDENING				
16	C4	12+66.49	12.00 / RT.	1670038.51	3086987.34	5999.50	EOP / PC	108° 00'07" Right	82.59	113.10	60.00
17	C6	12+77.69	17.75 / RT.	1670039.85	3086999.86	6000.56	EOP G.R. WIDENING	80° 41'25" Right	38.56	63.94	45.40
18		13+46.75	54.60 / RT.	1670020.85	3087055.49	6002.99	EOP G.R. WIDENING				
19	C5	13+69.04	71.78 / RT.	1670004.15	3087078.14	6004.28	EOP / PCC	14° 09'10" Right	14.28	28.41	115.00
20		13+72.48	99.91 / RT.	1669976.10	3087082.18	MATCH EX.	EOP / END PAVE.				
21		9+99.72	12.00 / LT.	1669901.42	3086757.44	MATCH EX.	EOP BEGIN PAVE.				
22	C7	10+80.60	12.00 / LT.	1669952.46	3086820.18	5988.70	EOP / PC	5° 51'04" Right	41.50	82.92	812.00
23		11+28.03	12.00 / LT.	1669981.71	3086858.41	5991.28	EOP / BEGIN G.R. WIDENING				
24		11+28.05	27.33 / LT.	1669994.17	3086849.47	5990.95	EOP G.R. WIDENING				
25		11+62.30	12.00 / LT.	1670001.41	3086887.07	5993.31	EOP / PT				
26		11+63.94	12.00 / LT.	1670002.31	3086888.44	5993.41	EOP				
27		11+63.94	20.00 / LT.	1670009.00	3086884.05	5993.25	EOP				
28		11+64.08	22.60 / LT.	1670011.25	3086882.74	5993.20	EOP G.R. WIDENING				
29		11+82.69	22.60 / LT.	1670021.46	3086898.30	5995.14	EOP G.R. WIDENING				
30		12+77.69	22.60 / LT.	1670073.58	3086977.72	6000.78	EOP G.R. WIDENING				
31		12+95.38	22.66 / LT.	1670083.74	3086993.21	6001.02	EOP G.R. WIDENING				
32	C8	13+06.42	13.49 / LT.	1670081.79	3087009.55	6001.93	EOP / PC	58° 23'41" Left	83.82	152.88	150.00
33	C9	13+20.13	36.52 / LT.	1670109.16	3087020.05	6002.60	EOP G.R. WIDENING	32° 11'36" Left	48.50	94.43	168.07
34		13+70.22	108.18 / LT.	1670184.09	3087075.47	6006.99	EOP / END G.R. WIDENING				
35		13+72.53	135.61 / LT.	1670211.57	3087077.19	6006.99	EOP / END PAVE.				
36		13+39.80	13.00 / RT.	1670062.29	3087047.65	6003.70	ISLAND EOP				
37		13+67.73	13.00 / RT.	1670062.89	3087075.57	6004.81	ISLAND EOP				
38		13+69.73	15.00 / RT.	1670060.93	3087077.62	6004.84	ISLAND EOP				
39		13+69.70	34.43 / RT.	1670041.50	3087078.00	6004.45	ISLAND EOP				
40	C10	13+66.22	35.78 / RT.	1670040.08	3087074.55	6004.31	ISLAND EOP	25° 30'25" Left	16.98	33.39	75.00
41		13+39.80	16.85 / RT.	1670058.42	3087046.98	6003.70	ISLAND EOP				
42		13+43.20	17.00 / LT.	1670092.35	3087050.41	6004.11	ISLAND EOP				
43		13+67.78	17.00 / LT.	1670092.88	3087074.99	6005.23	ISLAND EOP				
44		13+69.78	19.00 / LT.	1670094.92	3087076.94	6005.39	ISLAND EOP				
45		13+69.84	52.13 / LT.	1670128.05	3087076.29	6005.97	ISLAND EOP				
46	C11	13+66.10	53.12 / LT.	1670128.95	3087072.53	6005.73	ISLAND EOP	14° 12'08" Right	20.55	40.90	165.00
47		13+41.75	20.38 / LT.	1670095.71	3087048.89	6004.04	ISLAND EOP				
48		13+37.84	14.62 / RT.	1670060.63	3087045.72	6003.57	ISLAND EOP				



Computer File Information		Sheet Revisions		 JACOBS City & County of Denver	As Constructed		RED ROCKS PARK ROAD (RD. 2)		Project No./Code		
Creation Date:	05/04/11 Initials: BDC	(R) / /			No Revisions:	/ /	GEOMETRY POINTS		CE00896		
Last Modification Date:	05/14/13 Initials: AML	(R) / /			Revised:	/ /	Designer:	AML	Structure:	D-27-MP-010A	
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Drawing File Name:	REDROCKS_GP_01.DWG	(R) / /				Sheet Subset:	R	Subset Sheets:	4 of 5	Sheet Number	12
Acad Ver. R17.0s	Scale: As Shown Units: English	(R) / /									



HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 5'



Computer File Information	
Creation Date:	05/04/11 Initials: BDC
Last Modification Date:	04/08/13 Initials: AML
Full Path:	...\\WV0519_CCD_REDROCKSBRIDGE\CAD\CM\DWG\
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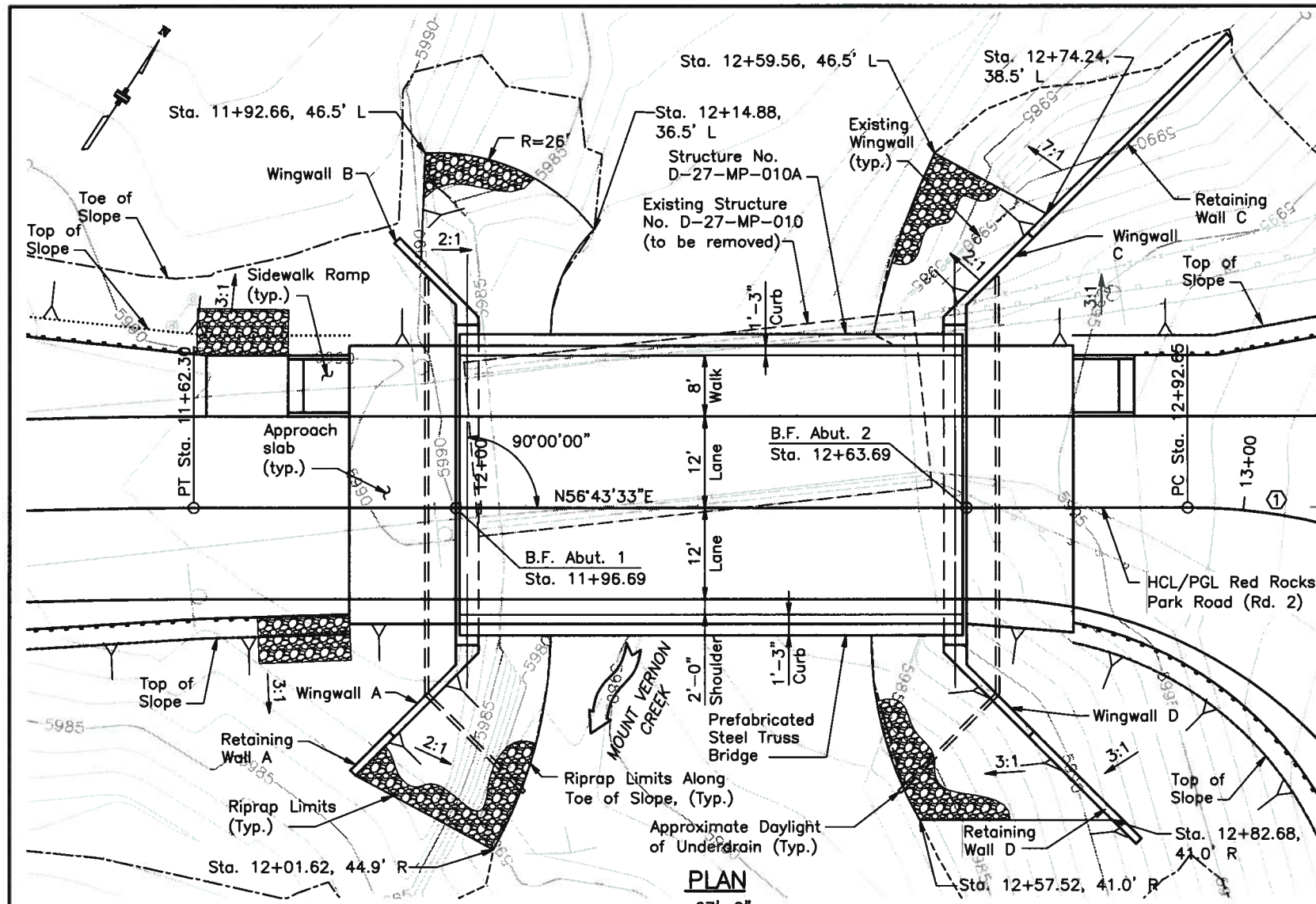


JACOBS

As Constructed	
No Revisions:	///
Revised:	///
Void:	///

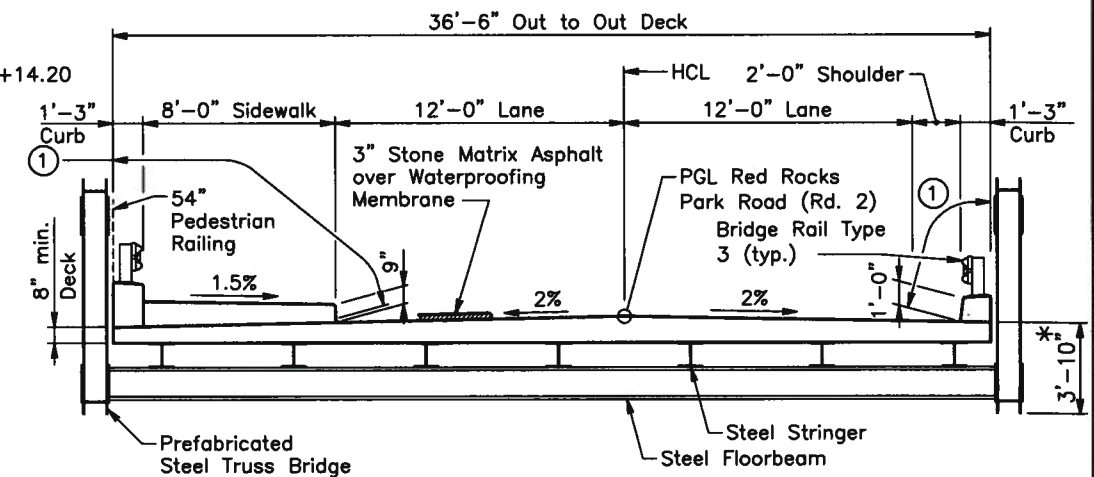
RED ROCKS PARK ROAD (RD. 2) ROADWAY PROFILE		
Designer:	AML	Structure: D-27-MP-010A
Detailer:	AML	Numbers:
Sheet Subset:	R	Subset Sheets: 5 of 5

Project No./Code	
CE00896	Sheet Number: 13

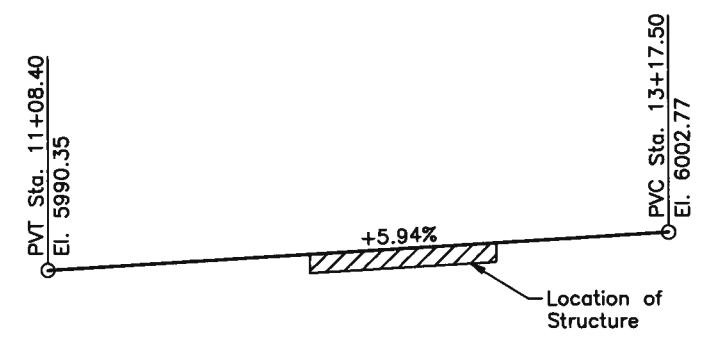


CURVE DATA

① $\Delta = 76^{\circ}23'39.74''$
 $R = 75.00'$
 $T = 21.54'$
 $L = 41.96'$
P.I. STA = 13+14.20



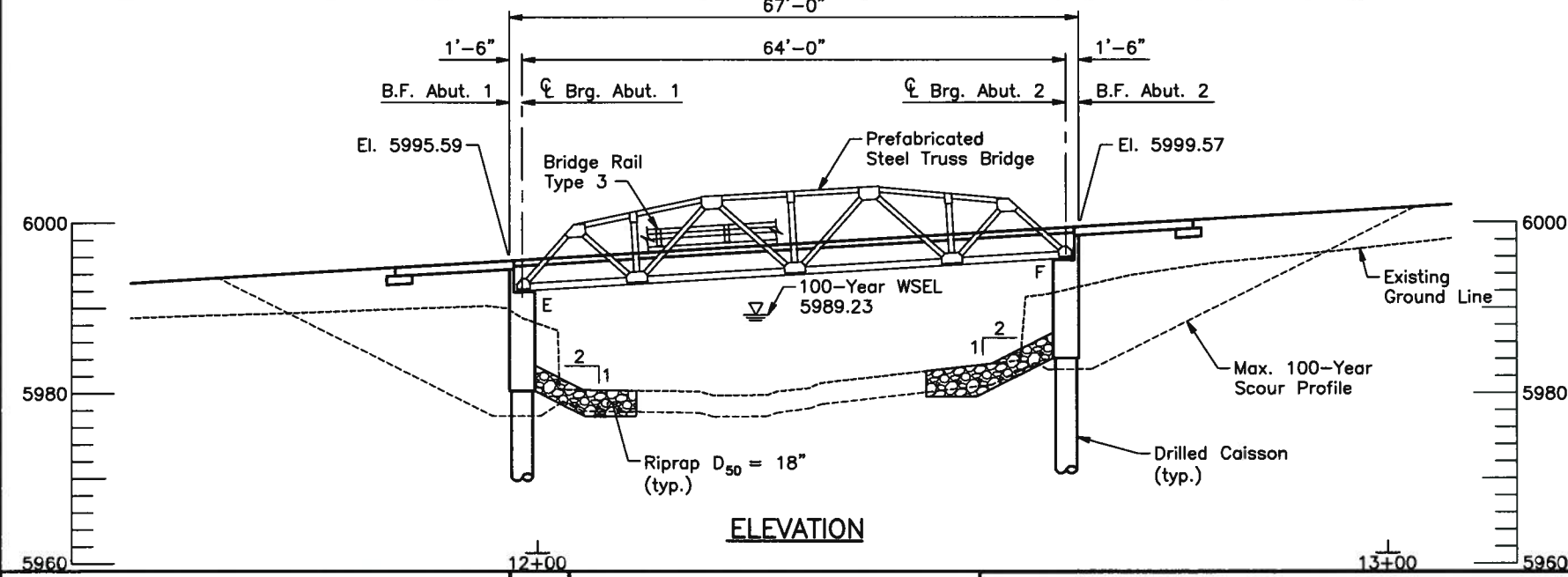
TYPICAL SECTION



PROFILE GRADE
Red Rocks Park Road (Rd. 2)

NOTES:

- * Abutments have been detailed assuming a structure depth as shown. Contractor shall verify the final structure depth with prefabricated bridge manufacturer prior to constructing abutment seat and bearing assemblies.
- See City and County of Denver Standard Drawing No. 7.1 for the construction of concrete curb ramps.
- ① - Limits of Concrete Sealer.



ELEVATION

Computer File Information

Creation Date:	05/04/11	Initials:	BDC
Last Modification Date:	05/14/13	Initials:	AML
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R-	/	/	.	



As Constructed

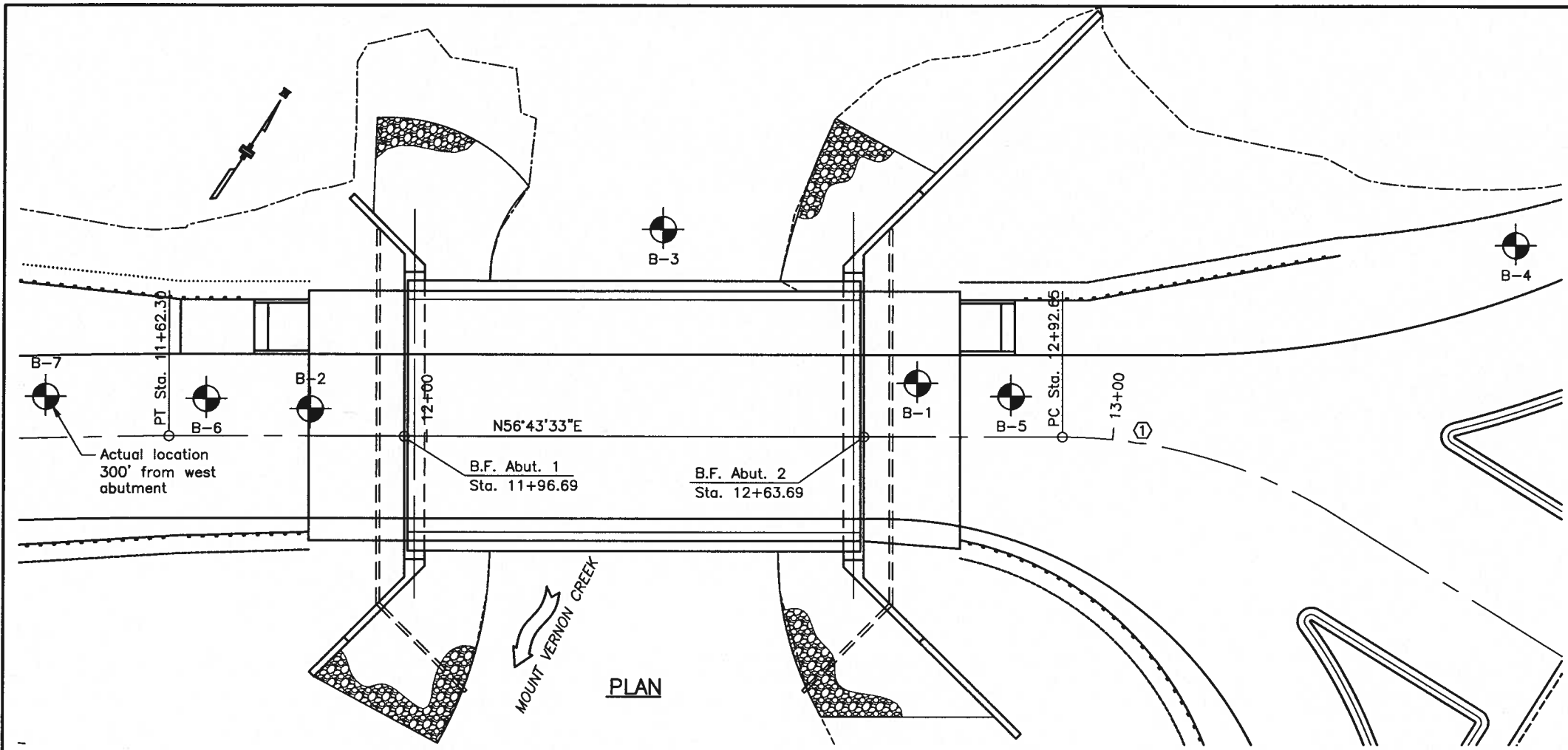
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Revised:	/	/
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RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK GENERAL LAYOUT

Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets:	2 of 18

Project No./Code

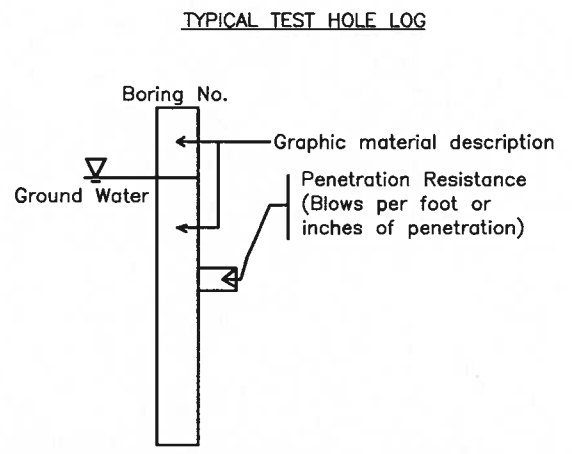
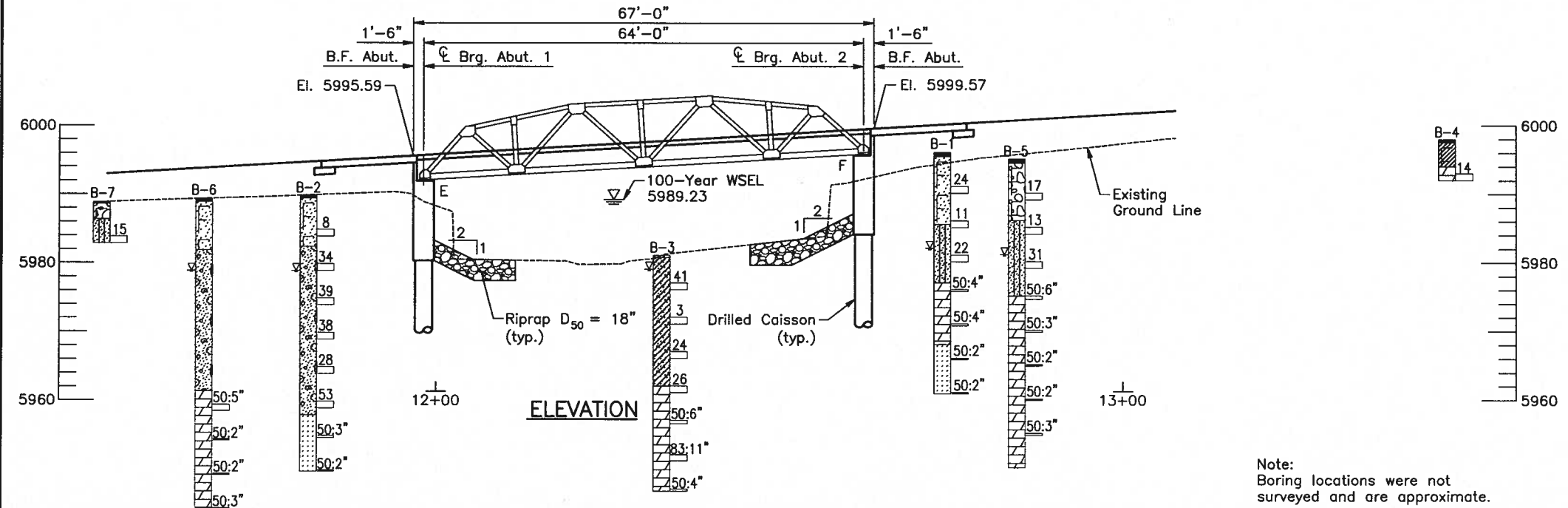
CE00896	
Sheet Number	15



LEGEND

	Asphalt		Fill with Sand as major soil
	USCS Silty Sand		USCS Poorly-graded Gravelly Sand
	Topsoil		USCS Clayey Sand
	Fill with Clay as major soil		Fill with Gravel as major soil
	Fill with Boulders and cobbles as major material		Claystone
	Sandstone		

Approximate Boring Location



Note:
Boring locations were not surveyed and are approximate.

Computer File Information		Sheet Revisions		 Yeh and Associates, Inc. Consulting Engineers & Scientists	As Constructed	RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK ENGINEERING GEOLOGY	Project No./Code	
Creation Date: 05/04/11	Initials: BDC				No Revisions: / /		CE00896	
Last Modification Date: 04/10/13	Initials: AML				Revised: / /		Designer: P. Macklin	Structure: D-27-MP-010A
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Drawing File Name: REDROCKS_BR_03 ENG GEOLOGY.DWG					Sheet Subset: B	Subset Sheets: 3 of 18	Sheet Number: 16	
Acad Ver. R17.0s	Scale: As Shown	Units: English						

Summary of Laboratory Test Results

Project No: 210 - 207

Project Name: Red Rocks Road

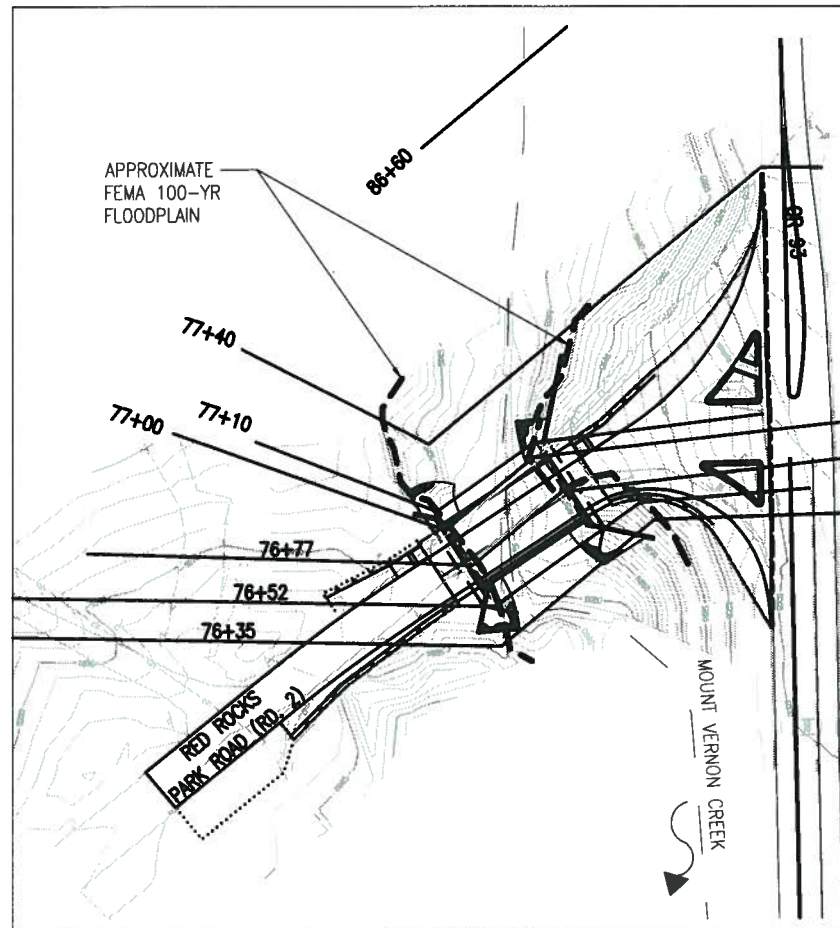
Date: B1-B3 12/13/2010

Date: B4-B7 11/16/2011

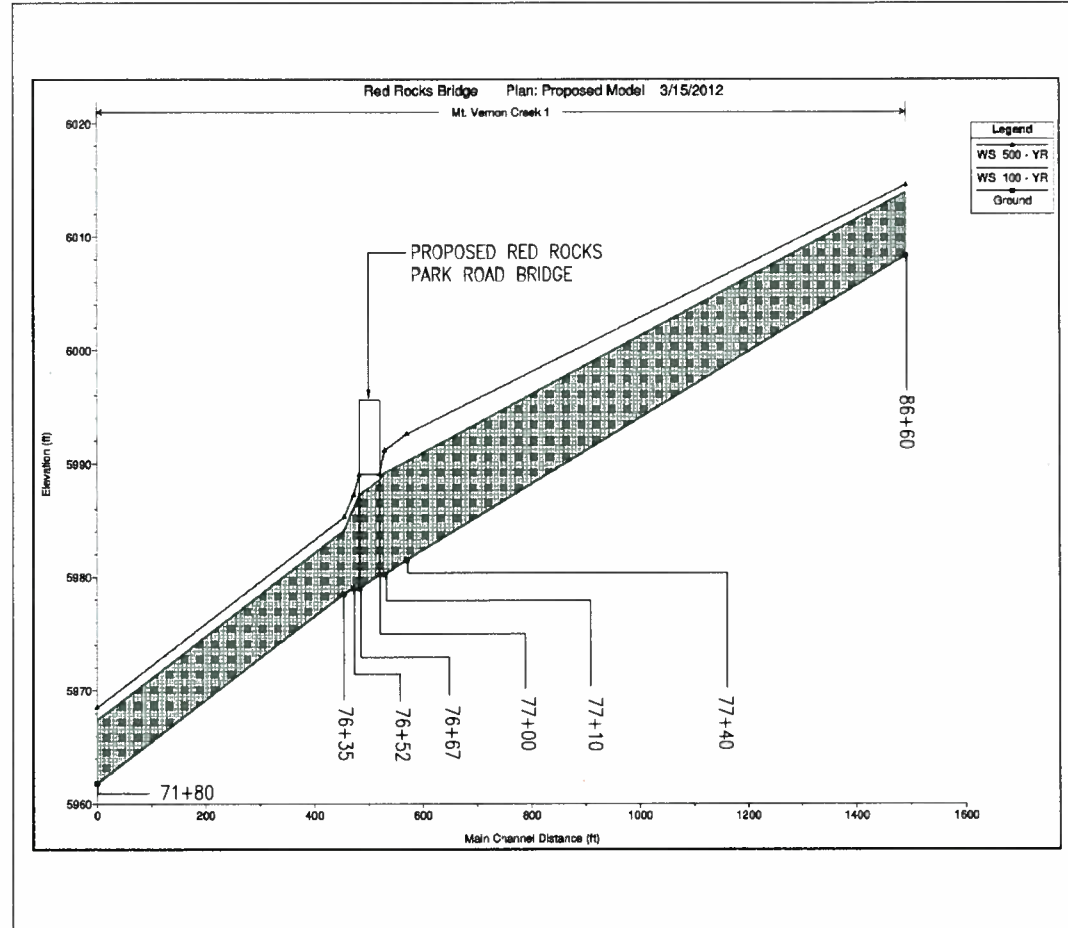
Boring NO.	Sample Location		Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Chloride %	Unconf. Comp. Strength (psf)	R-VALUE	CLASSIFICATION	
	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
B-1	5	CA	4.2	104.5	48	41	11	NV	NP	NP	-	-	-	-	-	A-1-a (0)	GP - GM	
B-1	10	CA	12.9	111.1	14	60	26	NV	NP	NP	-	-	-	-	-	A-2-4 (0)	SM	
B-1	15	CA	16.8	106.1	0	91	9	NV	NP	NP	-	-	-	-	-	A-1-b (0)	SW - SM	
B-1	20	CA	14.3	118.7	5	49	46	27	13	14	-	-	-	1985	-	A - 6 (3)	SC	
B-2	5	CA	13.0	108.9	4	56	40	NV	NP	NP	-	-	-	-	-	A - 4 (0)	SM	
B-2	15	CA	5.5	116.9	55	41	4	NV	NP	NP	-	-	-	-	-	A-1-a (0)	GW	
B-2	20	CA	5.6	138.5	53	42	5	NV	NP	NP	-	-	-	-	-	A-1-a (0)	GW	
B-2	25	CA	9.1	125.9	37	50	13	NV	NP	NP	-	-	-	-	-	A-1-b (0)	SM	
B-4		Bulk	7.8	-	9	64	27	24	14	10	8.1	0.005	1821	0.0042	-	6	A-2-4 (0)	SC
B-4	5	CA	21.0	84.8	-	-	76	49	20	29	-	-	-	-	-	A-7-6 (22)	CL	
B-5	5	CA	3.4	-	49	39	12	NV	NP	NP	-	-	-	-	-	A-1-a (0)	GP-GM	
B-5	10	CA	9.4	110.2	-	-	-	-	-	-	-	-	-	-	-	-	-	
B-5	20	CA	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B-5	25	CA	18.8	104.4	-	-	79	36	19	17	-	-	-	-	-	A - 6 (12)	CL	
B-5	30	CA	18.3	101.5	-	-	-	-	-	-	-	-	-	735	-	-	-	
B-6	30	CA	15.9	100.5	-	-	-	-	-	-	-	-	-	-	-	-	-	
B-6	35	CA	14.3	114.4	-	-	71	40	20	20	-	-	-	-	-	A - 6 (13)	CL	
B-6	40	CA	14.4	118.4	-	-	-	-	-	-	-	-	-	5649	-	-	-	
B-7		Bulk	4.9	-	17	64	19	20	17	3	7.6	0.003	3425	0.0048	-	-	A-1-b (0)	SM
B-7	5	CA	3.0	-	26	67	7	NV	NP	NP	-	-	-	-	-	A-1-b (0)	SW - SM	



Computer File Information		Sheet Revisions		 City & County of Denver	 Yeh and Associates, Inc. Consulting Engineers & Scientists	As Constructed		RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK		Project No./Code	
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Last Modification Date:	04/08/13 Initials: AML	<input type="checkbox"/>	///			Revised:	///	Designer:	P. Macklin	Structure	D-27-MP-010A
Full Path:	...\\VXV0519_CCD_REDROCKSBRIDGE\CAD\STR\DWG\	<input type="checkbox"/>	///			Void:	///	Detailer:	M. Walz	Numbers	
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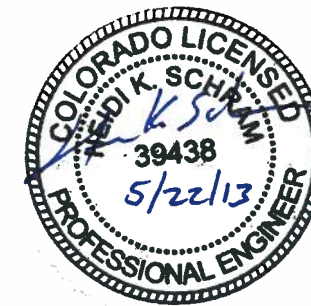
HEC-RAS CROSS SECTION LAYOUT



MOUNT VERNON CREEK PROFILE

CHANNEL DESCRIPTION

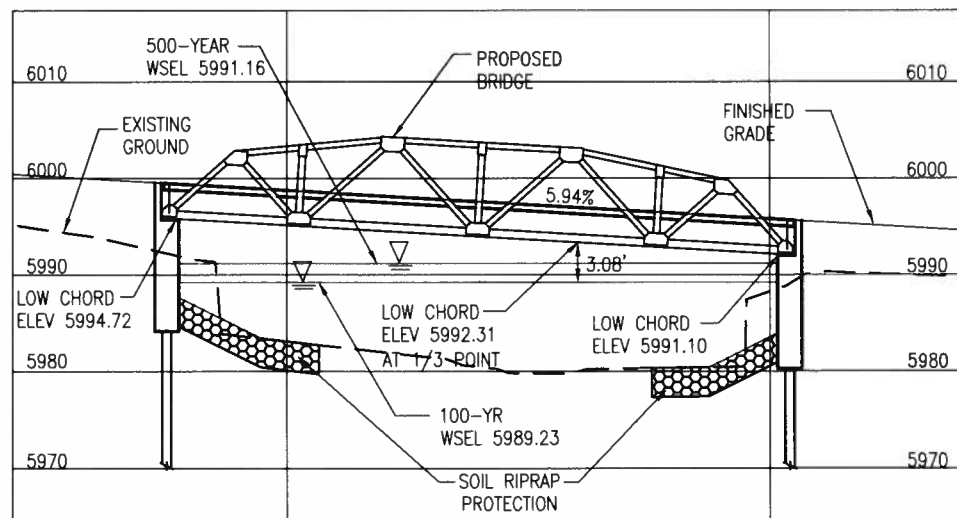
BOTTOM MATERIAL - COHESIVE NON-COHESIVE
 BOTTOM MATERIAL - SIZE - CLAY SILT SAND GRAVEL
 COBBLES OTHER
 STREAM FORM - STRAIGHT MEANDERING BRAIDED



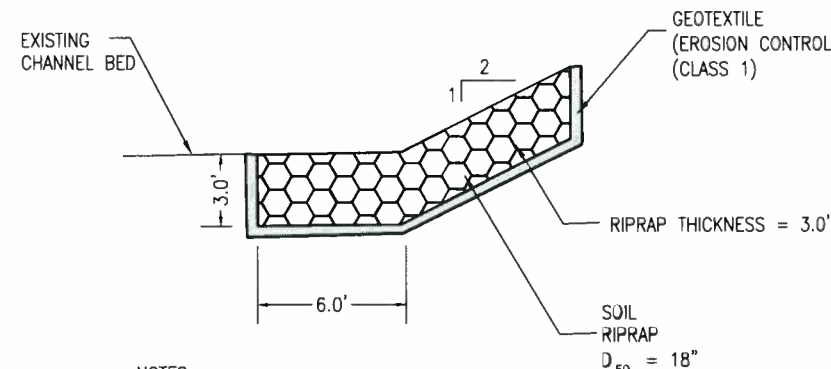
SCOUR ANALYSIS RESULTS**

SCOUR TYPE	DEPTH (FT)	
	100-YEAR	500-YEAR
CONTRACTION (L)	0	0
CONTRACTION (R)	0	0
CONTRACTION (C)	2.47	6.09
PEIR	N/A	N/A
LEFT ABUTMENT	1.81	7.10
RIGHT ABUTMENT	3.43	3.64

MANNINGS "n" FOR DESIGN - CHANNEL = 0.04
 MANNINGS "n" FOR DESIGN - OVERBANKS = 0.04
 DEBRIS - BRUSH TREES ICE OTHER
 DRAINAGE AREA = 9.66 MI²
 100-YEAR DESIGN FLOW = 4160 CFS
 500-YEAR DESIGN FLOW = 6400 CFS



BRIDGE CROSS SECTION
 (SECTION SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM)
 (WATER SURFACE ELEVATIONS TAKEN FROM XS 77+10)



NOTES:

- SEE BRIDGE LAYOUT FOR RIPRAP LIMITS.
- FIELD ADJUSTMENT OF THE RIPRAP THICKNESS AND SHAPE FROM THE TYPICAL DETAIL MAY BE REQUIRED TO TAKE INTO ACCOUNT THE EXISTING BANK AND PROPOSED GRADING SHOWN ON THE PLANS.
- SOIL RIPRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISION FOR SOIL RIPRAP.

TYPICAL SOIL RIPRAP PROTECTION DETAIL
 N.T.S.

COMPARISON OF HYDRAULICS (100-YR)

HEC-RAS MODEL	AVERAGE VELOCITY (FT/S)	FREEBOARD (FT)	UPSTREAM WSEL (FT) (XSEC -7710)	DOWNSTREAM WSEL (FT) (XSEC-7652)
EXISTING	8.87	0.06	5989.32	5986.04
PROPOSED	8.95	3.08	5989.23	5986.05

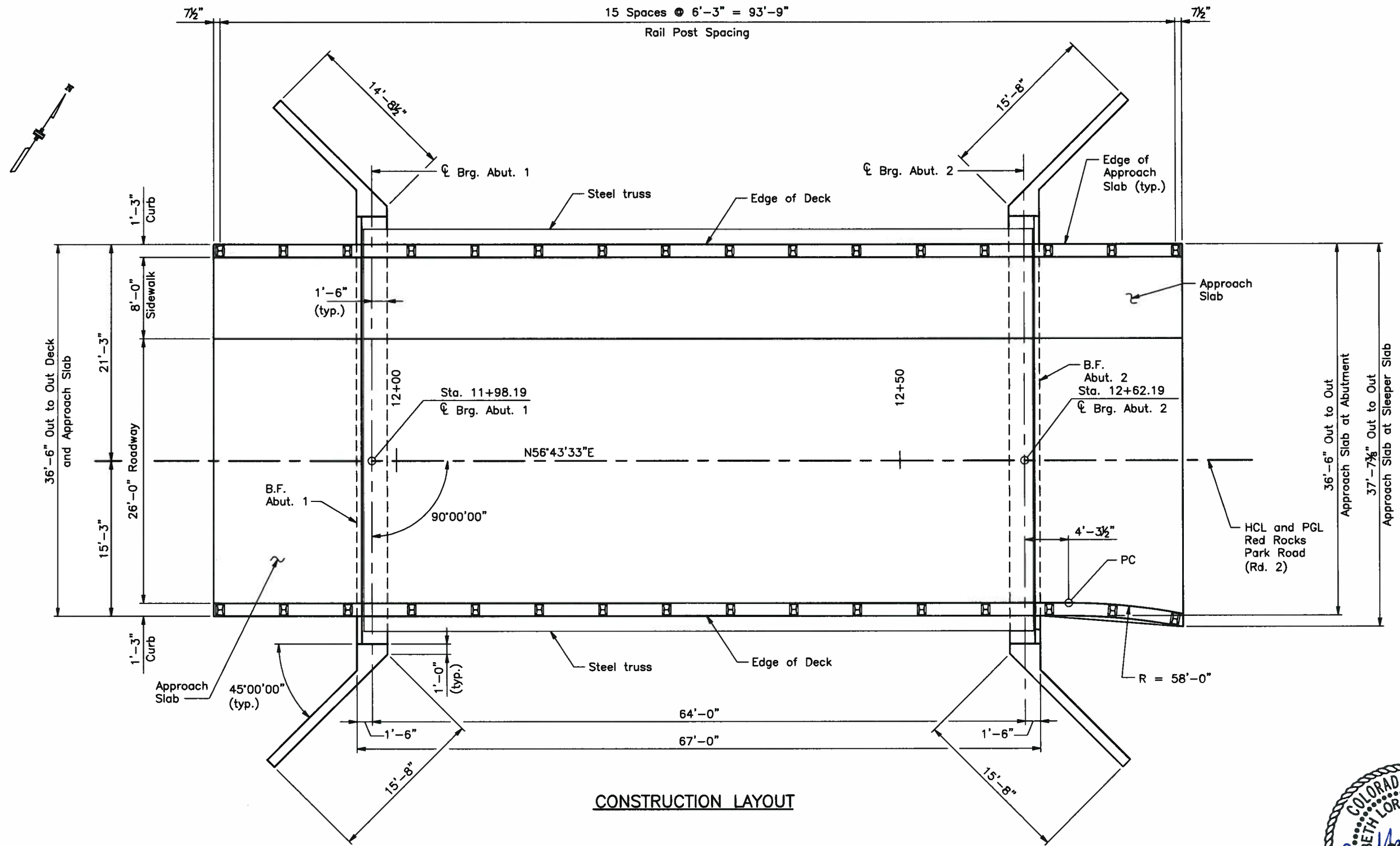
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Sheet Revisions	
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CR	///
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As Constructed	///
No Revisions:	///
Revised:	///
Void:	///

RED ROCKS PARK ROAD (RD.2) BRIDGE HYDRAULIC INFORMATION SHEET	
Designer:	HKS
Detailer:	HKS
Structure Numbers:	D-27-MP-010A
Sheet Subset:	B
Subset Sheets:	5 of 18

Project No./Code	CE00896
Sheet Number	18



CONSTRUCTION LAYOUT



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Last Modification Date:	04/08/13 Initials: AML
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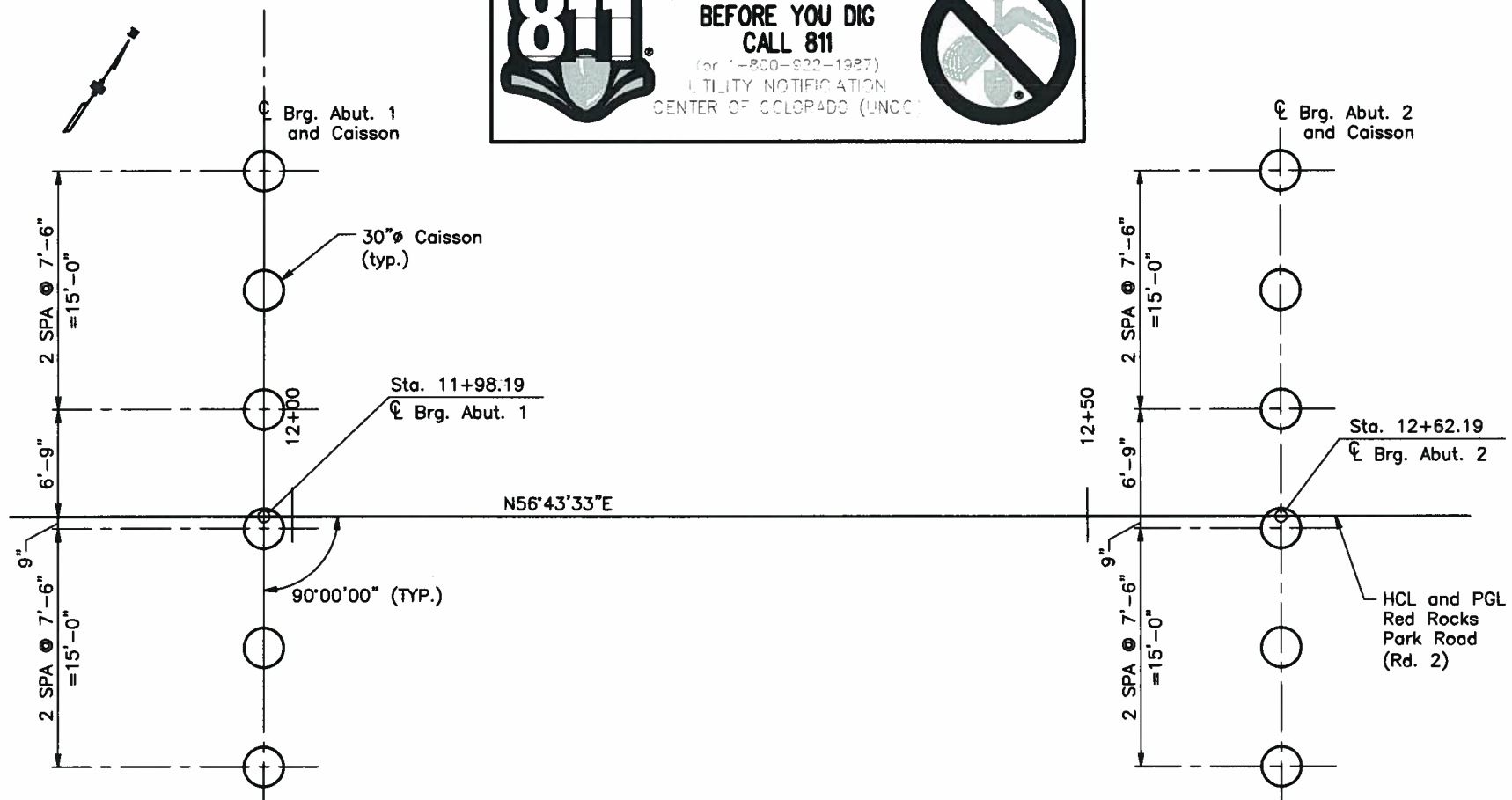
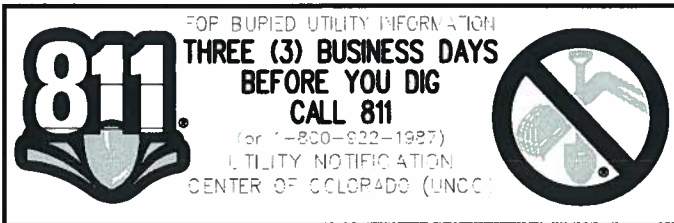
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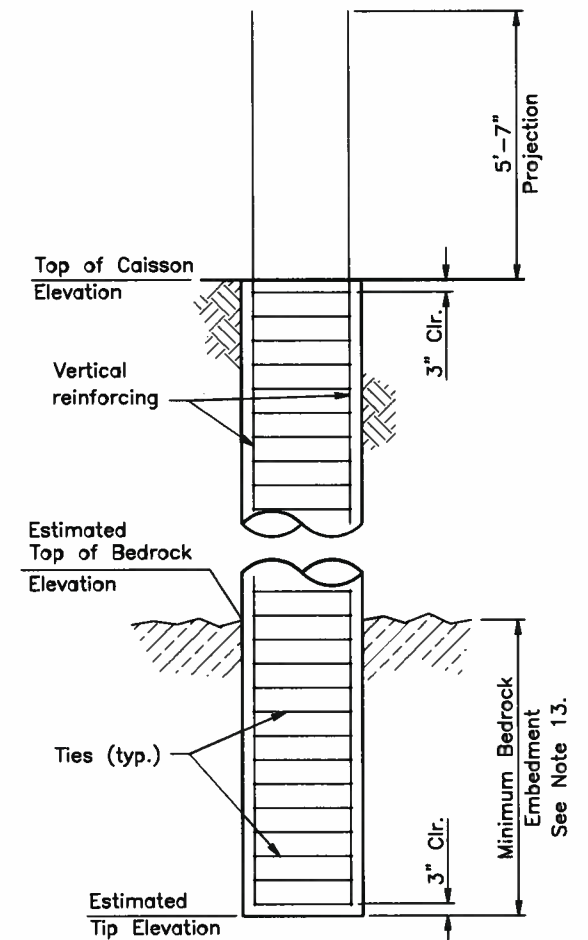
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RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK CONSTRUCTION LAYOUT			
Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets:	6 of 18

Project No./Code	CE00896
Sheet Number	19



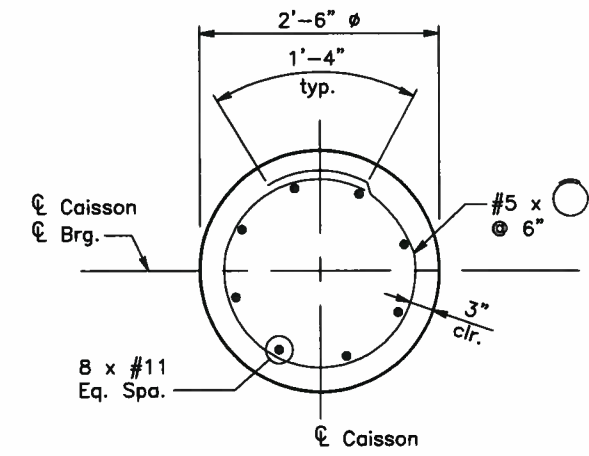
FOUNDATION LAYOUT



CAISSON ELEVATION

NOTES:

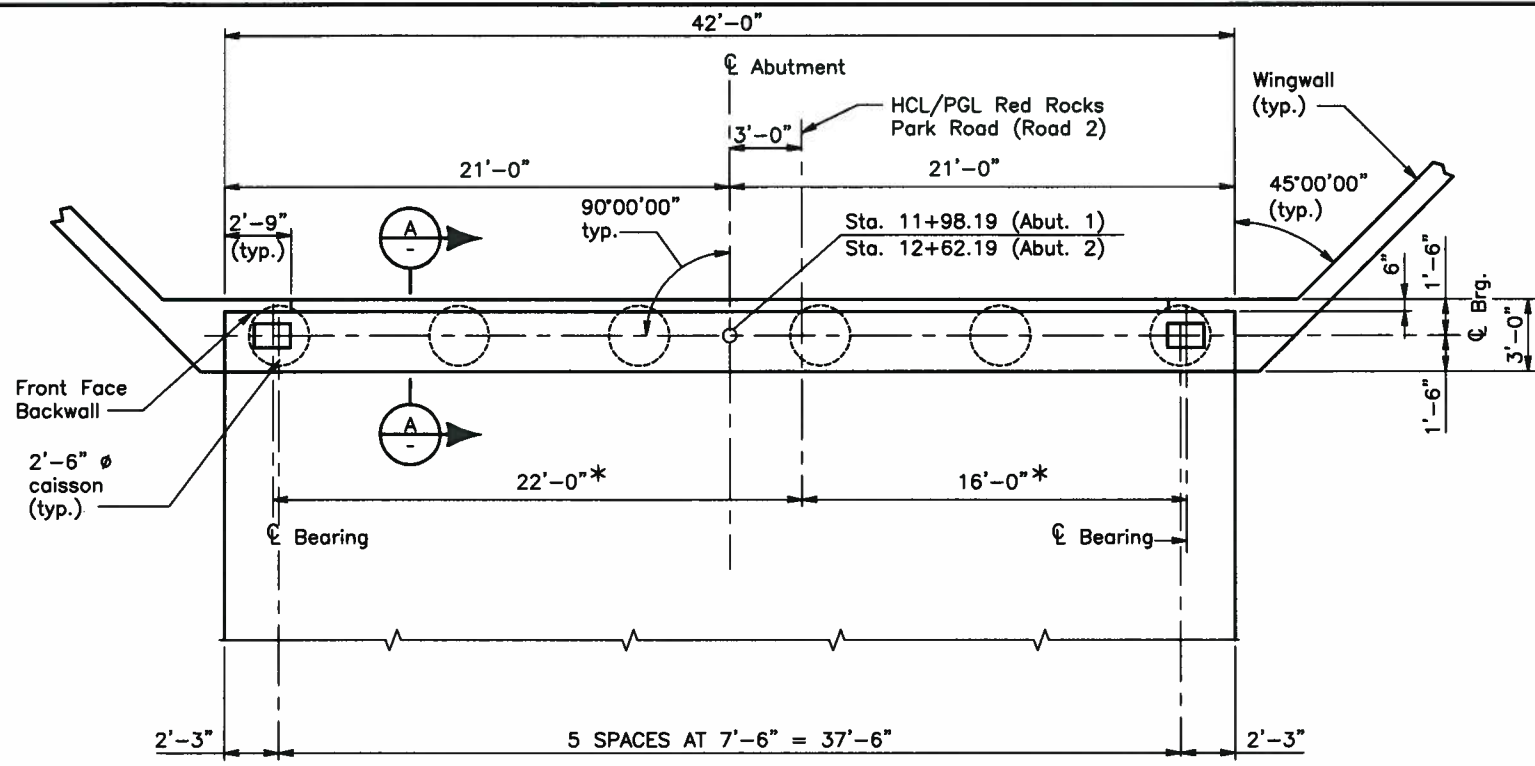
- CAISSON CONCRETE SHALL BE CLASS BZ (BRIDGE) DESIGNED FOR CLASS 2 SULFATE EXPOSURE.
- DRILLED CAISSON DESIGN PARAMETERS ARE AS FOLLOWS:
 ULTIMATE END BEARING PRESSURE = 110 KSF
 ULTIMATE SIDE SHEAR = 8 KSF
 RESISTANCE FACTORS FOR END BEARING AND SIDE SHEAR ARE 0.55 AND 0.60 RESPECTIVELY.
- CAISSONS SHALL EXTEND AT LEAST TO THE ESTIMATED TIP ELEVATION. CAISSONS SHALL BE FURTHER ADVANCED INTO THE BEDROCK IF NECESSARY TO OBTAIN THE SPECIFIED MINIMUM EMBEDMENT.
- SPECIFIED CAISSON LOADS INCLUDE SELF WEIGHT.
- CONCRETE & REINFORCING STEEL FOR THE CAISSONS ARE INCLUDED IN BID ITEM 503 "DRILLED CAISSON (30 INCH)".
- ALL REINFORCING PROJECTING FROM CAISSONS SHALL BE EPOXY-COATED AND SHALL NOT BE MEASURED OR PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN ITEM 503 "DRILLED CAISSON (30 INCH)".
- ALL HORIZONTAL LOCATION DIMENSIONS ARE SHOWN AT THE TOP OF CAISSON.
- GROUNDWATER WAS ENCOUNTERED IN EXPLORATORY BORINGS AND INDICATES THE USE OF CASING AND/OR SLURRY CONSTRUCTION METHODS WILL BE REQUIRED FOR CAISSON CONSTRUCTION.
- TOP OF BEDROCK ELEVATION SHALL BE VERIFIED AT THE TIME OF CONSTRUCTION BY THE GEOTECHNICAL ENGINEER.
- BEDROCK PENETRATION SHALL BE MEASURED FROM THE BOTTOM OF THE CASING OR TOP OF COMPETENT BEDROCK, WHICHEVER IS LOWER.
- BEDROCK PENETRATION IN ALL CAISSONS SHALL BE ARTIFICIALLY ROUGHENED TO ASSIST DEVELOPMENT OF THE PERIPHERAL SHEAR BETWEEN THE CAISSON AND BEDROCK.
- GEOTECHNICAL REPORT: RED ROCKS PARK ROAD BRIDGE OVER MT. VERNON CREEK, JEFFERSON COUNTY, COLORADO. CDOT PROJECT NO. BRD M320-072, JULY 2012, BY YEH AND ASSOCIATES, INC.
- BOTH 32'-0" MINIMUM CAISSON LENGTH AND 10'-0" MINIMUM EMBEDMENT INTO BEDROCK MUST BE MAINTAINED.
- CONTRACTOR SHALL REMOVE EXISTING FOUNDATION IN ACCORDANCE WITH CDOT STANDARD SPECIFICATION SECTION 202. CONTRACTOR SHALL CONTACT THE ENGINEER IF ANY CONFLICT ARISES.



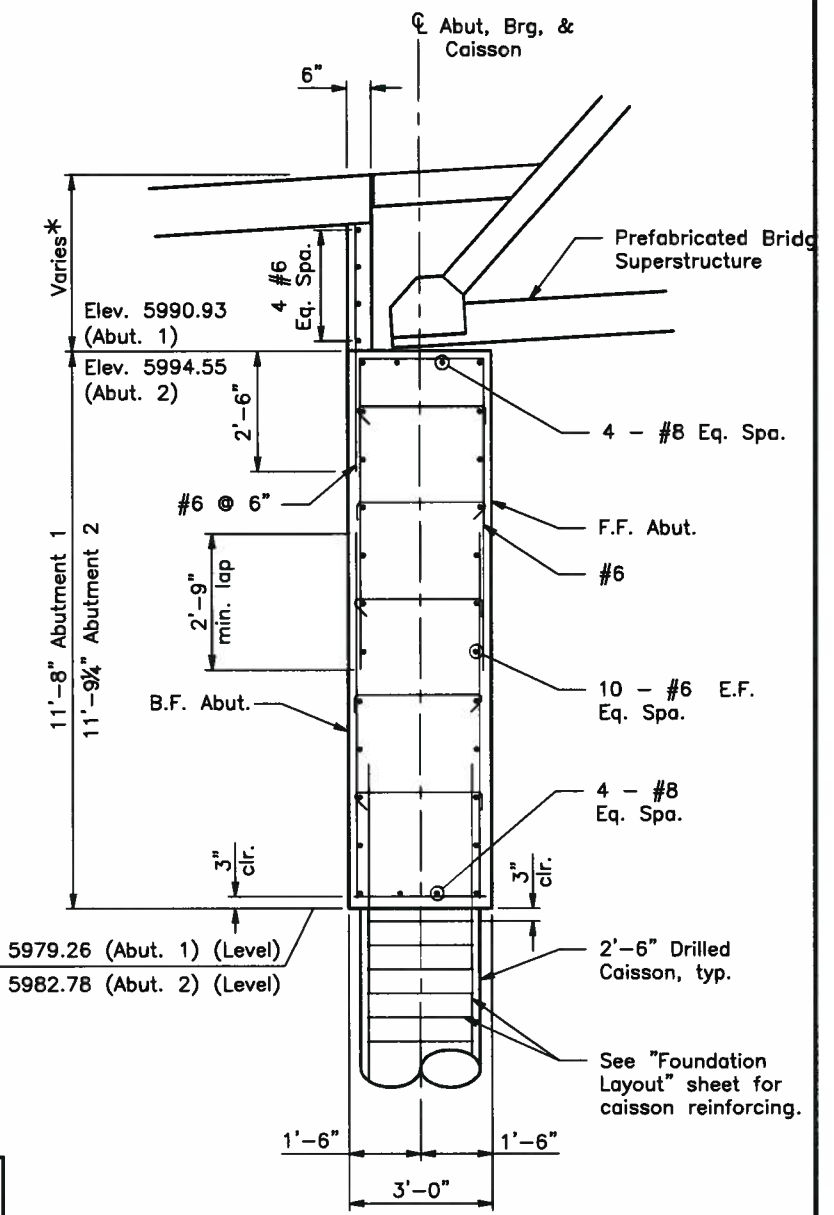
DRILLED CAISSON SECTION

LOCATION	FOUNDATION TYPE	TOP OF CAISSON ELEVATION	ESTIMATED TOP OF BEDROCK ELEVATION	ESTIMATED TIP ELEVATION	MINIMUM BEDROCK EMBED. (FT)	MAXIMUM UNFACTORED AXIAL LOAD (TONS)	MAXIMUM FACTORED AXIAL LOAD (TONS)
Abutment 1	30"Ø Caisson	5979.3	5958	5947.3	10	170	244
Abutment 2	30"Ø Caisson	5982.8	5977	5950.8	10	170	244

Computer File Information		Sheet Revisions		 JACOBS	As Constructed		RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK FOUNDATION LAYOUT		Project No./Code		
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Last Modification Date:	04/08/13 Initials: AML	R-	/ / .		Revised:	/ /	Designer:	NJB	Structure:	D-27-MP-010A	
Full Path:	...\\WVXV0519_CCD_REDROCKSBRIDGE\CAD\STR\DWG\	R-	/ / .		Void:	/ /	Detailer:	DLH	Numbers:		
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Acad Ver. R17.0s	Scale: As Shown Units: English	R-	/ / .								

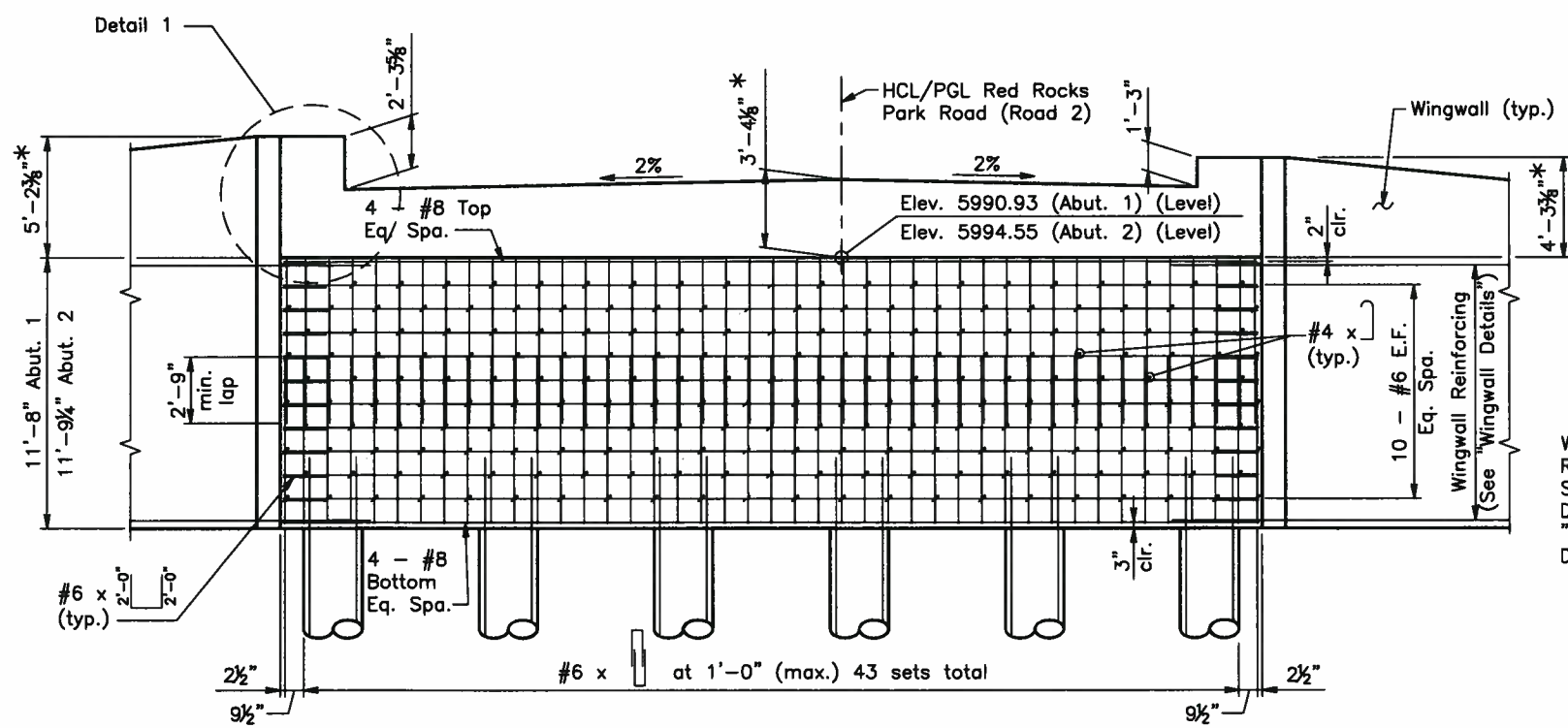


ABUTMENT PLAN
Abutment 2 shown; Abutment 1 opposite hand

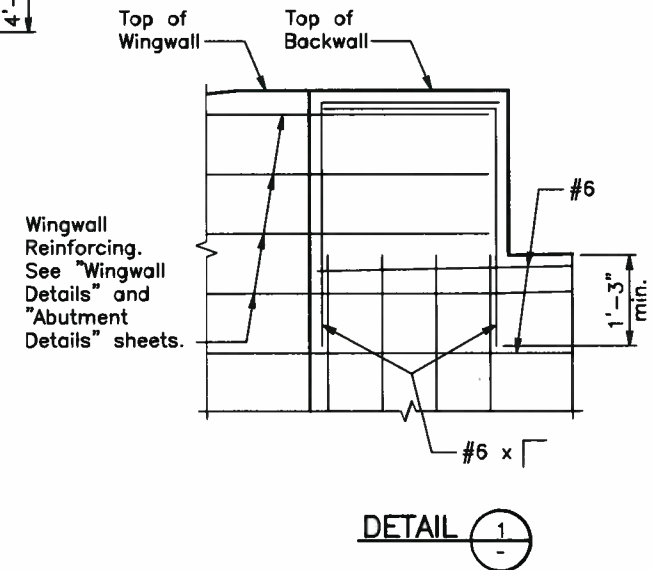


SECTION A

NOTES:
1. *Verify prefabricated bridge dimensions prior to constructing abutment seat.



ABUTMENT ELEVATION
Abutment 2 shown; Abutment 1 opposite hand



DETAIL 1

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Last Modification Date:	04/08/13 Initials: AML
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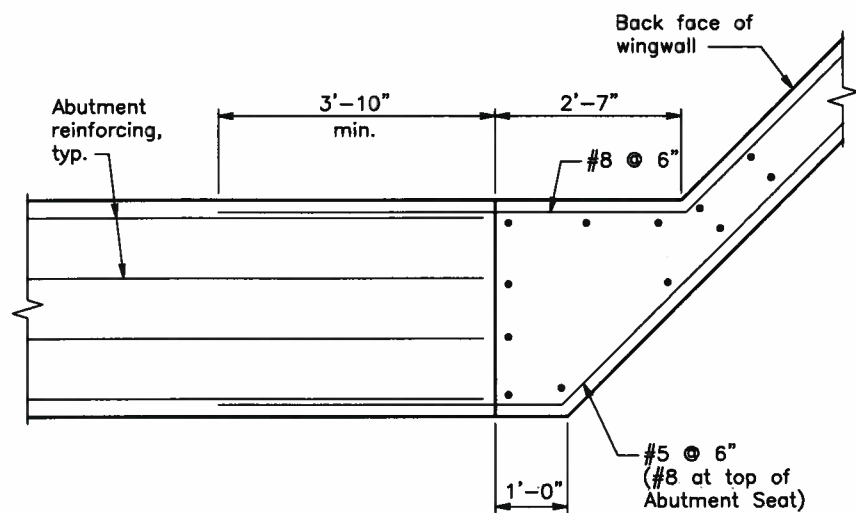


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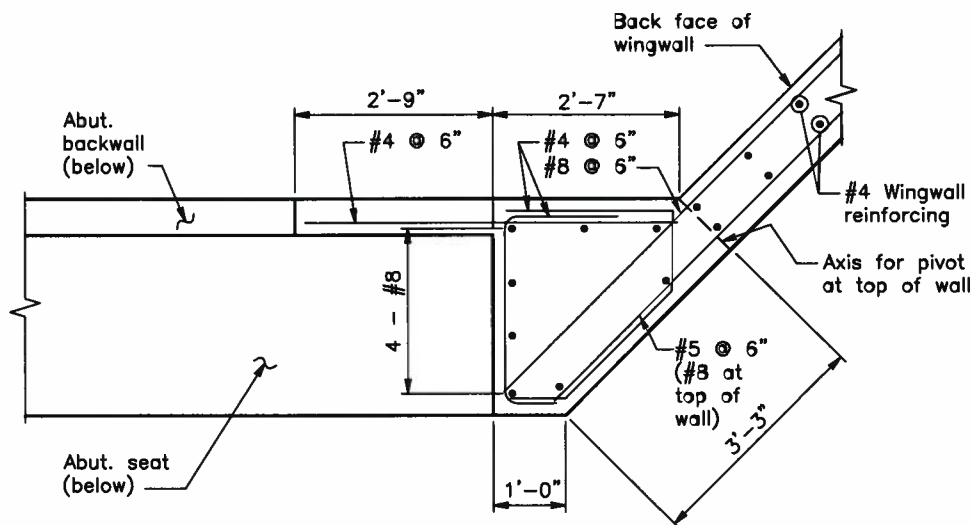
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RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK ABUTMENT PLAN & ELEVATION			
Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets:	8 of 18

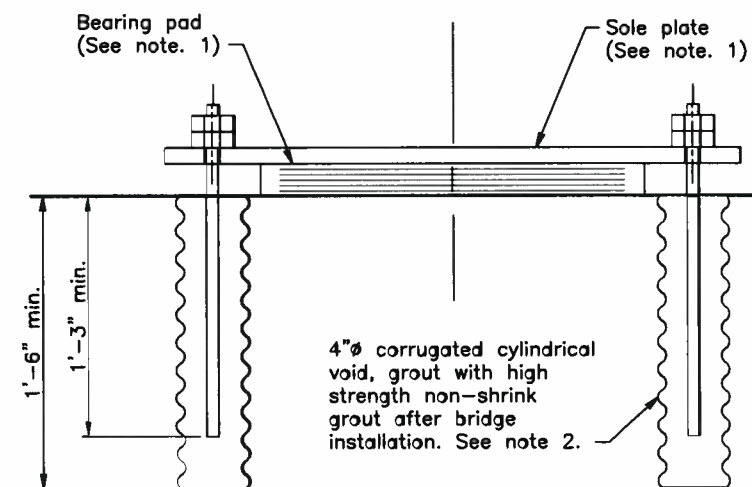
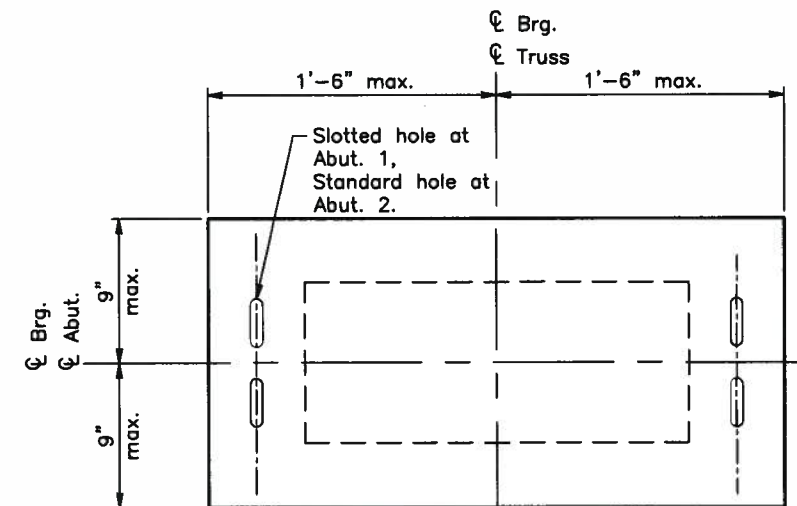
Project No./Code	CE00896
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CORNER REINFORCING BELOW ABUTMENT SEAT



CORNER REINFORCING ABOVE ABUTMENT SEAT



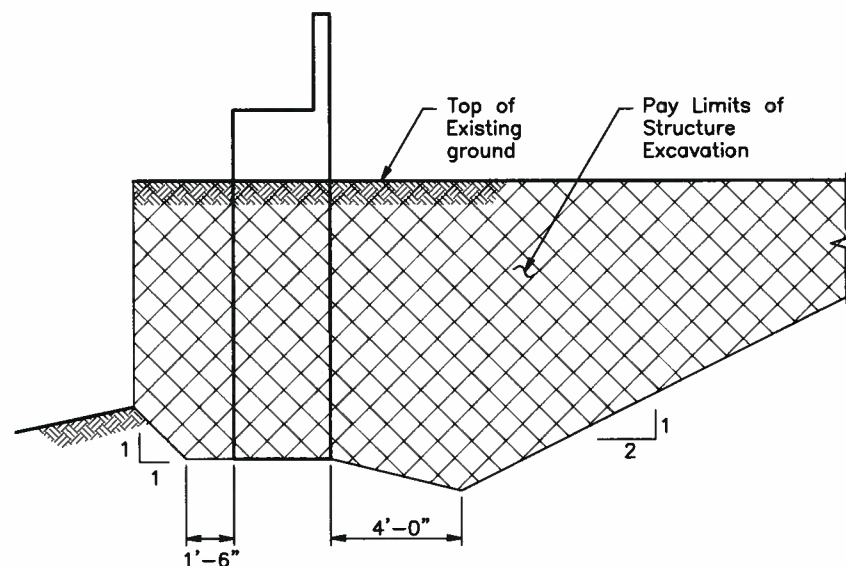
BEARING DETAILS

NOTES:

1. Bearing pad and sole plate to be designed and provided by bridge manufacturer. Bearings shall be a Bearing Device (Type I) or Bearing Device (Type II) per CDOT Standard Specification Section 512. Anchor bolt steel strength to be designed by bridge manufacturer. Anchor bolts shall be ASTM F1554.
2. Bearing anchor bolt layout shown is assumed for abutment sizing. Bearing layout and details shall be coordinated and adjusted as necessary with bridge manufacturer.

CONSTRUCTION SEQUENCE:

1. Place drilled caisson.
2. Set abutment.
3. Backfill after abutment has reached 28-day compressive strength.
4. Install bridge.

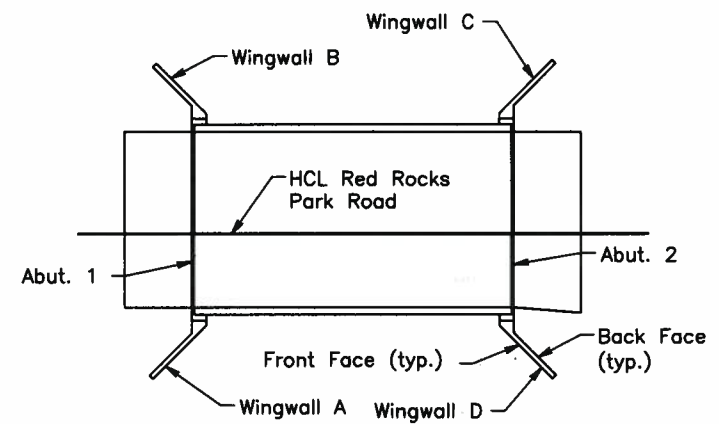
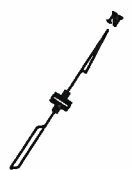


EXCAVATION LIMITS

Abutment & Wingwall



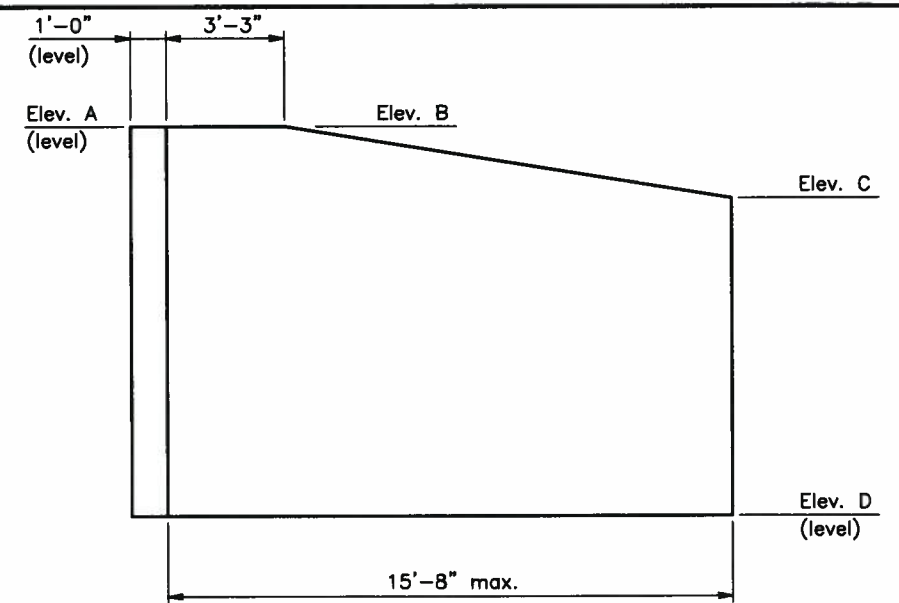
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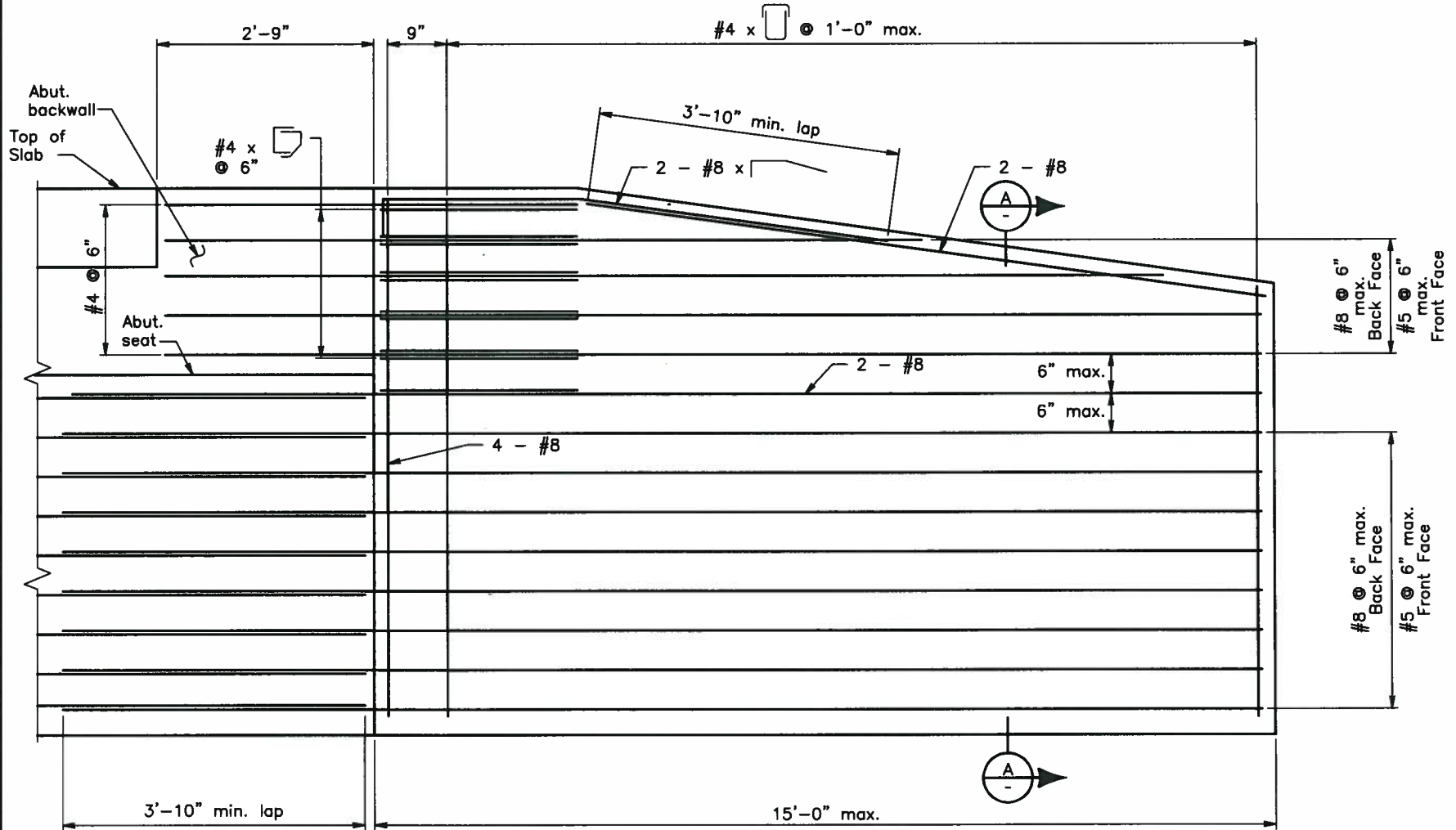
LOCATION PLAN

ELEVATIONS				
Location	A	B	C	D
Wing A	5995.22	5995.22	5991.52	5979.26
Wing B	5996.15	5996.15	5991.44	5979.26
Wing C	5999.77	5999.77	5998.56	5982.78
Wing D	5998.84	5998.84	5996.73	5982.78

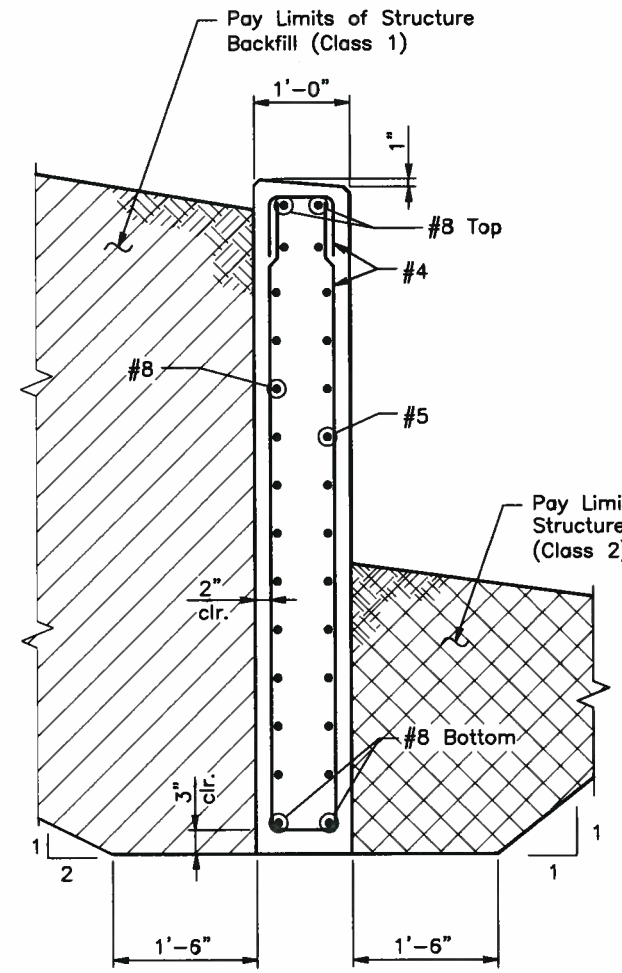
Elevations taken at the inside face of Wing



ELEVATION
(Front Face Shown)



WINGWALL REINFORCING ELEVATION
(Back Face Shown)



WINGWALL SECTION A-A

- NOTES:**
1. See "Construction Layout" sheet for wingwall lengths.
 2. See "Abutment Plan & Elevation" sheet for abutment and backwall reinforcing.
 3. See "Abutment Details" sheet for structure excavation limits and corner reinforcing.



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Last Modification Date:	04/08/13 Initials: AML
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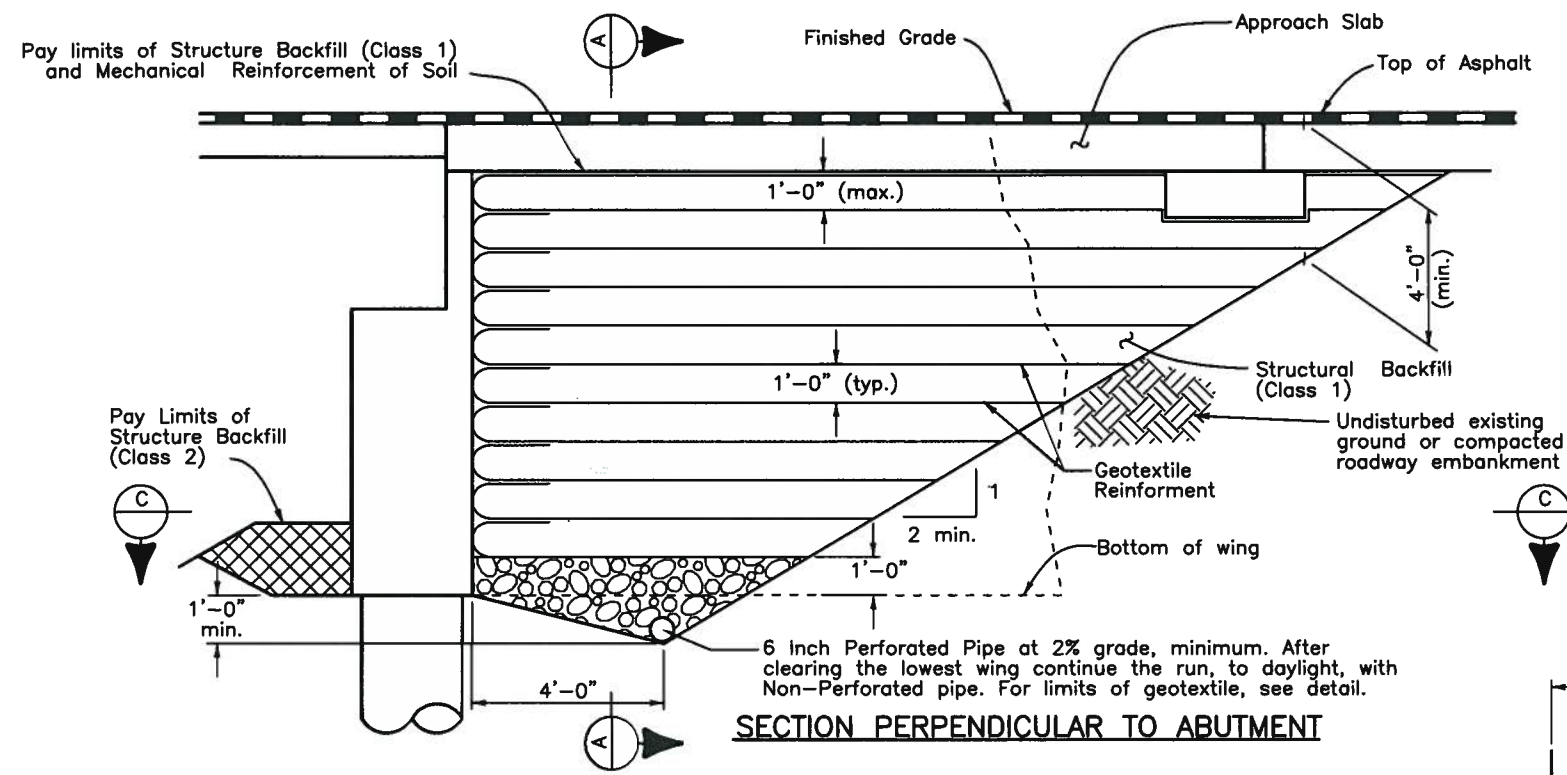
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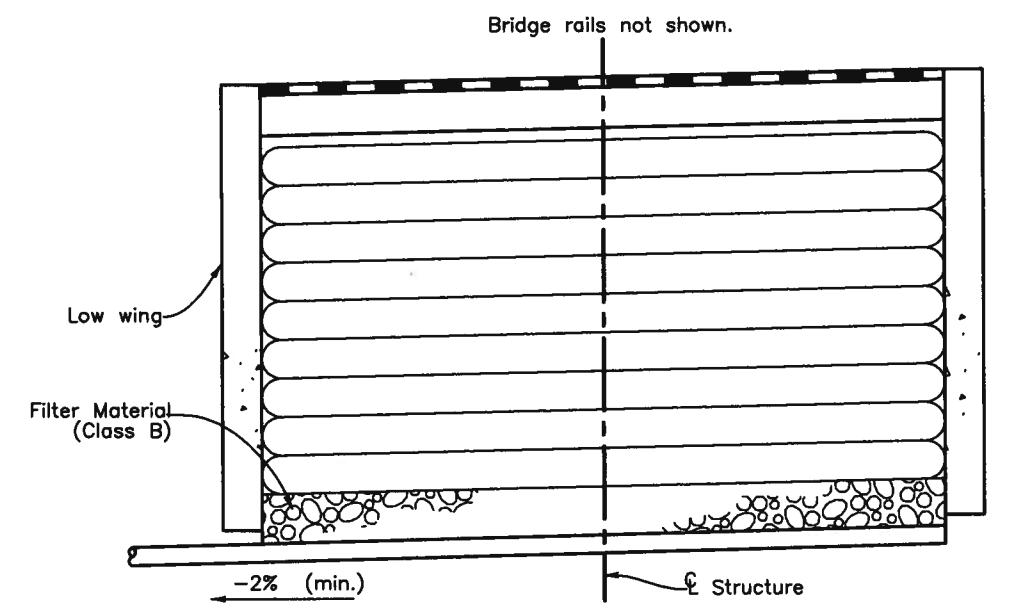
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Designer:	NJB	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets: 10	of 18

Project No./Code	CE00896
Sheet Number	23

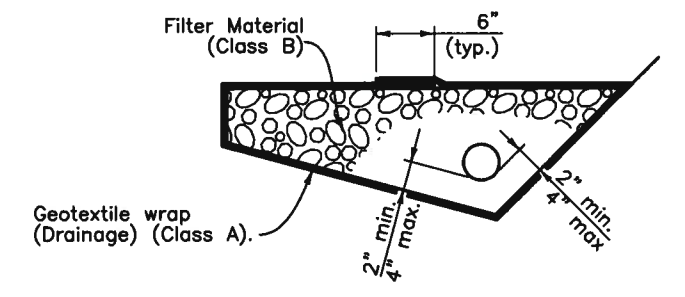


SECTION PERPENDICULAR TO ABUTMENT

For steel structures longer than 300' without expansion devices between abutments, and for abutments greater than 12' high, provide gap between the abutment and backfill. The gap width shall be at least 3" minimum. See Gap Detail 1 and 2. Do not provide this gap at bottom 2 nor the top 2 layers of Reinforced Soil.



SECTION A

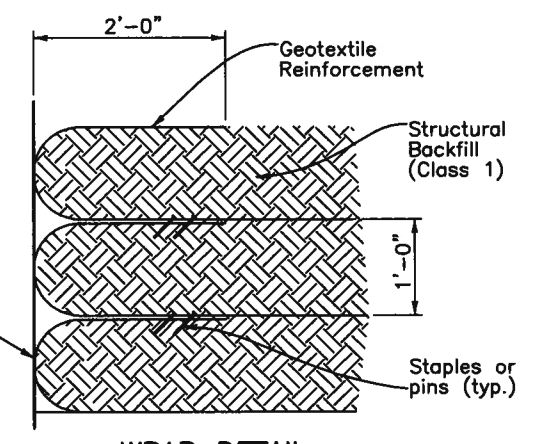


6 INCH PERFORATED PIPE UNDERDRAIN

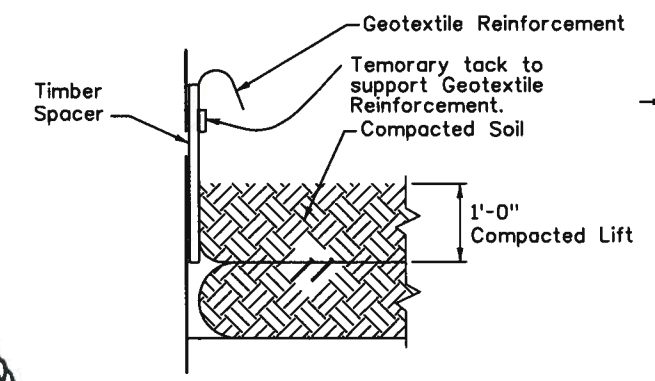
6 Inch Perforated Pipe Underdrain includes all Filter Material (Class B) and Geotextile wrap (Drainage) (Class A) surrounding the filter material.

NOTES:

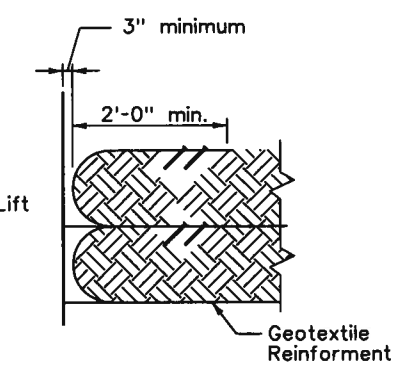
- Geotextile Reinforcement shall be woven fabric with a Minimum Average Roll Value of 4800 lb/ft based on ASTM D4595.
- Geotextile Reinforcement shall be placed by alternating Machine Direction (MD) with Cross Machine Direction (XD) from layer to layer.
- The Geotextile Reinforcement wrap at Back Face of Abutment shall be pulled back slack free with its end anchored to soil underneath with staples or pins.
- Minimum splice of all Geofabric shall consist of 6" of overlap.
- Payment will be made under Item 206 Mechanical Reinforcement of Soil (cu.yd.) and Item 206 Structure Backfill (Class 1) (cu.yd.) and shall include the cost for 6 Inch Perforated Pipe Underdrain and Subsurface Drain Outlet (6" dia. Non-Perforated Pipe).
- Installation of Pipe Underdrain and Subsurface Drain Outlet will Conform to the Construction requirements of section 605.03 and 605.06, respectively.



WRAP DETAIL

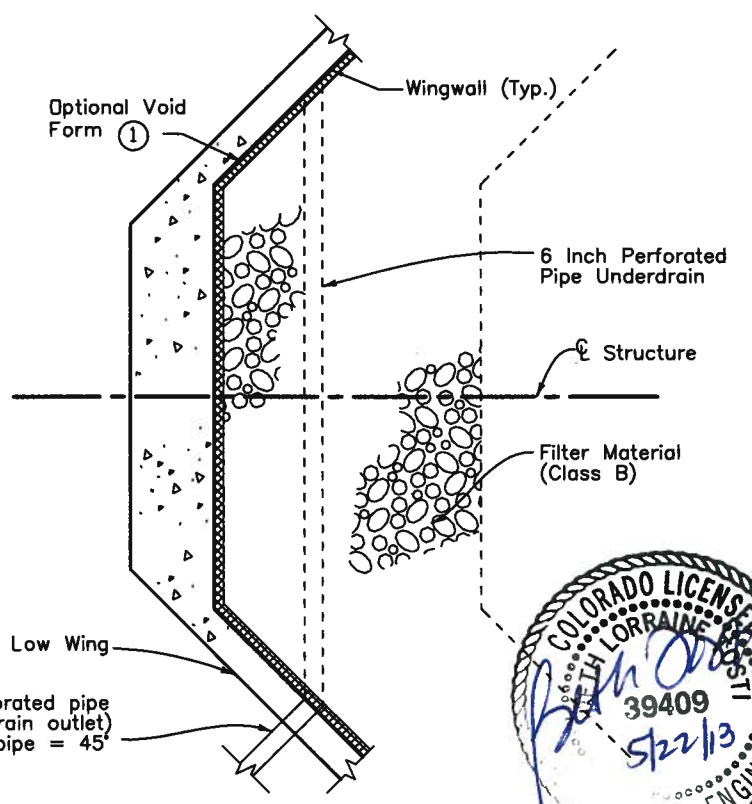


GAP DETAIL STEP 1



GAP DETAIL STEP 2

① When required, the Geotextile Reinforcement wrap at Back Face of Abutment shall be temporarily hung with a spacer board and tack strip. After reaching a total of 1'-0" compacted lift, the tack strip shall be removed and Geotextile Reinforcement shall be pulled back slack free with its end anchored to soil underneath with staple or pins before the spacer board is pulled. Any alternate method besides gap details or optional void form to maintain the minimum gap between abutment concrete and Reinforced Soil may be proposed to the Engineer for



SECTION C



Computer File Information	
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Last Modification Date:	04/08/13 Initials: AML
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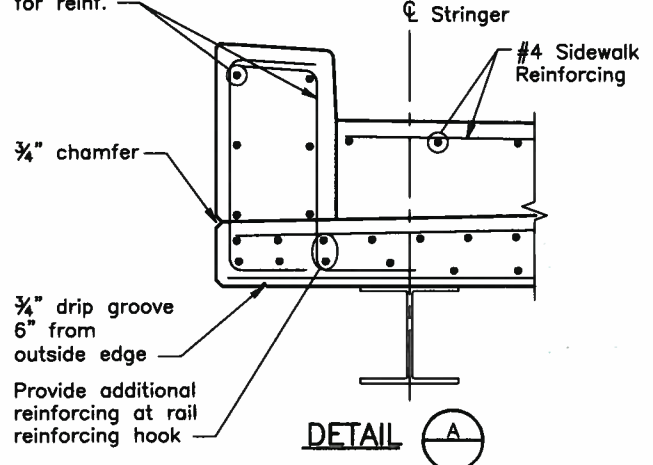
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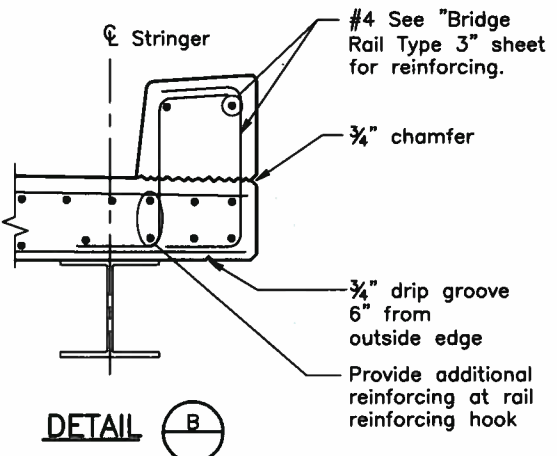
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Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets: 11	of 18

Project No./Code	
CE00896	
Sheet Number	24

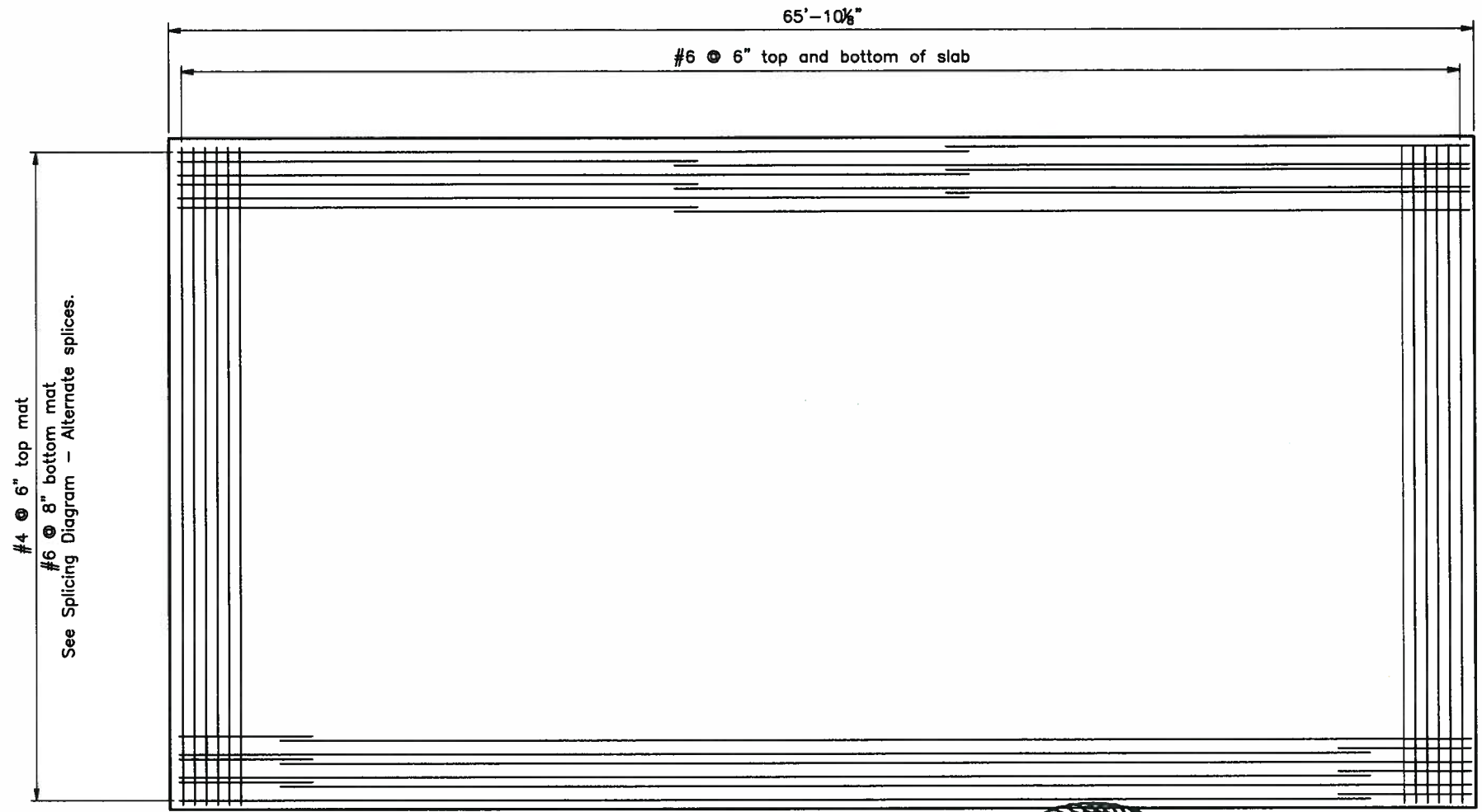
#4 See "Bridge Rail Type 3" sheet for reinf.



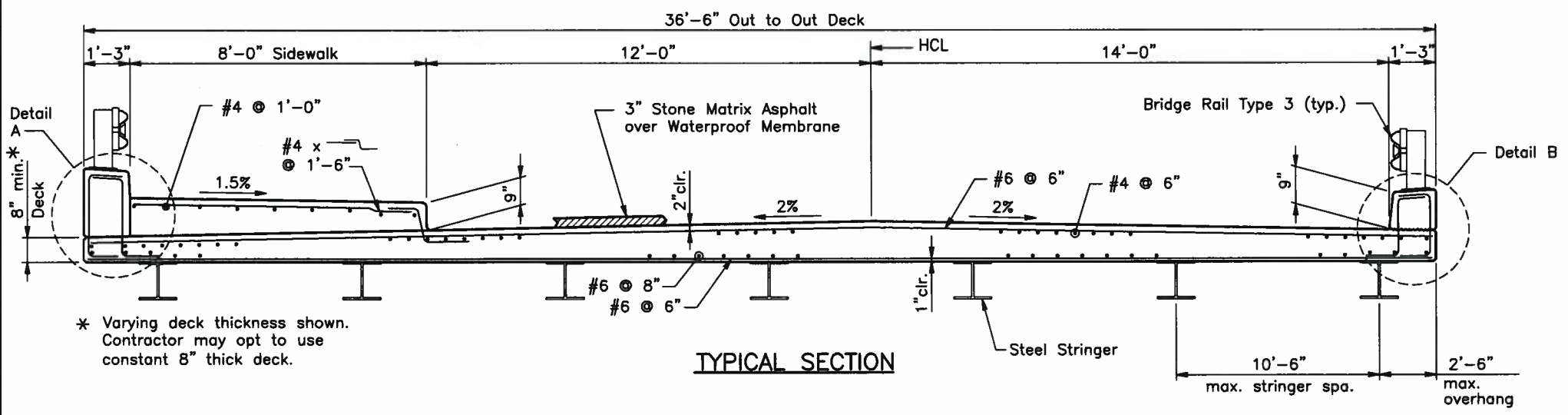
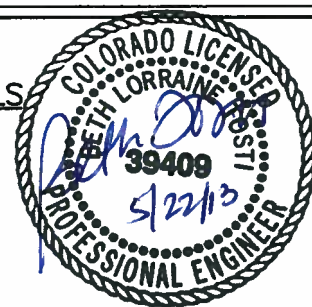
DETAIL A



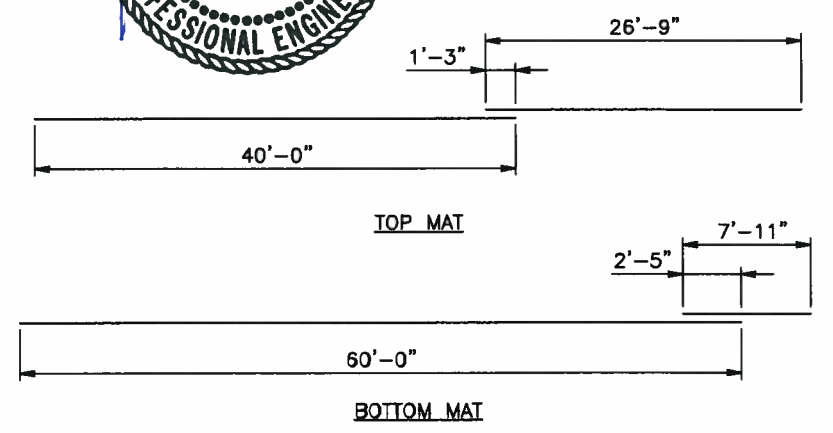
DETAIL B



SLAB REINFORCING DETAILS



TYPICAL SECTION



SPlicing DIAGRAM

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Last Modification Date:	04/08/13 Initials: AML
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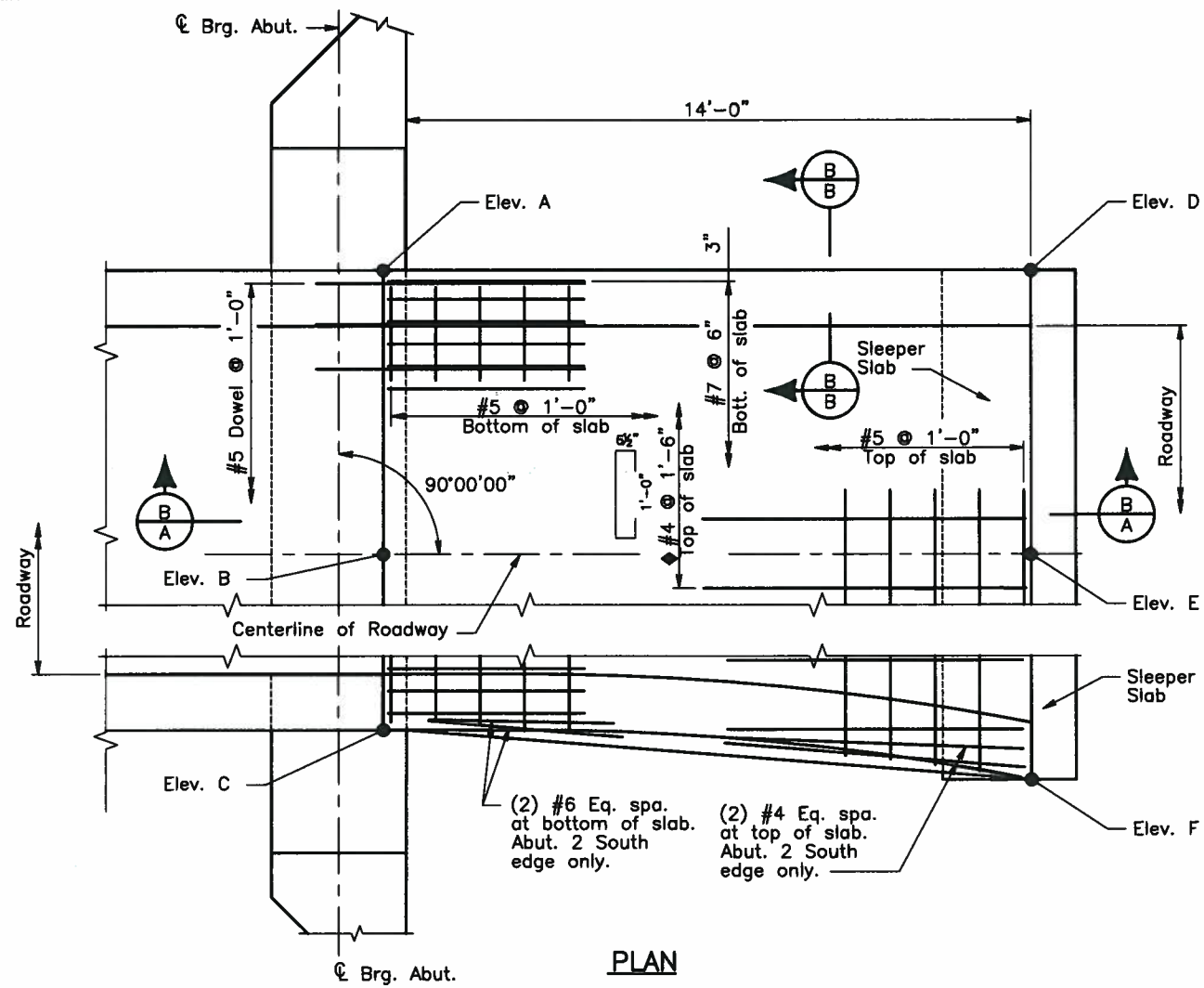
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City & County of Denver

As Constructed	///
No Revisions:	///
Revised:	///
Void:	///

RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK SUPERSTRUCTURE DETAILS			
Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets: 12	of 18

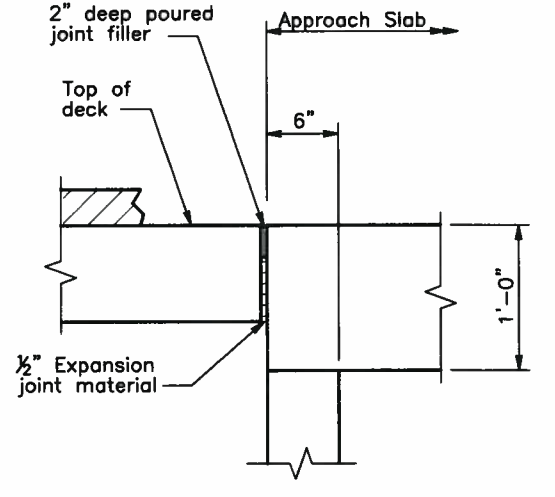
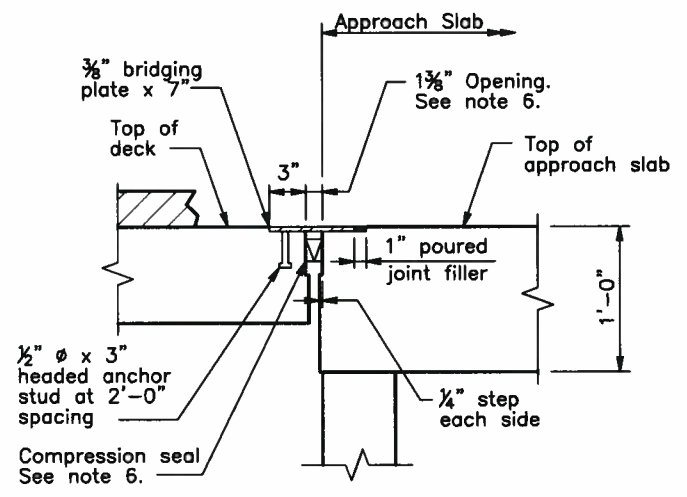
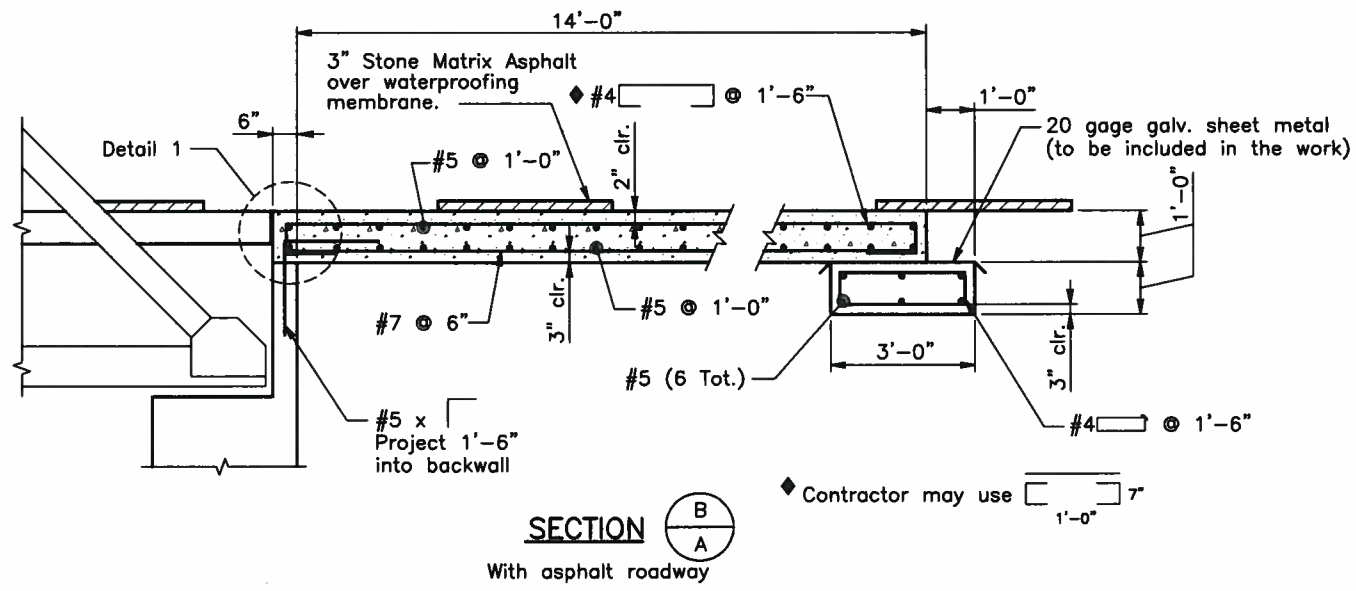
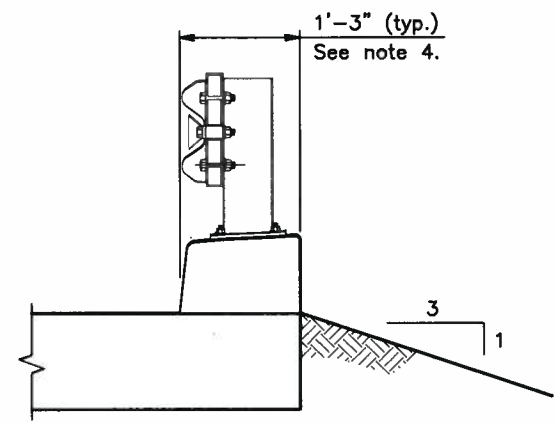
Project No./Code	CE00896
Sheet Number	25



TOP OF APPROACH SLAB ELEVATION		
ELEV. POINT	ABUT. 1 (WEST)	ABUT. 2 (EAST)
A	5995.20	5999.12
B	5995.62	5999.54
C	5995.32	5999.22
D	5994.34	5999.98
E	5994.76	6000.41
F	5994.46	6000.08

NOTES:

- Concrete class D (Bridge) shall be used for approach slabs.
- Approach slab concrete shall be cured in accordance with the Specifications for Bridge Deck Concrete in Subsection 601.
- 1/2" expansion joint material shall meet AASHTO Spec. M213.
- Approach slab edge distance varies on Abutment 2 approach slab edge. See "Construction Layout" for dimensions.
- Sidewalk and bridge rail reinforcing shall match details shown on "Superstructure Details" sheet.
- Compression seal shall be D. S. Brown Delastic CV-2000 or approved equal. Joint opening shown is for 45° F installation temperature. Adjust by 1/8" for each 15° F difference.
- Joint details shall be continuous over sidewalk.
- Joint payment will be made under Item No. 518 - Bridge Expansion Device (0-4 Inch).



Computer File Information	
Creation Date:	01/26/12 Initials: DLH
Last Modification Date:	04/08/13 Initials: AML
Full Path:	...\\WVXV0519_CCD_REDROCKSBRIDGE\CAD\STR\DWG\
Drawing File Name:	REDROCKS_BR_13 APP SLAB DET.DWG
Acad Ver. R17.0s	Scale: As Shown Units: English

Sheet Revisions	
R-	/ / /
R-	/ / /
R-	/ / /
R-	/ / /



JACOBS

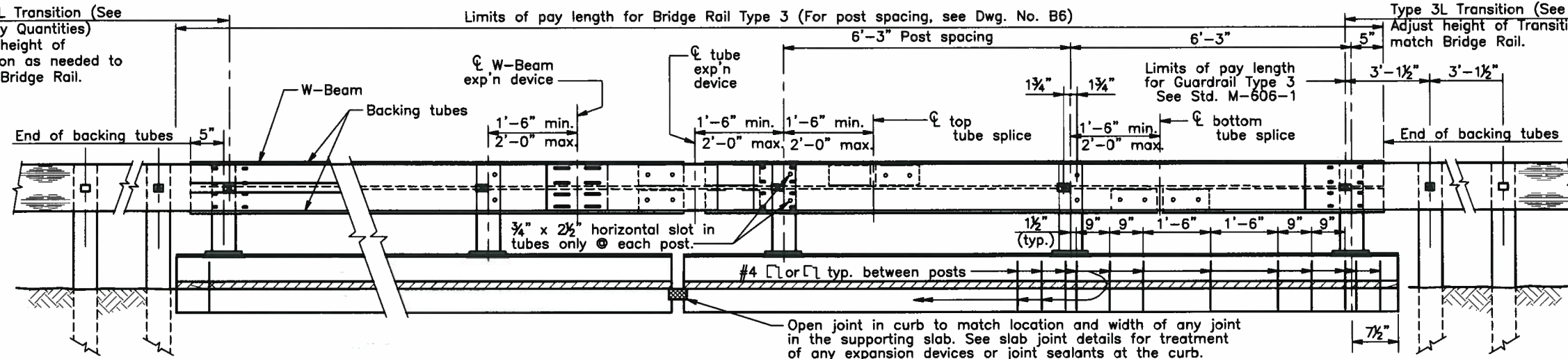
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No Revisions:	/ / /
Revised:	/ / /
Void:	/ / /

RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK APPROACH SLAB DETAILS			
Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets: 13	of 18

Project No./Code	
CE00896	
Sheet Number	26

Type 3L Transition (See Roadway Quantities)
Adjust height of Transition as needed to match Bridge Rail.

Type 3L Transition (See Roadway Quantities)
Adjust height of Transition as needed to match Bridge Rail.

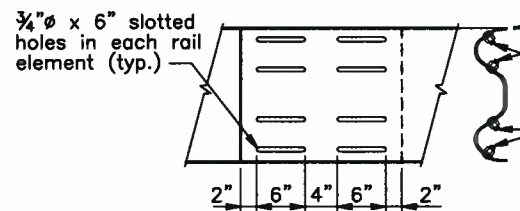


RAIL PANEL AT END OF APPROACH SLAB

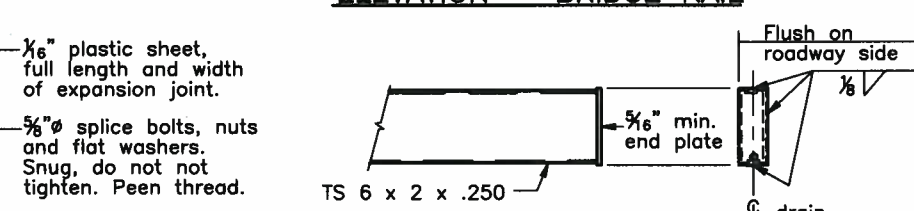
RAIL PANEL AT EXP'N DEVICE

RAIL PANEL AT END OF APPROACH SLAB

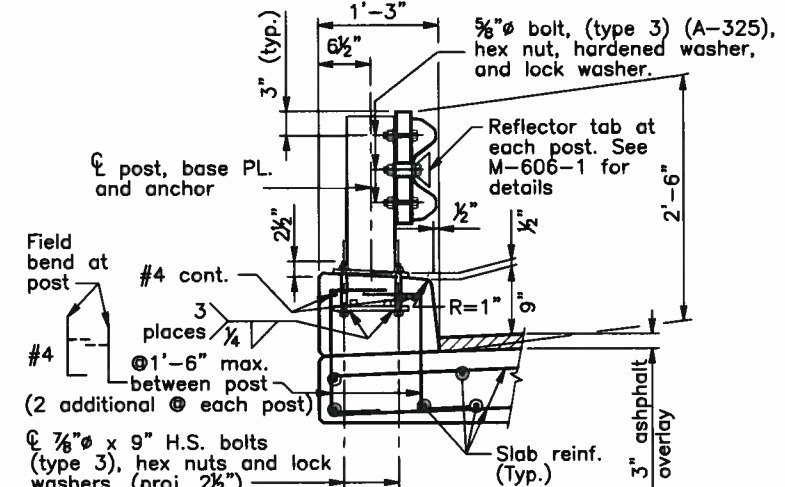
ELEVATION - BRIDGE RAIL



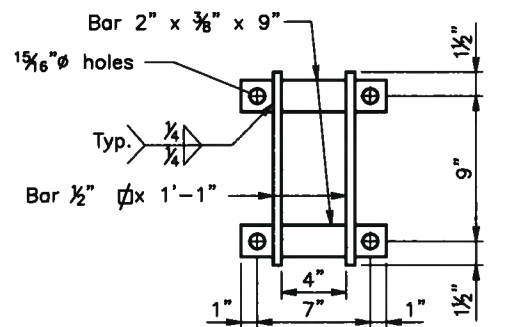
EXP'N DEVICE (W-BEAM)



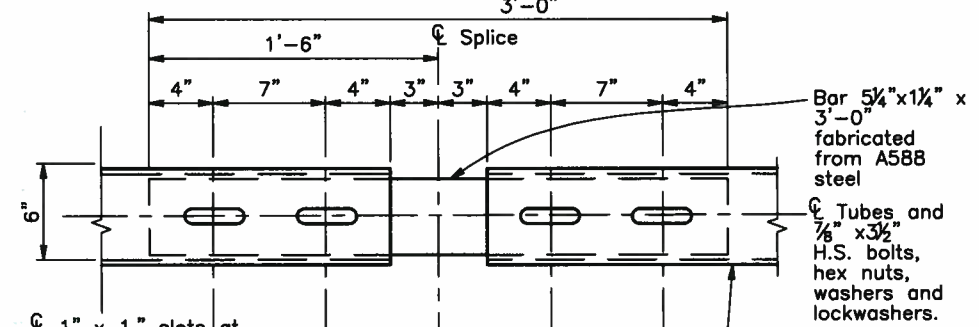
END DETAIL - BACKING TUBES



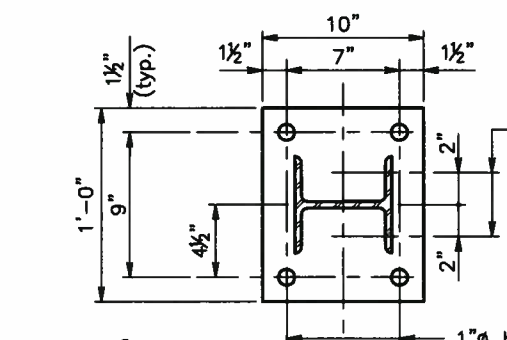
SECTION



ANCHOR DETAIL

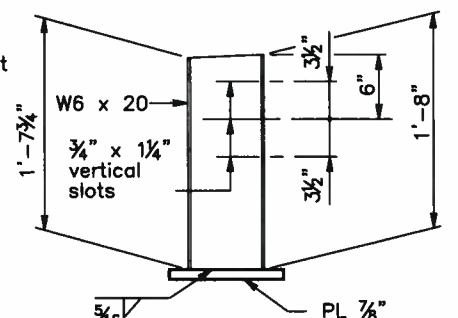


PLAN - TUBE SPLICE

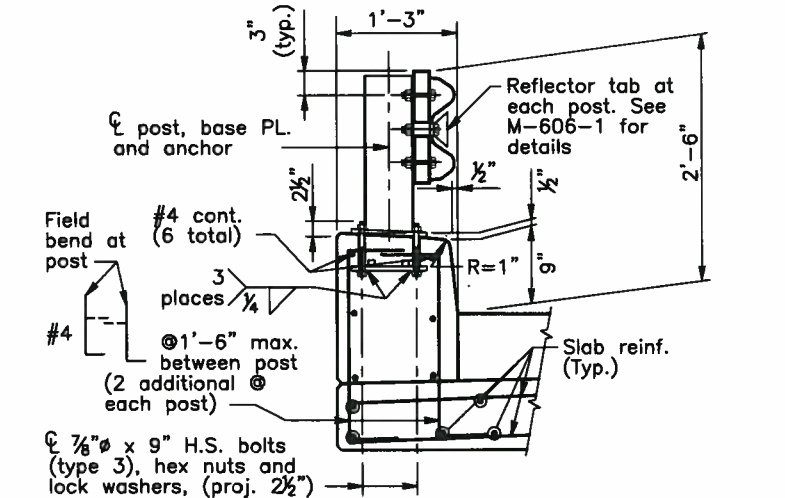


PLAN

POST DETAIL



ELEVATION



SECTION WITH SIDEWALK

NOTES:

All tubes shall be fabricated from ASTM A-847 steel. All posts, base plates, and anchor bolts shall be fabricated from ASTM A-588 steel. All splices and expansion devices for tubes shall be fabricated from ASTM A-242, or A-588 Grade 50 steel. The w-beam, and all miscellaneous bolts, nuts, and washers shall be weathering steel. Concrete, reinforcing steel, and structural steel elements shall conform to the requirements of Sections 601, 602, and 509, respectively.

Post anchors, encased in concrete, shall be ASTM A36 steel.

Posts, post anchors, base plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, w-beam, w-beam expansion devices, curb concrete (Class D), and curb reinforcing steel shall be included in Item No. 606 - Bridge Rail Type 3.

The backing tubes shall be shop bent or fabricated to fit horizontal curve when the radius is less than 1500 feet.

Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.

Posts shall be perpendicular to the longitudinal roadway grade.

For additional details, see Std. M-606-1.

Prior to fabrication of this item, three sets of working drawings which comply with the requirements of Section 105 shall be submitted to the Engineer for information only.

Structural Steel:

AASHTO M-183 (ASTM A-36) $f_y = 36,000$ psi
 ASTM A-242 or ASTM A-588 $f_y = 50,000$ psi
 ASTM A-847 $f_y = 50,000$ psi

INFORMATION ONLY

Description	Unit	Per Lin. Ft.
Structural Steel	Lb.	45.4
Concrete Class D (Bridge)	Cu.Yd.	0.04
Reinforcing Steel (Epoxy Coated)	Lb.	4.8
Bridge Rail Type 3 - W Beam	Lin.Ft.	1.0
With Sidewalk		
Description	Unit	Per Lin. Ft.
Structural Steel	Lb.	45.4
Concrete Class D (Bridge)	Cu.Yd.	0.08
Reinforcing Steel (Epoxy Coated)	Lb.	8.7
Bridge Rail Type 3 - W Beam	Lin.Ft.	1.0

Note: At each expansion device add 235 lb. of Structural Steel.

Computer File Information

Creation Date:	01/30/12	Initials:	DLH
Last Modification Date:	04/08/13	Initials:	AML
Full Path:	...\\WVX0519_CCD_REDROCKSBIDGE\CAD\STR\DWG\		
Drawing File Name:	REDROCKS_BR_14 BRG RAIL TYPE3.DWG		
Acad Ver. R17.0s	Scale: As Shown	Units:	English

Sheet Revisions

R-	/	/	/	.	.
R-	/	/	/	.	.
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R-	/	/	/	.	.

City & County of Denver

As Constructed

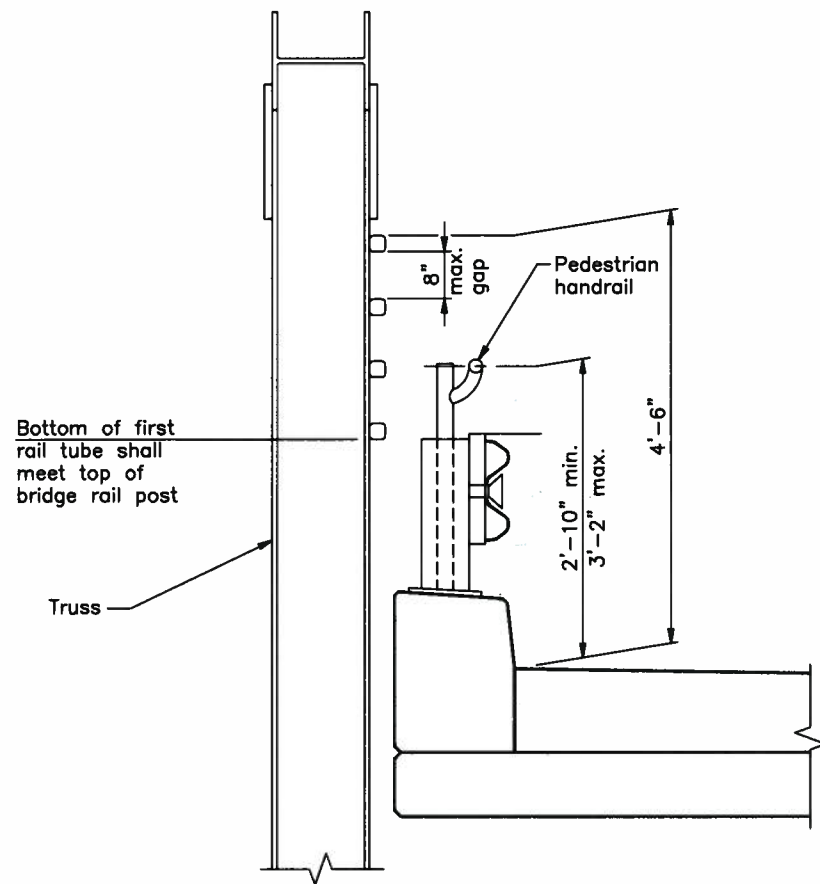
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Revised:	/	/
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RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK BRIDGE RAIL TYPE 3

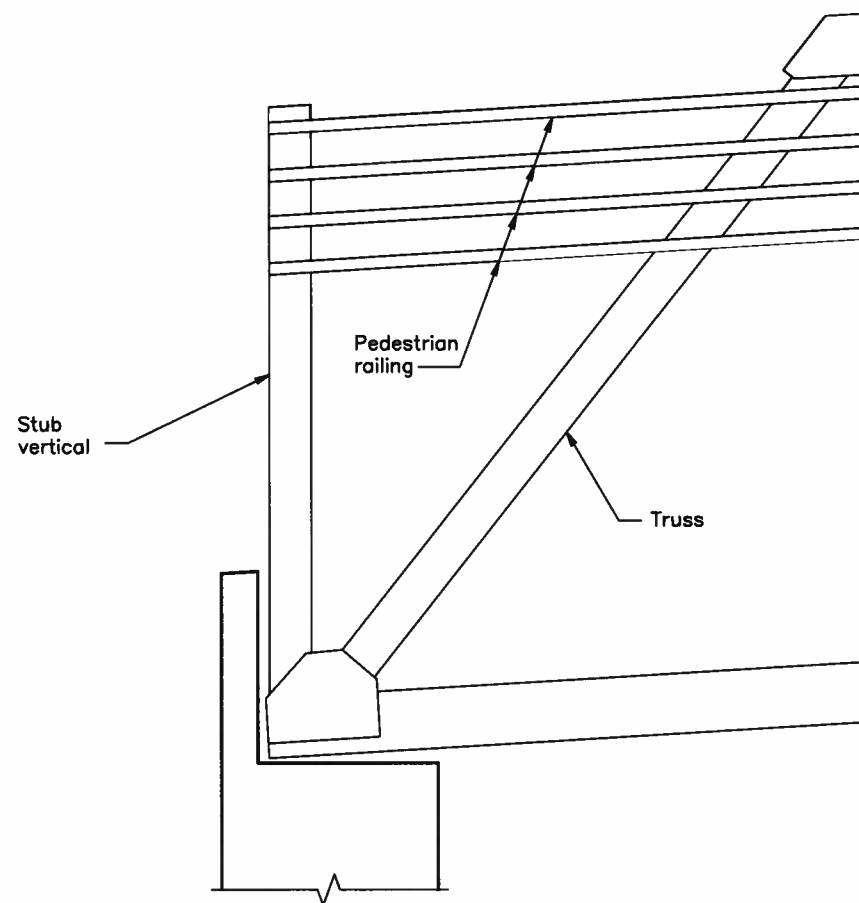
Designer:	BLT	Structure	D-27-MP-010A
Detailer:	DLH	Numbers	
Sheet Subset:	B	Subset Sheets:14	of 18

Project No./Code

CE00896
Sheet Number 27



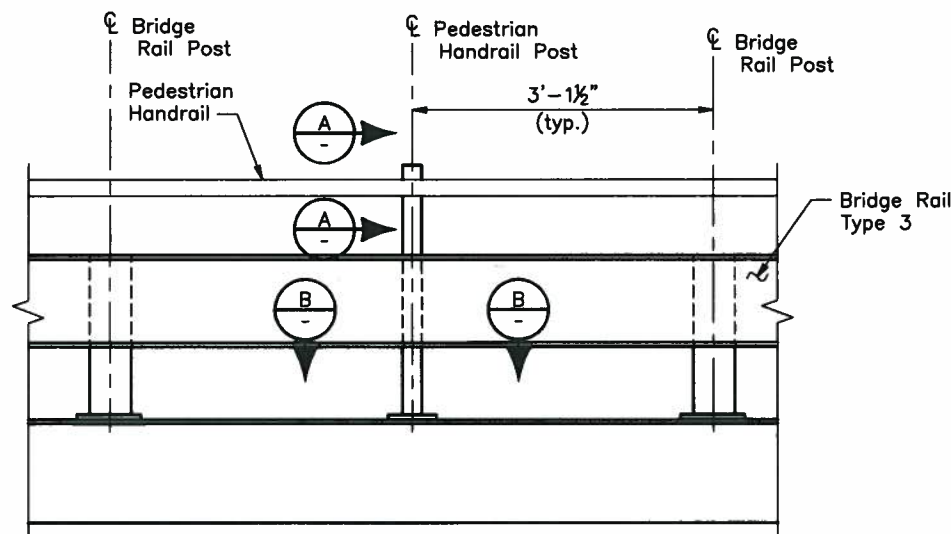
PEDESTRIAN RAILING SECTION



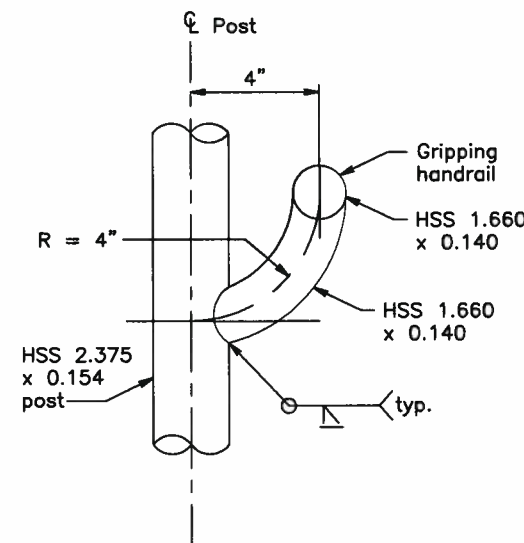
INSIDE END ELEVATION

NOTES:

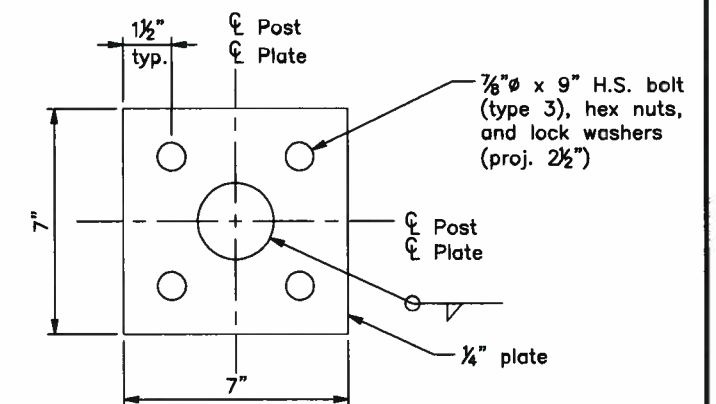
1. Pedestrian railing shall meet the AASHTO LRFD requirements for bicycle and pedestrian railings.
2. Pedestrian Railing and handrail shall be fabricated with ASTM A847 hollow structural steel (HSS) sections.
3. Pedestrian handrail base plate and anchor bolts shall be fabricated from ASTM A-588 steel.
4. Pedestrian handrail post installation shall match post installation for bridge rail. See "Bridge Rail Type 3" sheet for details.
5. All open ends of tubes shall be capped. Weep holes shall be drilled at low points.
6. Payment will be made under Item No. 514 - Pipe Railing for all posts, post anchors, base plates, anchor bolts, nuts, washers, and tubes.



PEDESTRIAN HANDRAIL ELEVATION



SECTION A



SECTION B

Computer File Information		Sheet Revisions		 JACOBS City & County of Denver	As Constructed		RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK PEDESTRIAN RAILING DETAILS		Project No./Code	
Creation Date:	05/04/11 Initials: DLH	R-	/ / .		No Revisions:	/ /	Designer: BLT Structure D-27-MP-010A		CE00896	
Last Modification Date:	04/08/13 Initials: AML	R-	/ / .		Revised:	/ /	Detailer: DLH Numbers			
Full Path:	...\\WV0519_CCD_REDROCKSBIDGE\CAD\STR\DWG\	R-	/ / .		Void:	/ /	Sheet Subset: B Subset Sheets: 15 of 18		Sheet Number 28	
Drawing File Name:	REDROCKS_BR_15 PED RAIL DET.DWG	R-	/ / .							
Acad Ver. R17.0s	Scale: As Shown Units: English	R-	/ / .							

STRUCTURE ID: RedRocks BRIDGE GEOMETRY (WIN2.1.0e)

DESCRIPTION

Units: feet;
Project: CE00896; Subaccount: ;
Designer: NJB; Detailer: DLH;
Location: Morrison, CO;
Red Rocks Park Road (Rd. 2)
over Mount Vernon Creek

HORIZONTAL ALIGNMENT DATA

HORIZONTAL TANGENT

VERTICAL ALIGNMENT DATA

Table with columns: ELEVATION AT PI, ELEVATION AT GRADE, STATION, ELEVATION AT GRADE, ELEVATION AT PI, PERCENT GRADE. Values include 5996.5600, 5996.5600, PI, 12+12.9500, 5.940000.

TABLE OF ROADWAY CROSS-SLOPES (SUPERELEVATION: E= -NC-)

Table with columns: STATION, SLOPE LEFT, SLOPE RIGHT, VC LENGTH. Values include (ON TANGENT), -0.0200, -0.0200, 75.00 (MAX).

OFFSET PROFILE CONTROL TO PIVOT POINT = 3.0000 FEET RIGHT

LIMITS OF VALID ELEVATION AND CROSS-SLOPE DATA

BEGIN UNLIMITED* END UNLIMITED*

LAYOUT LINE DATA

LAYOUT LINE DEFINED TO BE COINCIDENT WITH HORIZONTAL CONTROL

LAYOUT LINE INTERSECTS REF LINE AT HCL STA 11+50.0000 OFFSET 0.00000000 X 0.0000 Y 0.0000

Table with columns: BENT LINE DESCRIPTION, STATION, OFFSET, ELEVATION, FROM LAYOUT LINE, PROJECT COORDINATES, BENT LINE, SKEW, GIRDER LINE, ROADWAY CROSS-SLOPE.

* HORIZONTAL CONTROL LINE * AT FINISHED GRADE

Table with columns: *REF LINE*, BF Abut 1, Brg Abut 1, F-1 to F-9, Brg Abut 2, BF Abut 2. Columns include station, offset, elevation, north/easting, length, skew, girder length, CRS-SLP.

Lt. EOD

PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.

Lt. Flowline

PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.

SW Curb PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.

HCL PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.

Rt. Flowline PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.

Rt. EOD PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

Table with columns: BENT LINE, STATION, OFFSET, ELEVATION, ELEV+DL, X, Y, NORTHING, EASTING, BENT LNTH, SKEW, GIRDER LNTH, CRS-SLP. Includes *REF LINE* and abutment data.



NOTES:
1. Deck screed elevations shall be provided after bridge and camber design.

2. Elevations shown are top of deck, 3" below finish grade elevations.

Computer File Information table with columns: Creation Date, Last Modification Date, Full Path, Drawing File, Acad Ver. Values include 01/26/12, 04/08/13, ...\\WXV0519_CCD_REDROCKSBRIDGE\CAD\STR\DWG\, Drawing File NorREDROCKS_BR_16 BRIDGE DECK ELEVATIONS.DWG, Acad Ver. R17.0s.

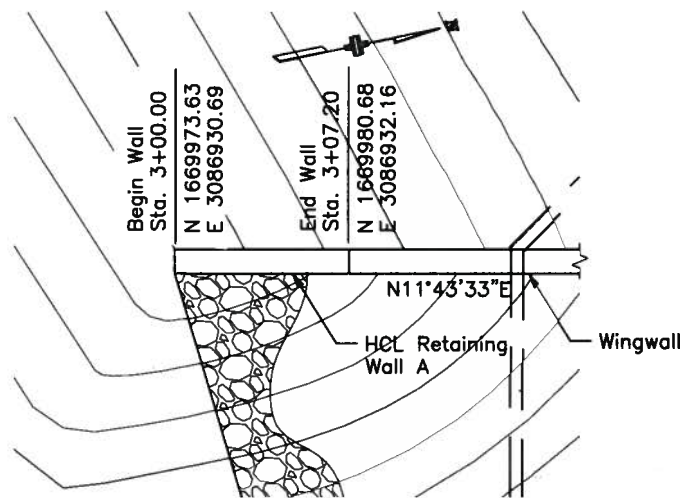
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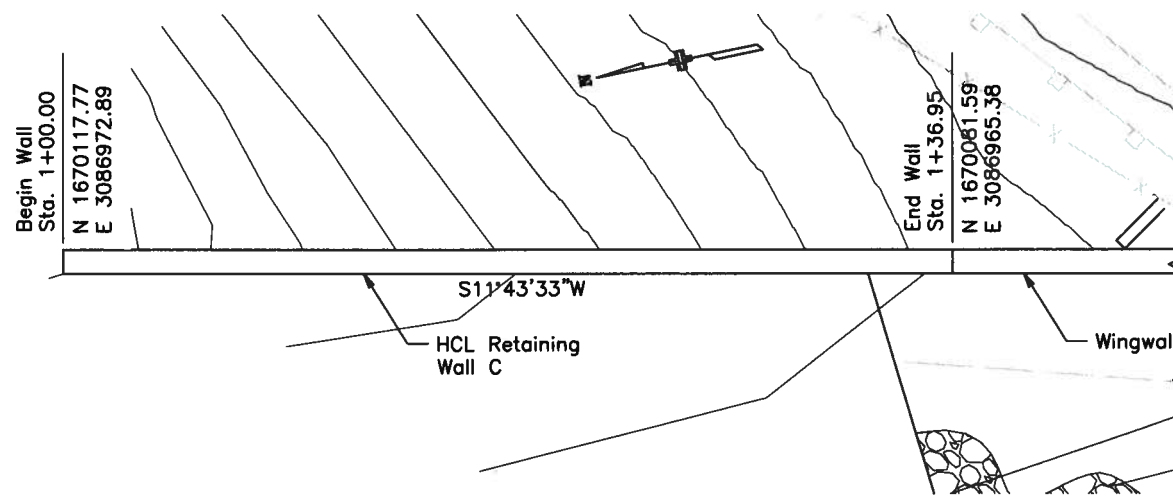
As Constructed table with columns: No Revisions, Revised, Void. Values include //, //, //.

RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK BRIDGE DECK ELEVATIONS. Designer: NJB, Detailer: DLH, Sheet Subset: B, Subset Sheets: 16 of 18.

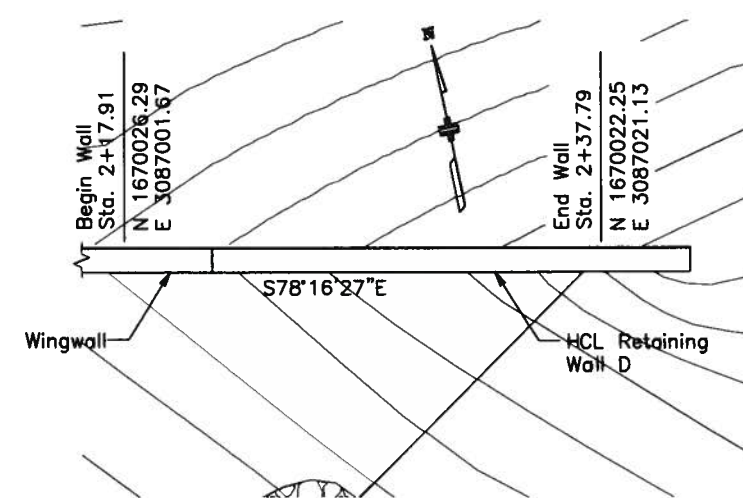
Project No./Code table with columns: Project No./Code, Sheet Number. Values include CE00896, Sheet Number 29.



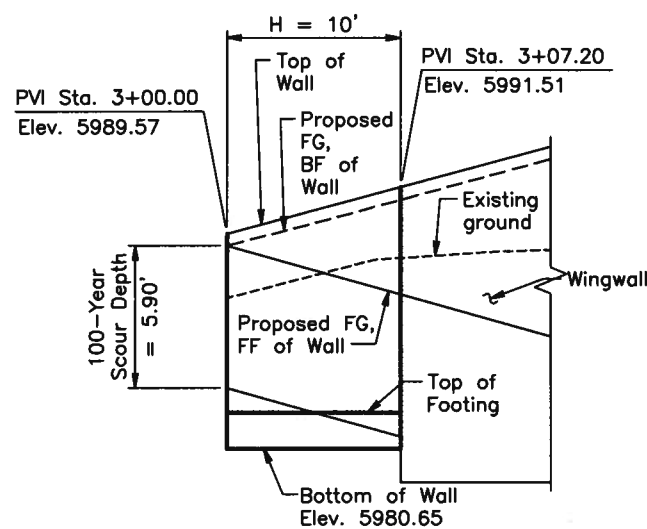
PLAN
Retaining Wall A



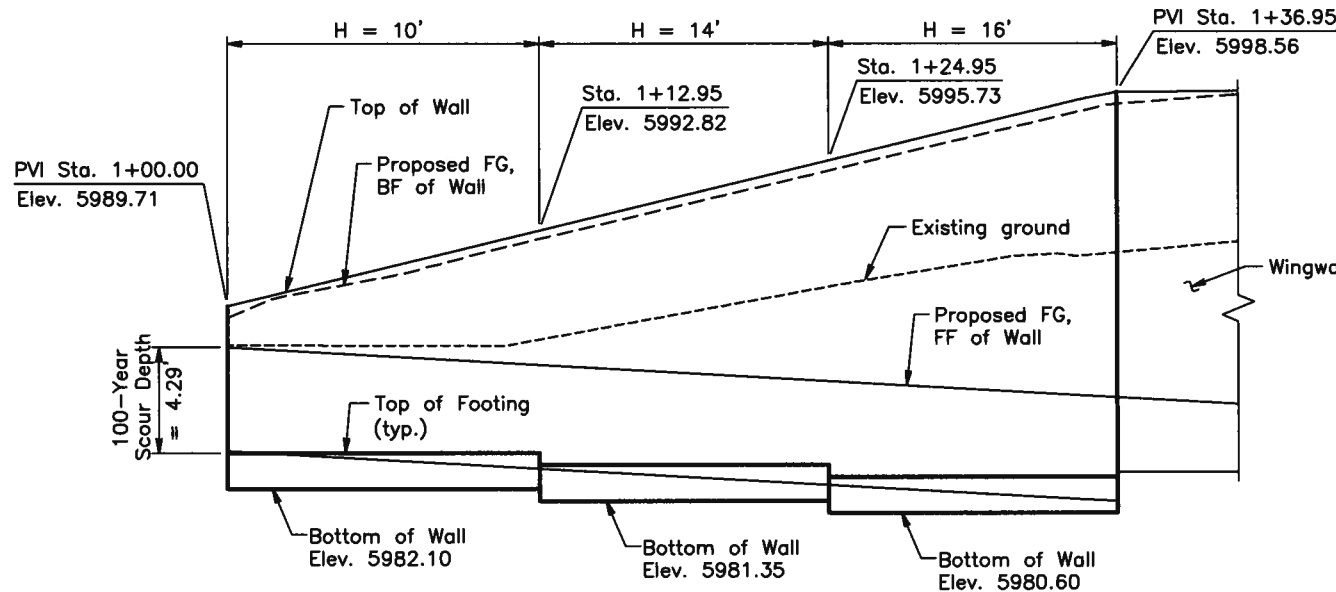
PLAN
Retaining Wall C



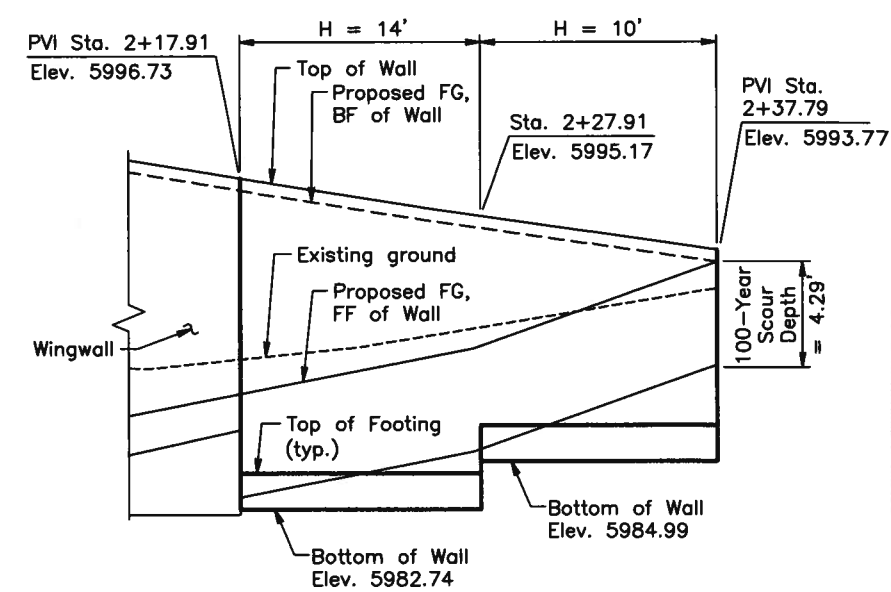
PLAN
Retaining Wall D



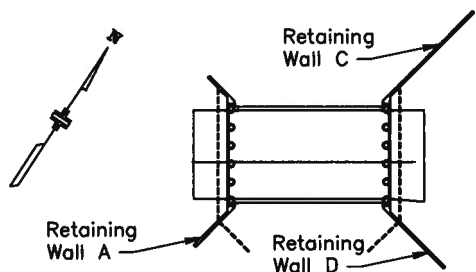
ELEVATION
Retaining Wall A



ELEVATION
Retaining Wall C



ELEVATION
Retaining Wall D



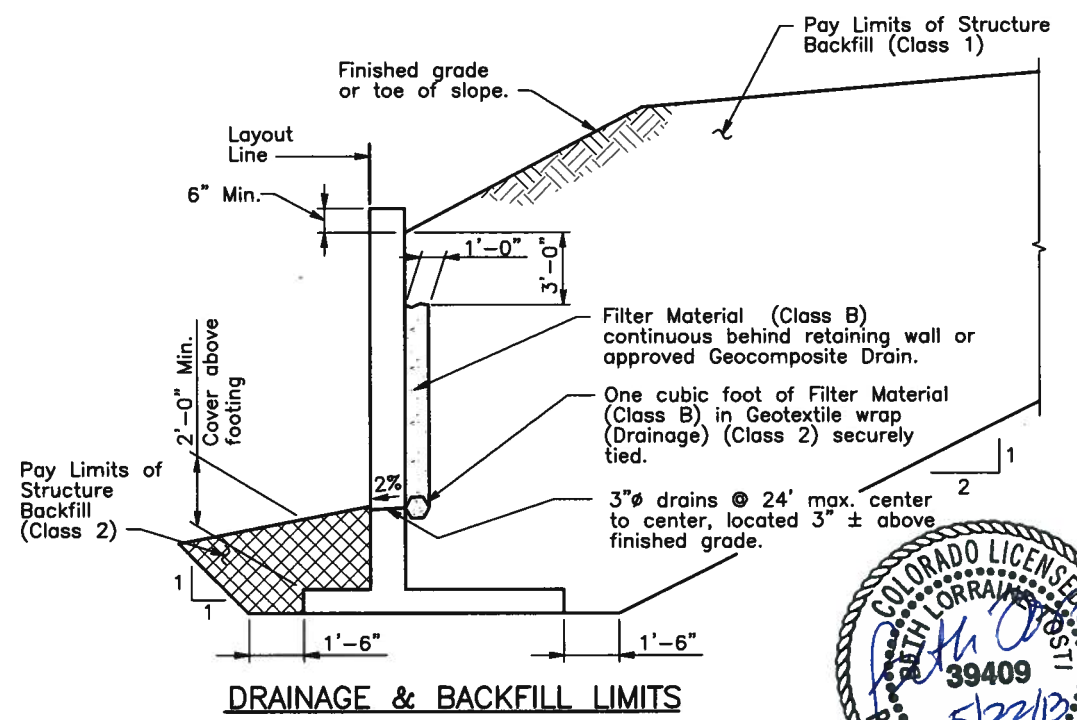
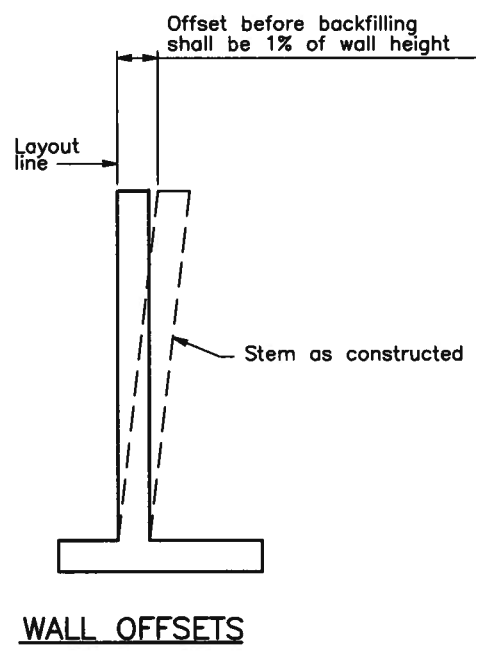
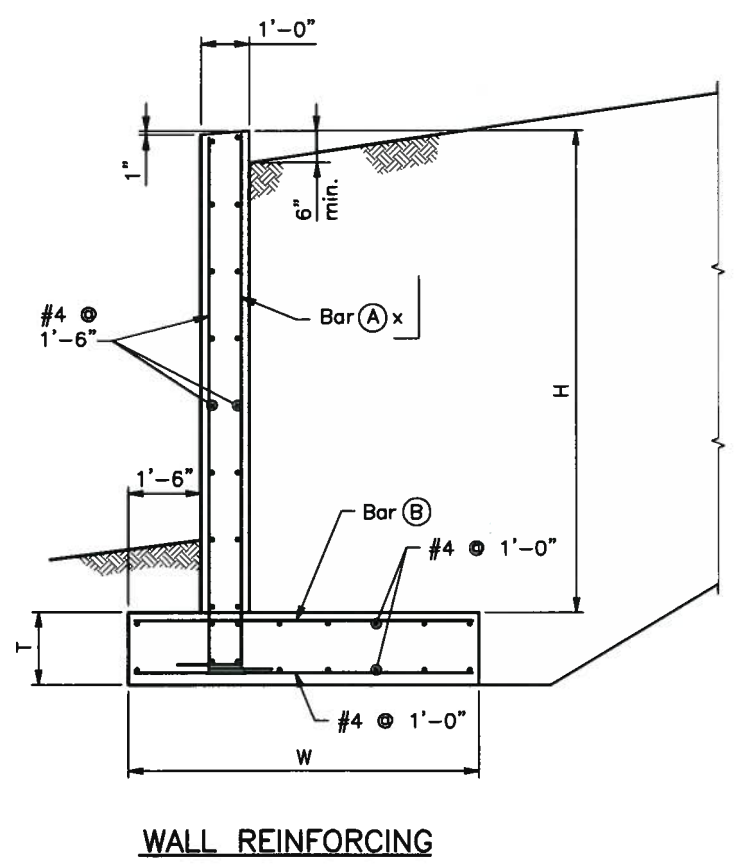
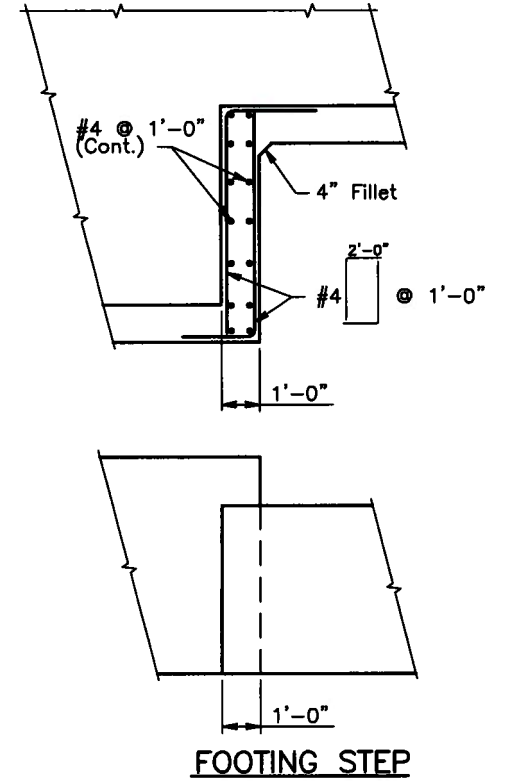
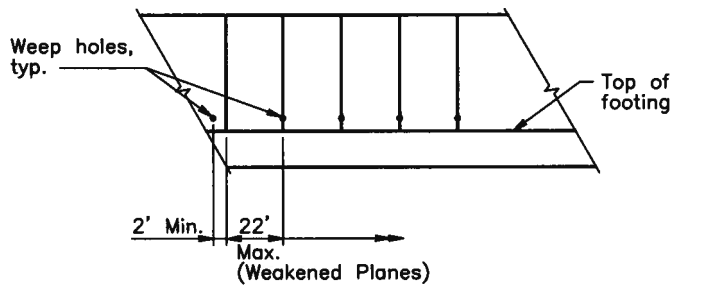
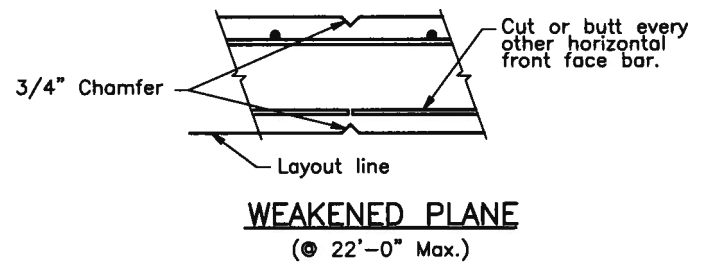
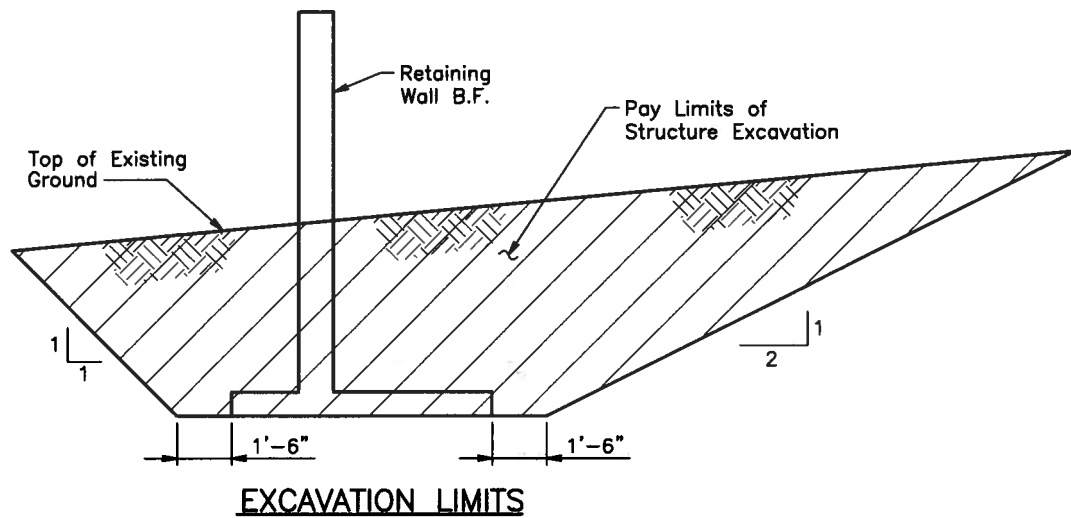
LOCATION PLAN

NOTES:

- Abbreviations
 FG = Finished Grade
 FF = Front Face
 BF = Back Face
 H = Design Height
- See "Retaining Wall Details" sheet for wall reinforcing.



Computer File Information		Sheet Revisions		 JACOBS	As Constructed	RED ROCKS PARK ROAD (RD. 2)		Project No./Code
Creation Date:	05/04/11 Initials: DLH	R-	/ / .		No Revisions: / /	OVER MOUNT VERNON CREEK		CE00896
Last Modification Date:	04/08/13 Initials: AML	R-	/ / .		Revised: / /	RET. WALL PLAN & ELEVATION		
Full Path:	...\\WV0519_CCD_REDROCKSBRIDGE\CAD\STR\DWG\	R-	/ / .		Void: / /	Designer: NJB	Structure: D-27-MP-010A	
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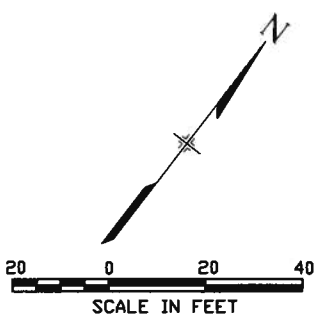
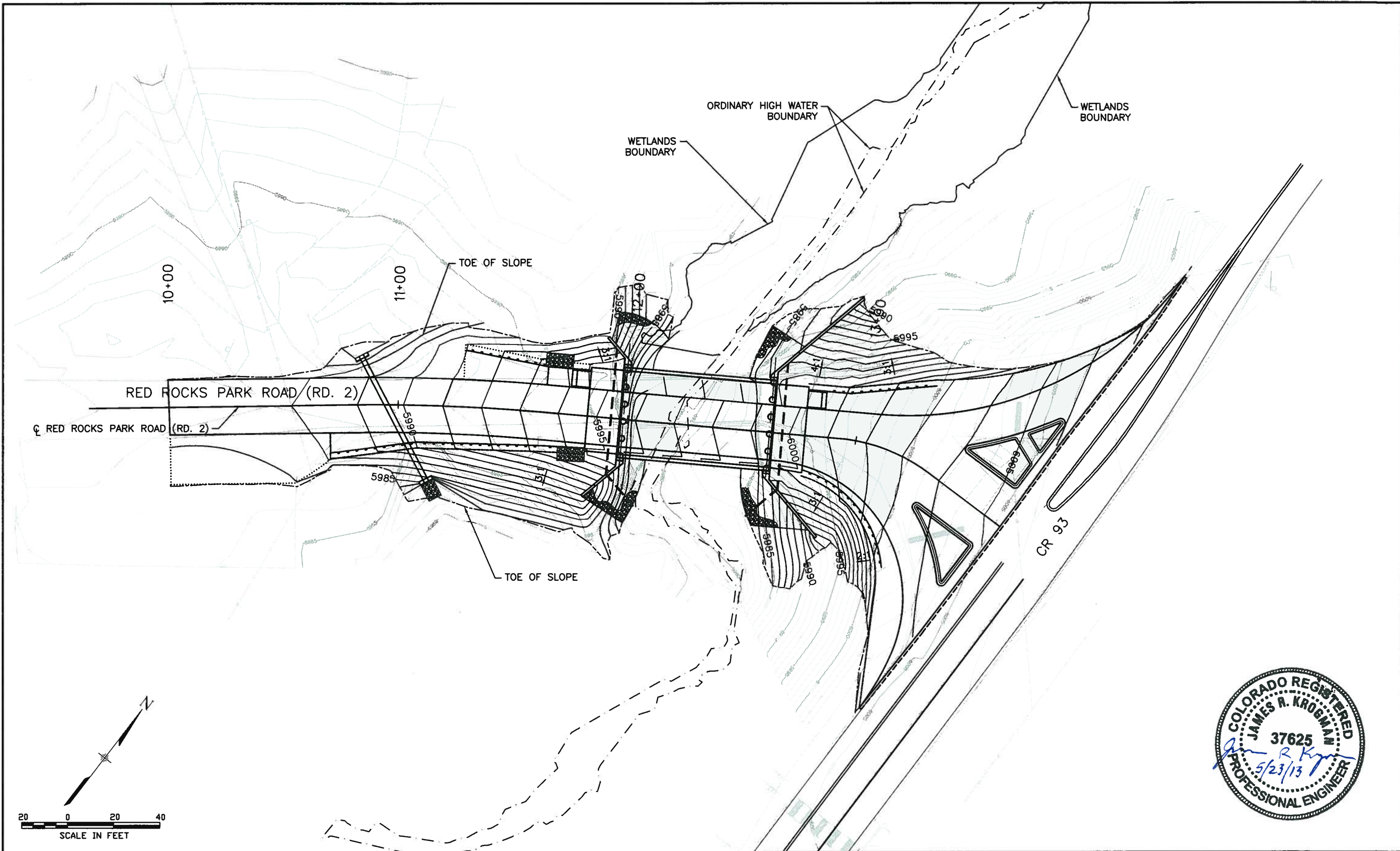
Design H (ft)	10'-0"	12'-0"	14'-0"	16'-0"
W	7'-3"	8'-3"	9'-3"	10'-6"
T	1'-6"	1'-6"	1'-9"	2'-0"
(A) Bars	#6 @ 6"	#6 @ 6"	#6 @ 6"	#8 @ 6"
(B) Bars	#6 @ 6"	#8 @ 8"	#8 @ 6"	#9 @ 6"

NOTE:
See Grading Plan for grading at the walls.



Computer File Information		Sheet Revisions		As Constructed	RED ROCKS PARK ROAD (RD. 2) OVER MOUNT VERNON CREEK RETAINING WALL DETAILS			Project No./Code			
Creation Date:	01/26/12 Initials: DLH	R-	/ / .		No Revisions:	///	Designer:	BLT	Structure	D-27-MP-010A	CE00896
Last Modification Date:	04/08/13 Initials: AML	R-	/ / .	Revised:	/ /	Detailer:	DLH	Numbers			
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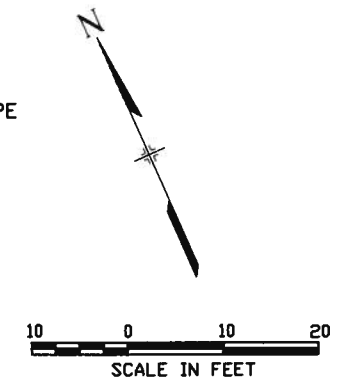
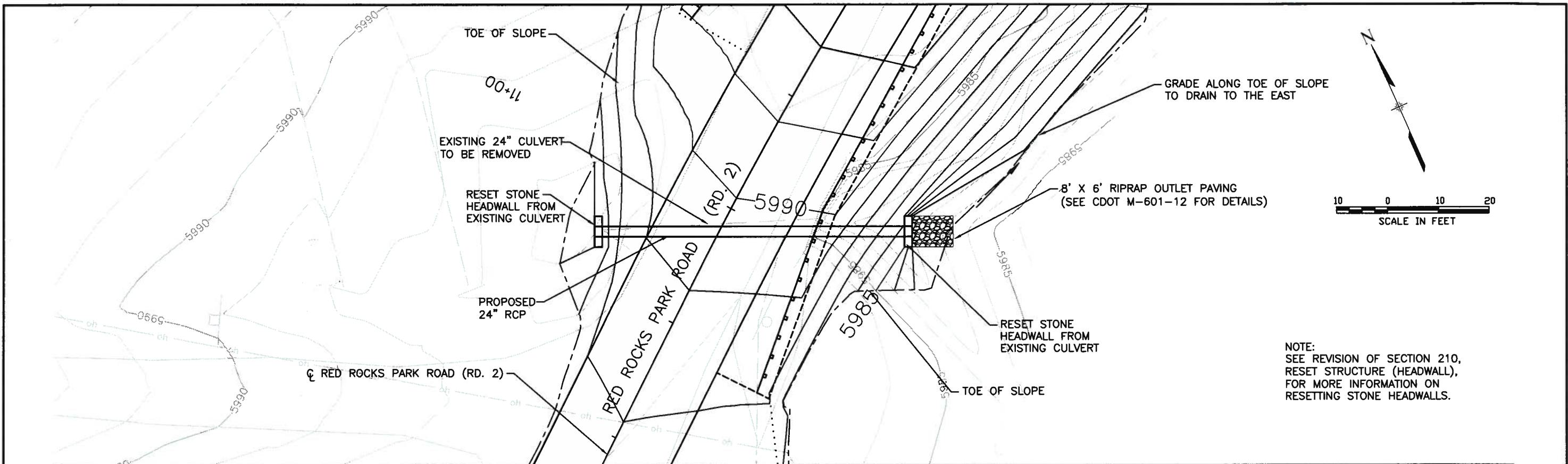


JACOBS

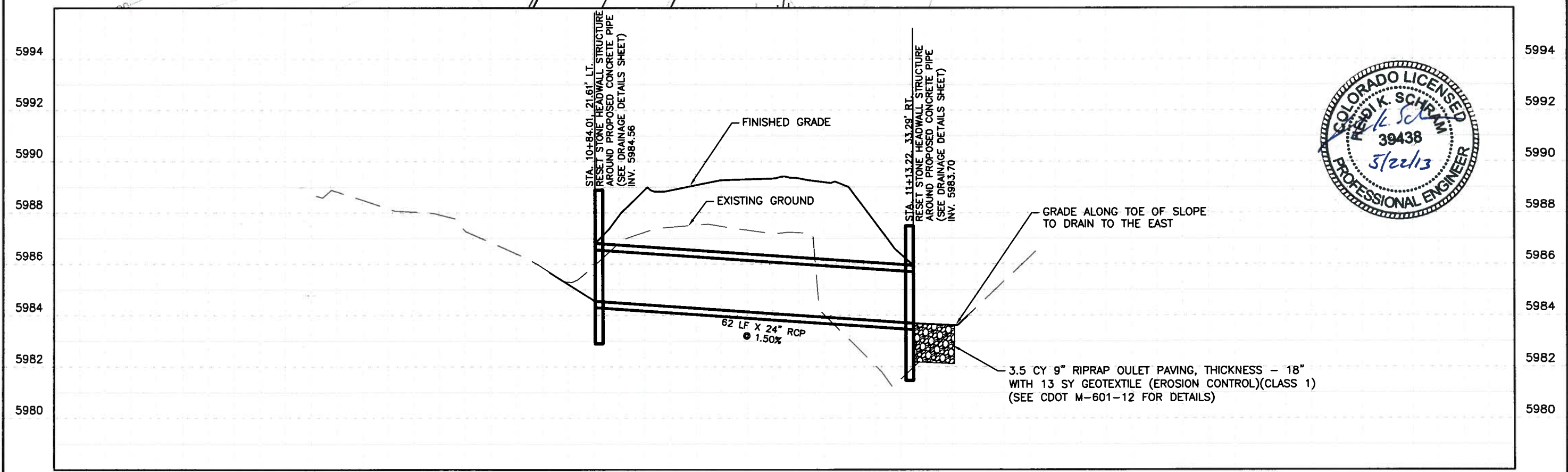
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RED ROCKS PARK ROAD (RD. 2)	
GRADING PLAN	
Designer:	AML Structure D-27-MP-010A
Detailer:	AML Numbers
Sheet Subset:	G Subset Sheets: 1 of 1

Project No./Code	CE00896
Sheet Number	32



NOTE:
SEE REVISION OF SECTION 210,
RESET STRUCTURE (HEADWALL),
FOR MORE INFORMATION ON
RESETTING STONE HEADWALLS.



Computer File Information	
Creation Date:	03/21/12 Initials: HKS
Last Modification Date:	04/08/13 Initials: AML
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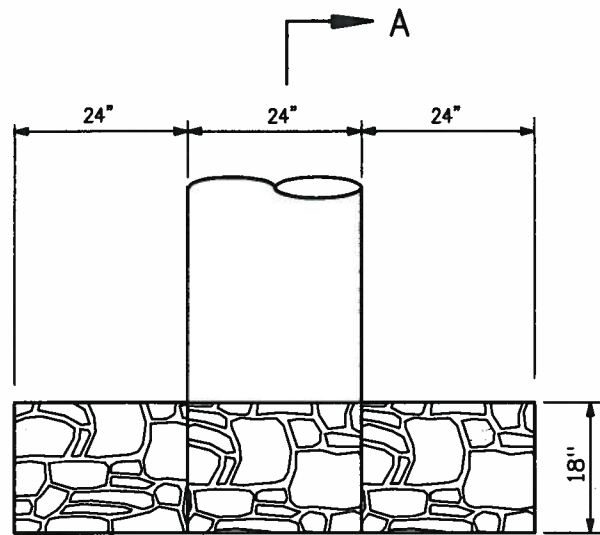
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As Constructed	
No Revisions:	/ /
Revised:	/ /
Void:	/ /

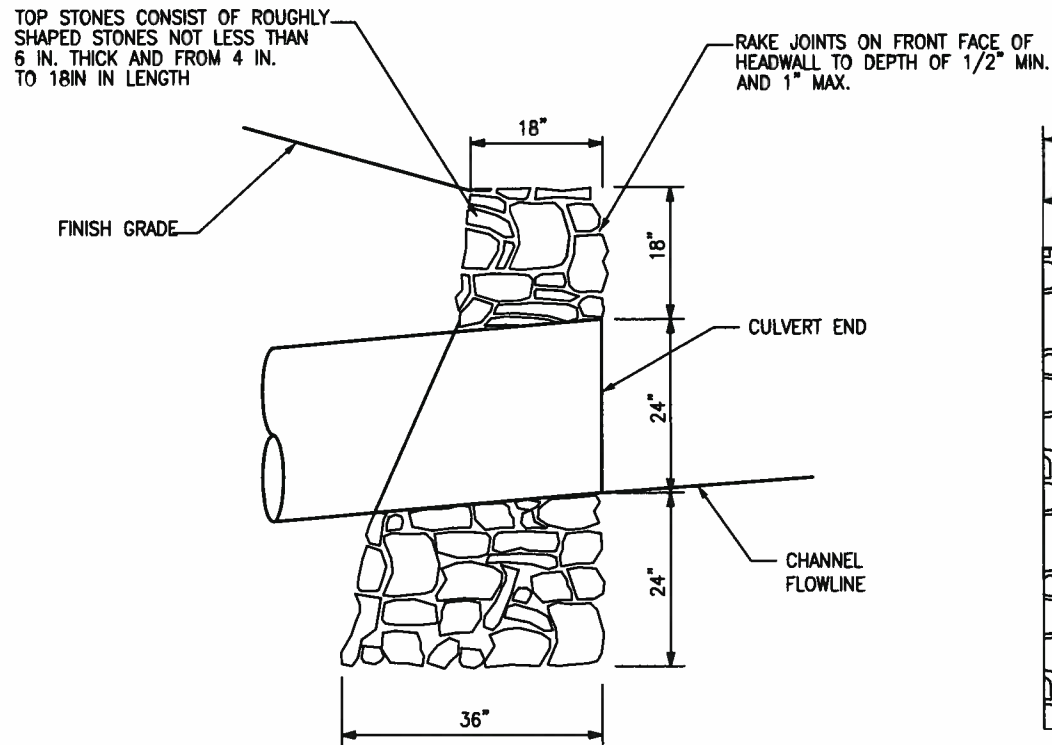
RED ROCKS PARK ROAD (RD. 2) CULVERT PLAN AND PROFILE			
Designer:	HKS	Structure	D-27-MP-010A
Detailer:	PMP	Numbers	
Sheet Subset:	D	Subset Sheets:	1 of 2

Project No./Code	
CE00896	
Sheet Number	33

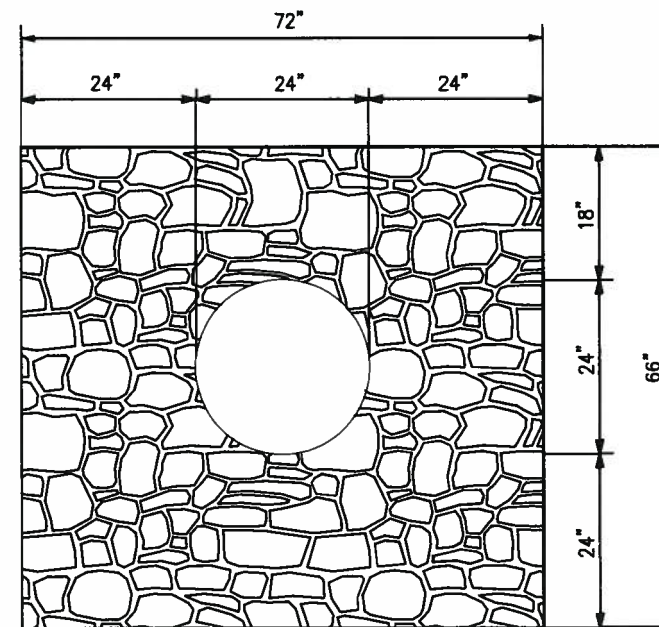


TOP VIEW
NO SCALE

**MORTARED STONE HEADWALL
FOR PIPE CULVERTS**

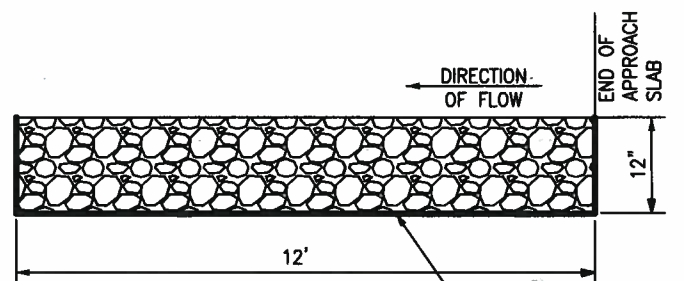
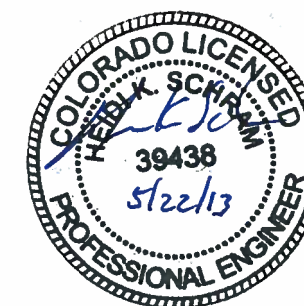


SECTION A - A
NO SCALE



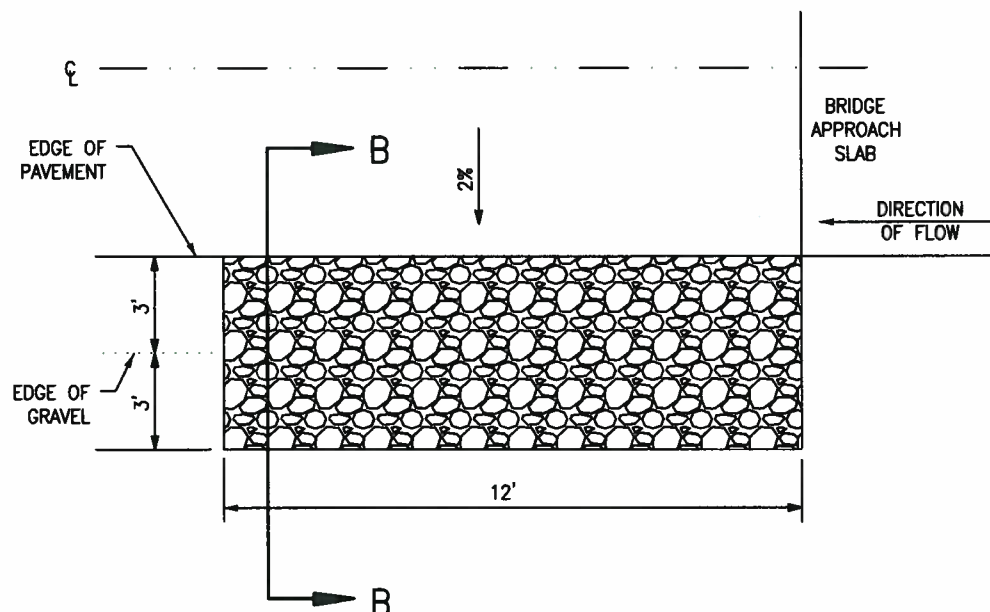
FRONT ELEVATION
NO SCALE

NOTE:
SEE REVISION OF SECTION 210,
RESET STRUCTURES

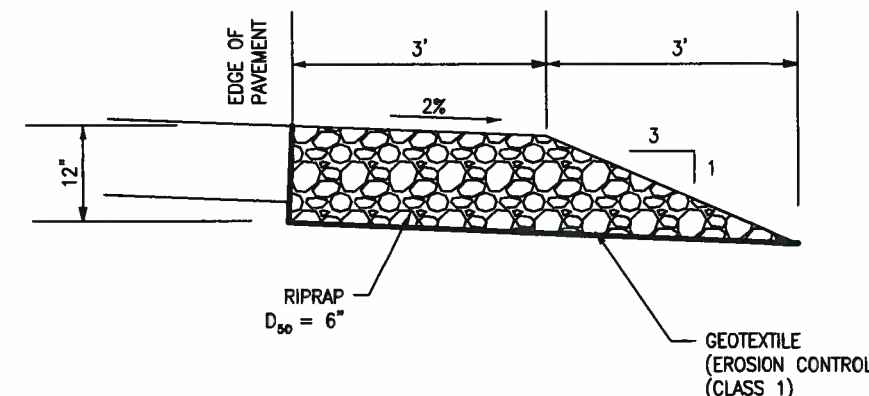


ELEVATION
NO SCALE

**RIPRAP APRON AT
END OF BRIDGE**



PLAN VIEW
NO SCALE



SECTION B-B
NO SCALE

NOTE:
EXCAVATION FOR PLACEMENT
OF RIPRAP WILL NOT BE
MEASURED FOR PAYMENT BUT
SHALL BE INCLUDED IN THE
COST OF THE RIPRAP APRON.

Computer File Information	
Creation Date:	03/21/12 Initials: PMM
Last Modification Date:	04/08/13 Initials: AML
Full Path:	...\\WV0519_CCD_REDROCKSBIDGE\CAD\CIV\DWG\
Drawing File Name:	REDROCKS_DR_02.DWG
Acad Ver:	R17.0s Scale: As Shown Units: English

Sheet Revisions	
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RED ROCKS PARK ROAD (RD. 2) DRAINAGE DETAILS	
Designer:	BLT
Detailer:	PMM
Structure Numbers:	D-27-MP-010A
Sheet Subset:	D
Subset Sheets:	2 of 2

Project No./Code	CE00896
Sheet Number	34

STORMWATER MANAGEMENT PLAN FOR PROJECTS WITH LESS THAN 1 ACRE OF DISTURBANCE

1. Stormwater Management Controls First Construction Activities

A. Potential Pollutant Sources

Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place in the SWMP notebook. All BMPs related to potential pollutants shall be shown on the SWMP site map by the contractor's ECS.

B. Best Management Practices (BMPs) For Stormwater Pollution Prevention

BMP NARRATIVES: (SEE CDOT ERSDSN CNTRDL AND STDRMWATER GUIDE, 2002, and the Standard Plan M-208-1 FDR MORE DETAILS.)

Silt Fence:

Silt fence shall be used to capture sediment laden run-off from disturbed areas during construction. Silt fence shall be placed at locations as directed by the Engineer to prevent sediment from exiting the project site.

Silt fence shall be used at the toe of slope and shall be placed prior to earth work disturbance commencing. Silt fence shall be placed between 5-10' beyond the toe of slope to provide storage capacity. Silt fence shall be placed on the contour and the ends shall be j-hooked to prevent sediment from escaping around the ends of the fence. The maximum gradient behind the barrier is 2:1.

Erosion Logs:

Erosion logs are used to capture and filter sediment laden run-off from disturbed areas during construction. Logs shall be placed on a prepared soil bed, so the after the placement, no gaps are present between the soil and log. Logs shall be j-hooked or placed in such a manner as to prevent sediment laden runoff from entering the protected area.

Inlet/Outlet Protection - logs shall be placed at existing inlets/outlets as shown in the plans and where disturbance may be occurring adjacent to a pipe and cause sediment laden water to enter the pipe. Logs shall be placed prior to work commencing at these locations. For new inlets/outlets, logs shall be placed once the culvert is in place to prevent sediment laden runoff from entering the pipe. Where the slope has been worked above new and/or existing pipes and sediment may enter the pipe from above, a log shall wrap the top of the pipe and run down the slope to direct water away from the pipe.

Permanent Seeding:

Seeding is used to control runoff and erosion on disturbed areas. Drill seeding shall occur on slopes flatter than 2:1 and shall occur on the contour of the slope. Completed areas (any portion of a slope that is at final grade) shall be seeded within 48 hours during seeding seasons. Seeded areas shall be inspected frequently for areas of failure. Slopes that are too steep for drill seeding shall have seed broadcast at double the rate and raked into the surface, see interim and final seeding. Seeding in ditch lines shall follow the contour, drill rows running down a ditch line shall not be allowed.

If during the seeding season and top of slopes are adjacent to paving operations the entire slope shall be seeded, per Section 9 of the SWMP template. When Engineer approves the top portion of the slope (approx. 15') can remain unseeded for paving operations to occur. Once paving operations are completed in an area, shouldering shall occur immediately. Seeding per Section 9 of the SWMP shall then take place within 48 hours. Slopes that had been previously seeded and were disturbed by paving/shouldering operations shall be reseeded at no additional cost to the project.

Mulch and Mulch Tackifier:

Mulch and mulch tackifier shall be in accordance with subsection 213.03 (a). Crimping in ditch lines shall follow the contour, crimp rows running down a ditch line shall not be allowed.

Soil Binder:

Soil Binder shall be in accordance with project special provision 213. The work consists of furnishing and placing soil binder on roadway ditches and slopes indicated on the SWMP site map, or as designated by the Engineer, to protect soils from erosion during construction. Multiple applications of soil binder may be necessary depending on the number of construction days. Soil binder shall not be used for permanent seeding applications.

Removal and Disposal of Sediment:

All erosion and sediment control features shall be continuously maintained so that they function properly during construction and work suspensions until the project is accepted. Sediment removed during maintenance of erosion control features shall be used in or on embankment provided it meets conditions of Section 203, or it shall be wasted in accordance with subsection 107.25.

Concrete Washout Structure:

Concrete washout structures shall be completed and ready for use prior to concrete placement operations. The Contractor shall submit in writing a method statement outlining the design, site location and installation of the concrete washout structures for approval. The structure shall be designed to contain all washout and so as not to allow stormwater to carry wastes from washout and disposal locations. The Contractor shall prevent tracking of washout material onto the roadway surface. Waste material from concrete washout operations shall be disposed off in accordance with subsection 208.04 (f).

Vehicle Tracking Pad:

A vehicle tacking pad shall be implemented in accordance with Section E below for all construction entrances within the project. Dimensions of the construction entrance shall be approved by the Engineer prior to construction.

Sweeping:

Utilized to remove sediment on pavement surface and to prevent sediment from entering drainage system.

Construction Fence:

Construction fence shall be placed as shown on the plans or as directed to define the limits of the work area beyond which no access is allowed to the surrounding wetlands or vegetation to be protected.

C. Offsite Drainage (Run On Water)

1. Place BMPs to address run-on water in accordance with subsection 208.03.

O. Construction Dewatering:

1. Obtain a dewatering permit from COPHE if conditions of their low risk guidance for Discharges of Uncontaminated Groundwater to Land are not met: see subsection 107.25(b) 8.

E. Vehicle Tracking Pad

1. BMPs shall be implemented in accordance with subsection 208.04.

F. Perimeter Control

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs existing landforms, or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

2. During Construction

Responsibilities Of The SWMP Administrator/Erosion control Supervisor During Construction

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the Contractor in accordance with section 208.

A. Stockpile Management

Prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.

B. Concrete Washout

Shall be done in accordance with subsection 101.95 and 208.07.

C. Saw Cutting

Shall be done in accordance with subsection 101.95, 208.04, 208.05.

O. Street Cleaning

Shall be done in accordance with subsection 208.04.

3. Interim And Final Stabilization

A. Topsoil

1. Native topsoil shall be excavated from areas to be filled by new roadway, rip-rap or roadway embankment to a maximum depth of 8 inches or as designated by the Engineer. Excavation and stockpiling of topsoil shall be measured and paid for as Stockpile Topsoil.

2. The stockpiled topsoil shall be placed at locations designated for native grass seed to a depth of 8 inch minimum. Topsoil placement and finish grading shall be paid for as topsoil.

3. The stockpiled topsoil shall be placed on top of soil riprap areas designated for native grass to a depth of 4 inch minimum. Topsoil placement on soil riprap shall be paid for as topsoil.

B. Seeding Plan

Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free), and mulch tackifier will be required for an estimated 0.35 acre of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

Upland Seed Mix (Above Elevation 5985)

Common Name	Botanical Name	Pounds PLS/ Acre
Blue Grama	Bouteloua gracilis v. Hachita, Alma	1.4
Green Needlegrass	Nassella viridula	6.0
Sideoats Grama	Bouteloua curtipendula v. Vaughn, Niner, Butte	3.0
Western Wheatgrass	Pascopyrum smithii v. Arriba	10.0
Big Bluestem	Andropogon gerardii v. Pawnee, Bison, Kaw	3.3
Indian Ricegrass	Achnatherum hymenoides v. Paloma, Nezpar	5.4
Prairie Junegrass	Koeleria macrantha	0.3
TOTAL		29.4

Riparian Seed Mix (Below Elevation 5985)

Common Name	Botanical Name	Pounds PLS/ Acre
Prairie cordgrass	Spartina pectinata v. Atkins, Common	2.0
Streambank wheatgrass	Elymus lanceolata v. Sodar	10.0
Switchgrass	Panicum virgatum v. Pathfinder, Blackwell, NE-28	2.0
Big Bluestem	Andropogon gerardii	10.0
TOTAL		24.0



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Sheet Revisions	
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RED ROCKS PARK ROAD (RD. 2) STORMWATER MANAGEMENT PLAN		Project No./Code
		CE00896
Designer:	HKS	Structure D-27-MP-010A
Detailer:	PMP	Numbers
Sheet Subset:	E	Subset Sheets: 1 of 3
		Sheet Number 35

- C. **Seeding Application:** Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25 inch to 0.5 into soil.
- O. **Mulching Application:** Apply a minimum of 4,000 lbs of certified weed free straw per acre and in accordance with Section 212, and mechanically crimp it into the soil in combination with an organic mulch tackifier.
- E. **Special Requirements:** Due to high failure rates, hyromulching and/or hydroseeding will not be allowed.
- F. **Soil Conditioning And Fertilizer Requirements:**
 - 1. Contractor shall obtain a soils test of the native soil from a qualified soils testing laboratory to determine the amount and type of soil conditioner and fertilizer to apply to native soil based on the native grass seed mix specified for the project. Soils test and the recommended type and application rate for soil conditioner and fertilizer shall be approved by Denver Mountain Parks staff person prior to application.
- G. **Blanket Application:** Soil retention blanket shall be placed on slopes that are greater than a 3:1 gradient or as directed by the Engineer. Mulch and mulch tackifier will not be required on slopes requiring soil retention blanket.

4. Tabulation Of Stormwater Quantities

Pay Item	Description	Pay Unit	*Quantity
207	Topsoil	CY	300
207	Stockpile Topsoil	CY	300
208	Sweeping (Sediment Removal)	Hour	30
208	Removal of Trash	Hour	30
208	Erosion Log (12 Inch)	LF	80
208	Gravel Bag	LF	100
208	Silt Fence	LF	1400
208	Concrete Washout Structure	Each	1
208	Vehicle Tracking Pad	Each	2
208	Removal and Disposal of Sediment (Equipment)	Hour	30
208	Removal and Disposal of Sediment (Labor)	Hour	30
212	Seeding (Native) (Upland Seed Mix)	Acre	0.25
212	Seeding (Native) (Riparian Seed Mix)	Acre	0.10
212	Soil Conditioning	Acre	0.35
213	Mulching (Weed Free Straw)	Acre	0.29
213	Mulch Tackifier	LB	58
216	Soil Retention Blanket (Straw/Coconut)(Biodegradable Class 1)	SY	350
607	Fence (Plastic)	LF	1400
700	Erosion Control	FA	1

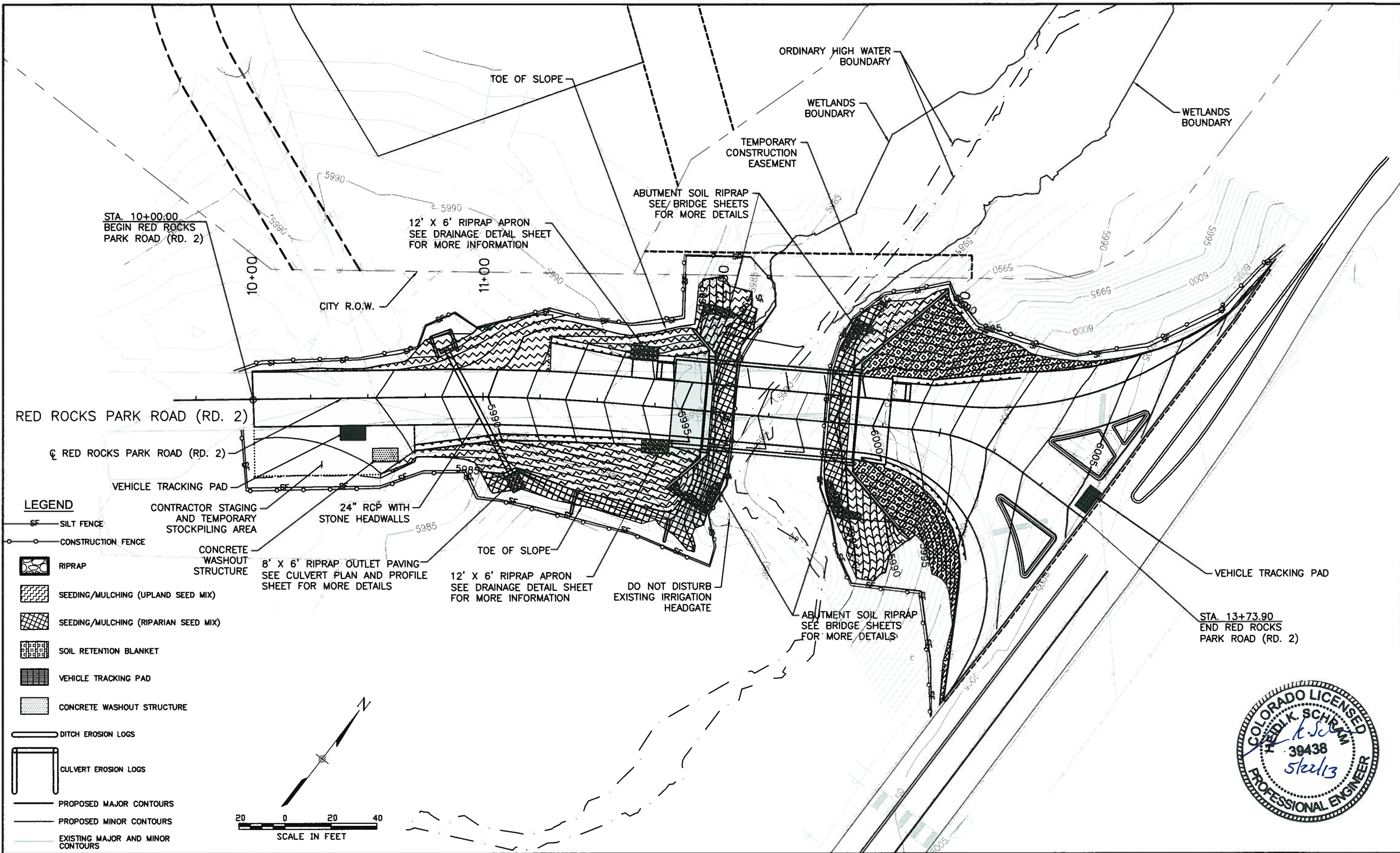
*It is anticipated that additional BMPs and BMP quantities not shown on the Site Map shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04 (e). Quantities for all BMPs shown above are estimated, and have been increased for unforeseen Project conditions.

- A. BMP sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other BMP maintenance shall be include in the cost of the BMP Device.
- B. It is estimated that 60 hours of labor, sweeping and/or removal of trash may be required for miscellaneous erosion control work as directed by the Engineer. Work shall be paid for as: 208 Sweeping (Sediment Removal) and/or 208 Removal of Trash.
- C. Maintenance of seeded areas shall be paid for as: FA Erosion Control
- D. Concrete washout structure and vehicle tracking pad locations are to be located by the Contractor and approved by the Engineer, including one at the batch plant.
- E. Gravel bags may be required for unforeseen erosion areas during construction. Gravel bags are to be paid for by the linear foot as 208 Gravel Bag and shall be utilized and placed at the direction of the Engineer.



Computer File Information		Sheet Revisions		As Constructed	RED ROCKS PARK ROAD (RD. 2)		Project No./Code
Creation Date:	03/26/12 Initials: HKS	<input type="checkbox"/>	/ / .		No Revisions:	STORMWATER MANAGEMENT PLAN	
Last Modification Date:	05/14/13 Initials: AML	<input type="checkbox"/>	/ / .	Revised:	Designer: HKS	Structure	D-27-MP-010A
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Acad Ver. R17.0s	Scale: As Shown Units: English	<input type="checkbox"/>	/ / .				Sheet Number 36





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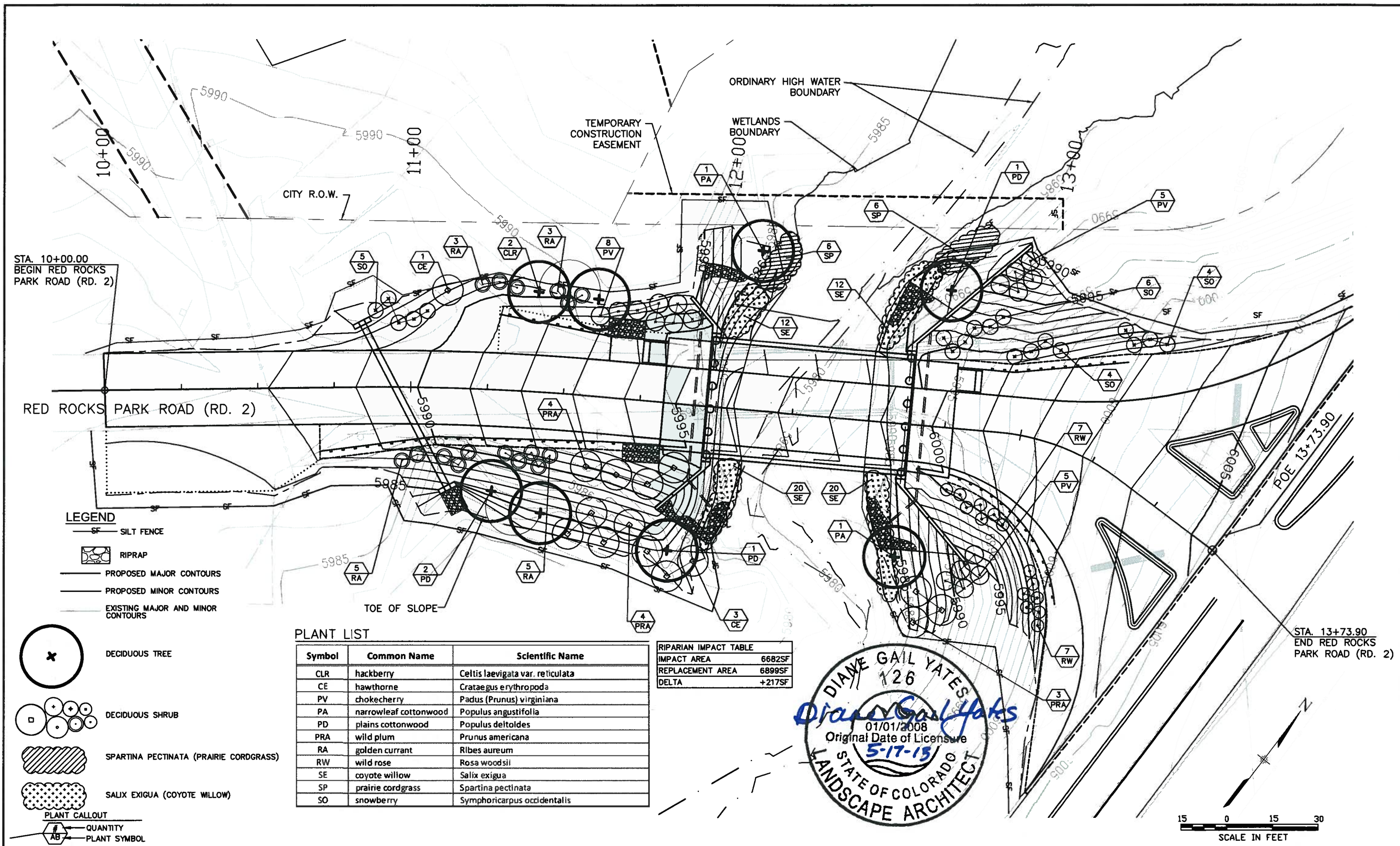
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RED ROCKS PARK ROAD (RD. 2)	
EROSION CONTROL SITE MAP	
Designer:	HKS
Detailer:	HKS
Structure	D-27-MP-010A
Numbers	.
Sheet Subset:	E
Subset Sheets:	3 of 3

Project No./Code	CE00896
Sheet Number	37



Computer File Information	
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Last Modification Date:	04/08/13 Initials: AML
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Drawing File Name:	REDROCKS_LS_01.DWG
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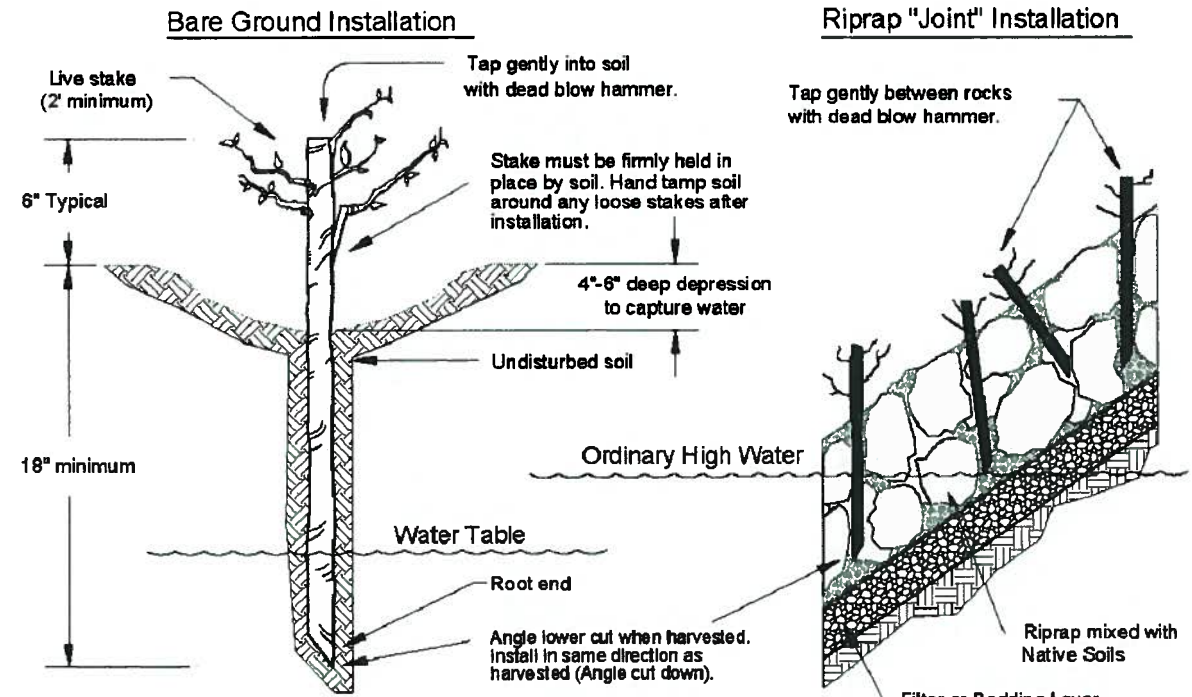
RED ROCKS PARK ROAD (RD. 2)	
LANDSCAPE PLAN	
Designer: DGY	Structure: D-27-MP-010A
Detailer: RTF	Numbers:
Sheet Subset: LS	Subset Sheets: 1 of 2

Project No./Code	CE00896
Sheet Number	38

LANDSCAPE NOTES

- SEE THE 2011 COOT STANDARD SPECIFICATION BOOK SECTIONS 207, 214 AND 107.12 FOR TOPSOIL, LANDSCAPE PROTECTION AND PLANTING SPECIFICATIONS AND METHOD OF MEASUREMENT AND PAYMENT. SEE COOT M-STANDARD 214-PLANTING FOR INFORMATION ON PLANTING TREES AND SHRUBS.
- TREE AND SHRUB ROOTS IN AREAS TO BE TEMPORARILY IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE PROTECTED. FOLIAGE SHALL BE CLEARED ABOVE GROUND LEVEL AND ROOTS PROTECTED WITH A 1 INCH LAYER OF STRAW OVERLAID WITH 12 INCHES OF DIRT OR ROCK. ONCE CONSTRUCTION ACTIVITIES ARE NO LONGER REQUIRED, THE DIRT AND STRAW COVERING SHALL BE REMOVED AND THE AREA RESTORED TO ORIGINAL CONTOURS. AREAS TEMPORARILY IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONTOURS, HYDROLOGY AND VEGETATION WITHIN 1 YEAR OF PROJECT COMPLETION. PROTECTION OF PLANT ROOTS IN TEMPORARY IMPACT AREAS INCLUDING STRAW, ROCK OR DIRT WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EMBANKMENT. ALTERNATIVE METHODS OF PROTECTION SHALL BE APPROVED BY ENGINEER.
- PRIOR TO CONSTRUCTION, CONTACT KELLY UHING AT DENVER MOUNTAIN PARKS TO VERIFY RELOCATION HAS OCCURRED FOR PLANT SPECIES OF CONCERN: SMILAX LASIONEURON.
- PROVIDE PROOF OF PLANT AVAILABILITY AND INTENT TO PURCHASE 4 MONTHS PRIOR TO PLANTING.
- TREE AND SHRUB LOCATIONS SHALL BE ADJUSTED TO MATCH THE PROJECT SITE CONDITIONS APPROPRIATE TO EACH PLANT SPECIES REQUIREMENTS SUCH AS SOIL MOISTURE, SUN OR SHADE AND OTHER CONDITIONS. PLANT LOCATIONS SHALL BE FLAGGED AND APPROVED BY DENVER MOUNTAIN PARKS STAFF PERSON PRIOR TO PLANTING. FLAGS SHALL INCLUDE A LABEL OF THE PLANT SPECIES TO BE PLANTED AT EACH PROPOSED PLANTING PIT LOCATION.

Bid Item Number	Description	Unit	Symbol	Common Name	Scientific Name	Quantities			
						SOUTH of Red Rocks Park Road	NORTH of Red Rocks Park Road	By Plant Species	By Bid Item
214	Deciduous Tree (1" cal.)	Each	CLR	netleaf hackberry	<i>Celtis laevigata</i> var. <i>reticulata</i>	0	2	2	8
214	Deciduous Tree (1" cal.)	Each	PD	narrowleaf cottonwood	<i>Populus angustifolia</i>	1	1	2	
214	Deciduous Tree (1" cal.)	Each	CLR	plains cottonwood	<i>Populus deltoides</i>	3	1	4	
214	Deciduous Shrub (5 gal.)	Each	CE	hawthorne	<i>Crataegus erythropoda</i>	3	1	4	82
214	Deciduous Shrub (5 gal.)	Each	PV	chokecherry	<i>Padus (Prunus) virginiana</i>	5	13	18	
214	Deciduous Shrub (5 gal.)	Each	PRA	wild plum	<i>Prunus americana</i>	11	0	11	
214	Deciduous Shrub (5 gal.)	Each	RA	golden currant	<i>Ribes aureum</i>	10	6	16	
214	Deciduous Shrub (5 gal.)	Each	RW	wild rose	<i>Rosa woodsii</i>	14	0	14	
214	Deciduous Shrub (5 gal.)	Each	SO	snowberry	<i>Symphoricarpos occidentalis</i>	0	19	19	
214	Perennial (1 gal.)	Each	SP	prairie cordgrass	<i>Spartina pectinata</i>	0	12	12	12
214	Brush Layer Cutting	Each	SE	coyote willow	<i>Salix exigua</i>	40	25	65	65



Single Willow Stake Detail
For use in granular soils with available ground water

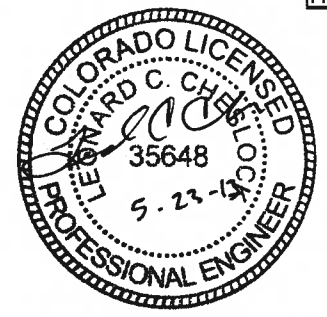
SOURCE: URBAN DRAINAGE AND FLOOD CONTROL DISTRICT CRITERIA MANUAL VOLUME 2



Computer File Information		Sheet Revisions		 City & County of Denver	As Constructed	RED ROCKS PARK ROAD (RD. 2) LANDSCAPE NOTES AND DETAILS	Project No./Code	
Creation Date:	06/15/12 Initials: RTF	(R-) / / .			No Revisions: / /		CE00896	
Last Modification Date:	04/17/13 Initials: AML	(R-) / / .			Revised: / /		Designer: DGY	Structure: D-27-MP-010A
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Drawing File Name:	REDROCKS_LS_02.DWG	(R-) / / .			Sheet Subset: LS	Subset Sheets: 2 of 2	Sheet Number: 39	
Acad Ver. R17.0s	Scale: As Shown Units: English	(R-) / / .						

TABULATION OF SIGNS													
SIGN NO.	SIGN CODE	STATION	OFFSET	SIGN PANEL SIZE	BACK-GROUND COLOR	EXISTING TO REMAIN	ITEM 202	ITEM 210	ITEM 210	NO. OF POSTS	ITEM 614	ITEM 614	
							REMOVAL OF GROUND SIGN	RESET GROUND SIGN	RESET STRUCTURES (RED ROCKS SIGN)		POST TYPE 2 IN. TELSPAR TUBING	SIGN PANEL CLASS I	
						(EA)	(EA)	(EA)	(EA)			(LF)	(SF)
Red Rocks Park Road (RD. 2)													
1	EXISTING TO REMAIN	10+62.24	31.2' RT	-	-	1							
2	RESET	10+84.87	23.3' RT	-	-			1		1	10.5		
3	REMOVE	11+62.93	11.6' RT	-	-		1						
4	RESET SPECIAL - RED ROCKS SIGN	11+11.63	24.3' LT	-	-				1				
5	REMOVE	11+92.11	18.5' LT	-	-		1						
6	REMOVE	11+95.28	3.5' RT	-	-		1						
7	REMOVE	12+92.88	11.2' RT	-	-		1						
8	REMOVE	12+82.80	28.2' LT	-	-		1						
9	REMOVE	13+43.04	33.8' RT	-	-		1						
10	R1-1	13+64.71	17.3' RT	30" X 30"	RED					1	12.5	6.25	
11	R1-1	13+53.10	49.3' RT	30" X 30"	RED					1	11.5	6.25	
12	RESET SPECIAL - RED ROCKS SIGN	13+51.42	16.5' RT	-	-				1				
13	R1-2	13+19.99	22.8' LT	30" X 30" X 30"	RED					1	11.0	2.55	
14	R1-2	13+47.96	20.8' LT	30" X 30" X 30"	RED					1	11.0	2.55	
15	RESET	13+36.22	59.3' LT	-	-			1			12.5		
16	W16-9P	13+36.22	59.3' LT	24" X 12"	YELLOW							2.00	
17	REMOVE	13+61.13	26.0' LT	-	-		1						
18	W11-55	13+64.58	40.8' LT	30" X 30"	YELLOW					1	12.5	6.25	
19	W16-9P	13+64.58	40.8' LT	24" X 12"	YELLOW							2.00	
20	RESET	13+60.84	84.5' RT	-	-			1		1	10.5		
CR 93													
21	EXISTING TO REMAIN	-	-	-	-	1							
22	RESET	-	-	-	-			1				6.25	
23	RESET	-	-	-	-							2.00	
24	REMOVE	-	-	-	-		1						
25	RESET	-	-	-	-			1				6.25	
26	RESET	-	-	-	-							2.00	
27	INSTALL SPECIAL	-	-	33" X 30"	WHITE					1	11.0		
28	REMOVE	-	-	-	-		1						
29	W2-2	-	-	30" X 30"	YELLOW					1	12.5	6.25	
30	RESET	-	-	-	-			1				6.25	
31	RESET	-	-	-	-							2.00	
32	RESET	-	-	-	-			1				6.25	
33	RESET	-	-	-	-							2.00	
34	EXISTING TO REMAIN	-	-	-	-	1							
PROJECT TOTALS						3	10	7	2	10	115.5	67.1	

TABULATION OF DELINEATORS				
STATION	OFFSET	ITEM 612	ITEM 612	ITEM 612
		DELINEATOR (FLEXIBLE) (TYPE I) (EA)	DELINEATOR (TYPE I) (EA)	DELINEATOR (TYPE III) (EA)
Red Rocks Park Road (RD. 2)				
10+84.70	19.1' RT		1	
11+22.20	16.0' RT		1	
11+59.70	14.8' RT		1	
11+97.20	14.0' RT			1
12+77.69	12.2' LT	1		
13+03.95	14.0' LT	1		
13+24.85	24.1' LT	1		
13+40.87	43.6' LT	1		
13+46.76	51.7' LT	1		
13+60.17	76.1' LT	1		
13+68.90	102.7' LT	1		
13+72.61	130.4' LT	1		
13+47.96	20.8' LT	-		1
13+66.83	48.4' LT	-		1
13+66.78	20.0' LT	-		1
13+44.53	16.0' RT	-		1
13+66.70	31.9' RT	-		1
13+66.70	16.0' RT	-		1
PROJECT TOTALS:		8	3	7



TABULATION OF PAVEMENT MARKINGS									
APPROXIMATE STATION	PAVEMENT MARKING LINE (LF)				STOP	CROSS-WALK	YIELD LINE		
	EDGE	LANE	CENTER	CHANNELIZING					
	WHITE SOLID 4 INCH	WHITE 2'-4" DOTTED 8 INCH	YELLOW SOLID 4 INCH	WHITE SOLID 8 INCH				WHITE SOLID 24 INCH (SF)	WHITE SOLID 24 INCH (SF)
Red Rocks Park Road (RD. 2)									
12+77.70 LT to 13+73.74 LT	193								
12+95.17 LT to 13+31.20 LT		16							
12+97.66 LT to 13+67.22 LT	130								
13+24.04 LT to 13+33.60 LT							6		
13+31.20 LT to 13+73.87 LT						77			
13+31.20 LT to 13+73.87 LT						45			
13+73.87 LT to 13+73.87 LT						62			
11+82.69 to 13+64.76							366		
12+66.48 RT to 13+73.62 RT	132								
13+10.87 RT to 13+73.62 RT	120								
13+14.92 RT to 13+73.68 RT						67			
13+14.92 RT to 13+73.74 RT						56			
13+73.74 RT to 13+73.68 RT						36			
13+64.76 to 13+64.71 RT							24		
13+57.01 RT to 13+65.73 RT							24		
CR 93									
From North to South End of Project	448	43	785	214			200		
PROJECT TOTALS	1,023	59	1,151	557	48	200	6		

SUMMARY OF PAVEMENT MARKINGS		
COLOR	ITEM 627	ITEM 627
	EPOXY PAVEMENT MARKING	PERFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOPLINE-YIELD LINE)
	(GALLONS)*	(SQ. FT.)
YELLOW	12.0	0.0
WHITE	17.0	254.0
TOTAL	29.0	254.0

TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES			
DEVICES PAID FOR UNDER SPECIFIC ITEM NUMBERS			
ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY
630	TRAFFIC CONTROL INSPECTION (2 HR PER WORK DAY)	DAY	132
630	TRAFFIC CONTROL MANAGEMENT (2 HR PER WORK DAY)	DAY	52
630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	48
630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH	5
630	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	SF	78
630	BARRICADE (TYPE II) (TEMPORARY)	EACH	4
630	BARRICADE (TYPE III M-B) (TEMPORARY)	EACH	6

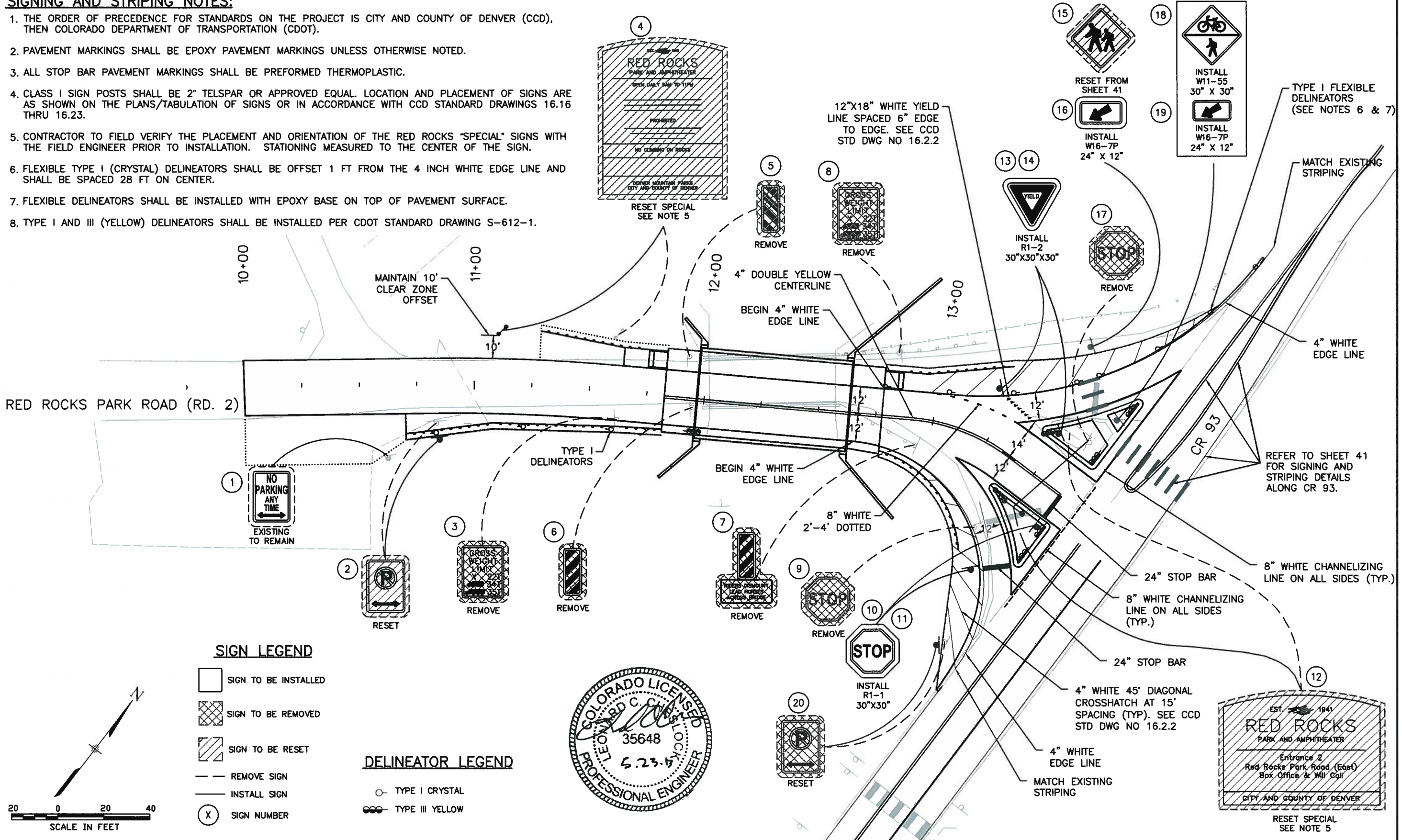
TABULATION OF CONSTRUCTION TRAFFIC CONTROL SIGNS				
STANDARD TRAFFIC CONTROL SIGNS				
SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE	SIGN QUANTITIES
VEHICULAR SIGNS				
30M4-9L	DETOUR (LEFT)	30" X 24"	A	1
30M4-9T	DETOUR (STRAIGHT)	30" X 24"	A	1
48M4-10L	DETOUR ARROW (LEFT ARROW)	48" X 18"	A	2
48M4-10R	DETOUR ARROW (RIGHT ARROW)	48" X 18"	A	1
24R3-1	NO RIGHT TURN	24" X 24"	A	1
24R3-2	NO LEFT TURN	24" X 24"	A	1
48R11-2	ROAD/CLOSED	48" X 30"	B	3
60R11-4	ROAD CLOSED/TO/THRU TRAFFIC	60" X 30"	B	2
36W20-1	ROAD/WORK/AHEAD	36" X 36"	A	2
36W20-3	ROAD/CLOSED/AHEAD	36" X 36"	A	1
SPECIAL	RED ROCKS/ENTRANCE 2/CLOSED/USE ENTRANCE 1/THRU ARROW	54" X 72"	SPECIAL	1
SPECIAL	RED ROCKS/ENTRANCE 2/CLOSED/USE ENTRANCE 1/RIGHT ARROW	54" X 72"	SPECIAL	1
SPECIAL	RED ROCKS/ENTRANCE 2/CLOSED/USE ENTRANCE 1/LEFT ARROW	36" X 48"	SPECIAL	2
30W11-55	BIKE/PED	30" X 30"	A	2
30W16-4P	NEXT/500/FT	30" X 24"	A	2
30R1-2	YIELD	30" X 30" X 30"	A	1
TRAIL SIGNS				
24M4-8A	END/DETOUR	24" X 18"	A	2
SPECIAL	TRAIL/CLOSED	24" X 18"	A	4
SPECIAL	TRAIL/DETOUR (RIGHT ARROW)	30" X 24"	A	2
SPECIAL	TO/RED ROCKS/TRAIL	30" X 24"	A	2
SPECIAL	TRAIL/DETOUR (STRAIGHT ARROW)	30" X 24"	A	11
SPECIAL	TO/DAKOTA RIDGE/TRAIL	30" X 24"	A	5
SPECIAL	TRAIL/DETOUR (LEFT ARROW)	30" X 24"	A	4
SPECIAL	USE/SHOULDER	24" X 18"	A	3
PROJECT TOTALS				57

Computer File Information		Sheet Revisions		 JACOBS City & County of Denver	As Constructed	RED ROCKS PARK ROAD (RD. 2) TRAFFIC TABULATIONS	Project No./Code			
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Last Modification Date:	07/05/12 Initials: BAH	<input type="checkbox"/>	<input type="checkbox"/>		Revised:	//	Designer:	BAH	Structure:	D-27-MP-010A
Full Path:	W\X\0519_CCD_RedRocksBridge\cad\civ\dwg	<input type="checkbox"/>	<input type="checkbox"/>		Void:	//	Detailer:	DLH	Numbers:	
Drawing File Name:	TAB_TRAF_01.dgn	<input type="checkbox"/>	<input type="checkbox"/>			Sheet Subset:	ST	Subset Sheets:	1 of 6	
Acad Ver. N/A	Scale: As Shown	Units: English	<input type="checkbox"/>	<input type="checkbox"/>			Sheet Number		40	

SIGNING AND STRIPING NOTES:

1. THE ORDER OF PRECEDENCE FOR STANDARDS ON THE PROJECT IS CITY AND COUNTY OF DENVER (CCD), THEN COLORADO DEPARTMENT OF TRANSPORTATION (CDOT).
2. PAVEMENT MARKINGS SHALL BE EPOXY PAVEMENT MARKINGS UNLESS OTHERWISE NOTED.
3. ALL STOP BAR PAVEMENT MARKINGS SHALL BE PREFORMED THERMOPLASTIC.
4. CLASS I SIGN POSTS SHALL BE 2" TELSPAR OR APPROVED EQUAL. LOCATION AND PLACEMENT OF SIGNS ARE AS SHOWN ON THE PLANS/TABULATION OF SIGNS OR IN ACCORDANCE WITH CCD STANDARD DRAWINGS 16.16 THRU 16.23.
5. CONTRACTOR TO FIELD VERIFY THE PLACEMENT AND ORIENTATION OF THE RED ROCKS "SPECIAL" SIGNS WITH THE FIELD ENGINEER PRIOR TO INSTALLATION. STATIONING MEASURED TO THE CENTER OF THE SIGN.
6. FLEXIBLE TYPE I (CRYSTAL) DELINEATORS SHALL BE OFFSET 1 FT FROM THE 4 INCH WHITE EDGE LINE AND SHALL BE SPACED 28 FT ON CENTER.
7. FLEXIBLE DELINEATORS SHALL BE INSTALLED WITH EPOXY BASE ON TOP OF PAVEMENT SURFACE.
8. TYPE I AND III (YELLOW) DELINEATORS SHALL BE INSTALLED PER CDOT STANDARD DRAWING S-612-1.

RED ROCKS PARK ROAD (RD. 2)

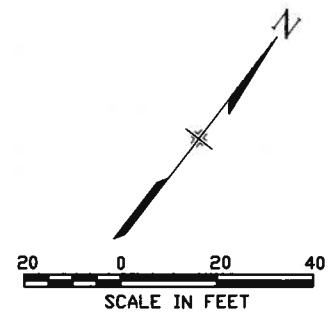
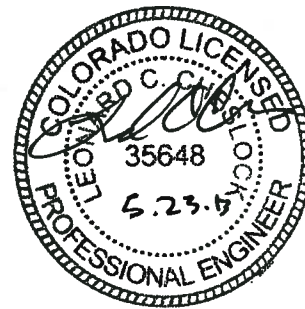


SIGN LEGEND

- SIGN TO BE INSTALLED
- SIGN TO BE REMOVED
- SIGN TO BE RESET
- REMOVE SIGN
- INSTALL SIGN
- (X) SIGN NUMBER

DELINEATOR LEGEND

- TYPE I CRYSTAL
- TYPE III YELLOW



Computer File Information	
Creation Date:	03/13/12 Initials: DLH
Last Modification Date:	05/23/13 Initials: AML
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Acad Ver. R17.0s	Scale: As Shown Units: English

Sheet Revisions	
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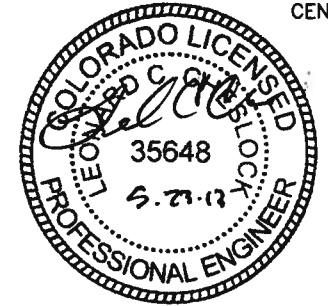
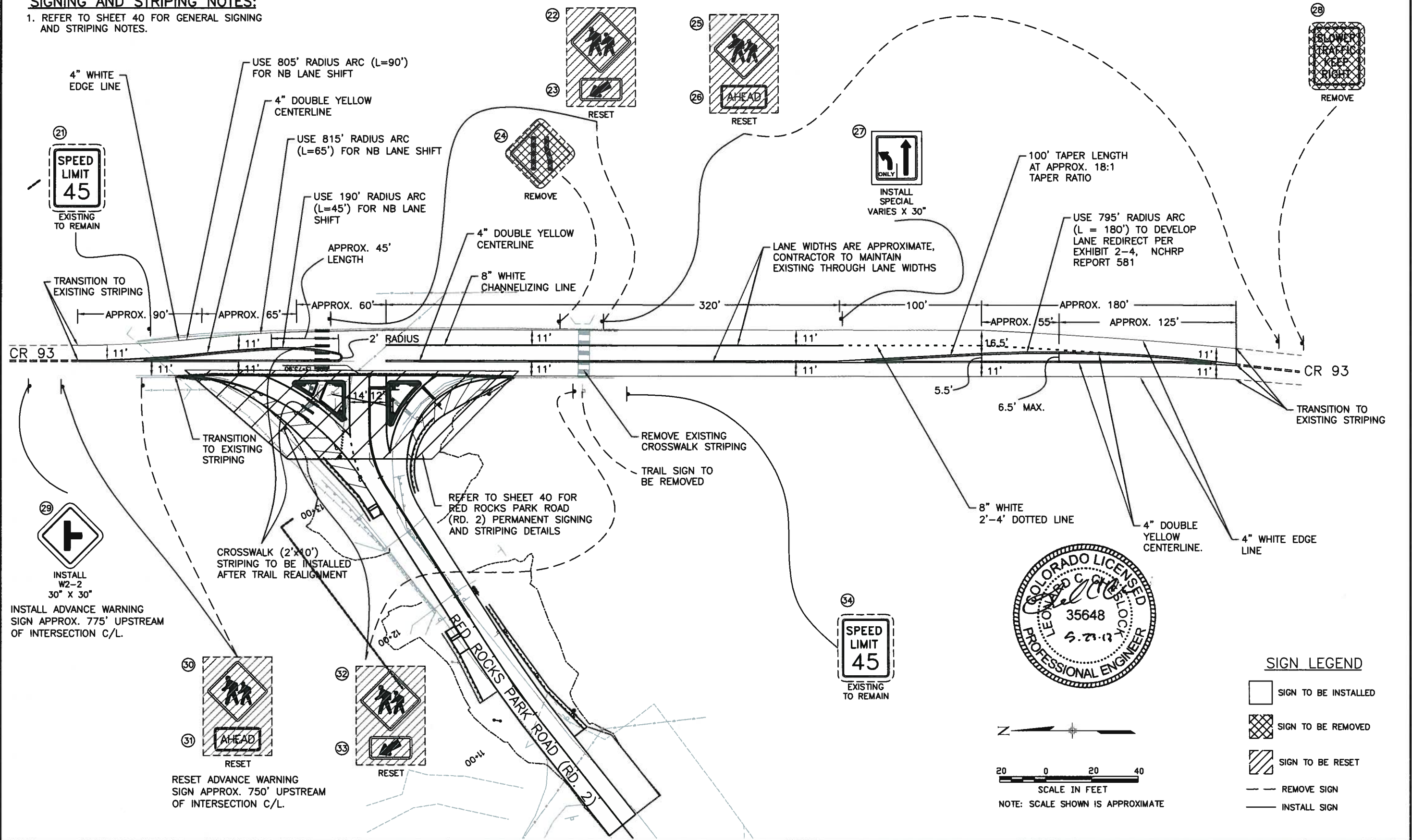
As Constructed
No Revisions: / /
Revised: / /
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RED ROCKS PARK ROAD (RD. 2) SIGNING AND STRIPING PLAN			
Designer:	BAH	Structure	D-27-MP-010A
Detailer:	NPD	Numbers	
Sheet Subset:	ST	Subset Sheets:	2 of 6

Project No./Code
CE00896
Sheet Number
41

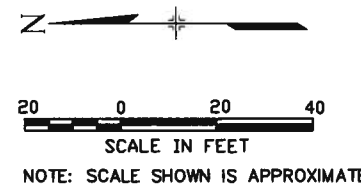
SIGNING AND STRIPING NOTES:

1. REFER TO SHEET 40 FOR GENERAL SIGNING AND STRIPING NOTES.



SIGN LEGEND

- SIGN TO BE INSTALLED
- SIGN TO BE REMOVED
- SIGN TO BE RESET
- REMOVE SIGN
- INSTALL SIGN



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Last Modification Date:	05/23/13 Initials: AML
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Drawing File Name:	REDROCKS_SS_02.DWG
Acad Ver. R17.0s	Scale: As Shown Units: English

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R-	/ / .



As Constructed	
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Revised:	/ /
Void:	/ /

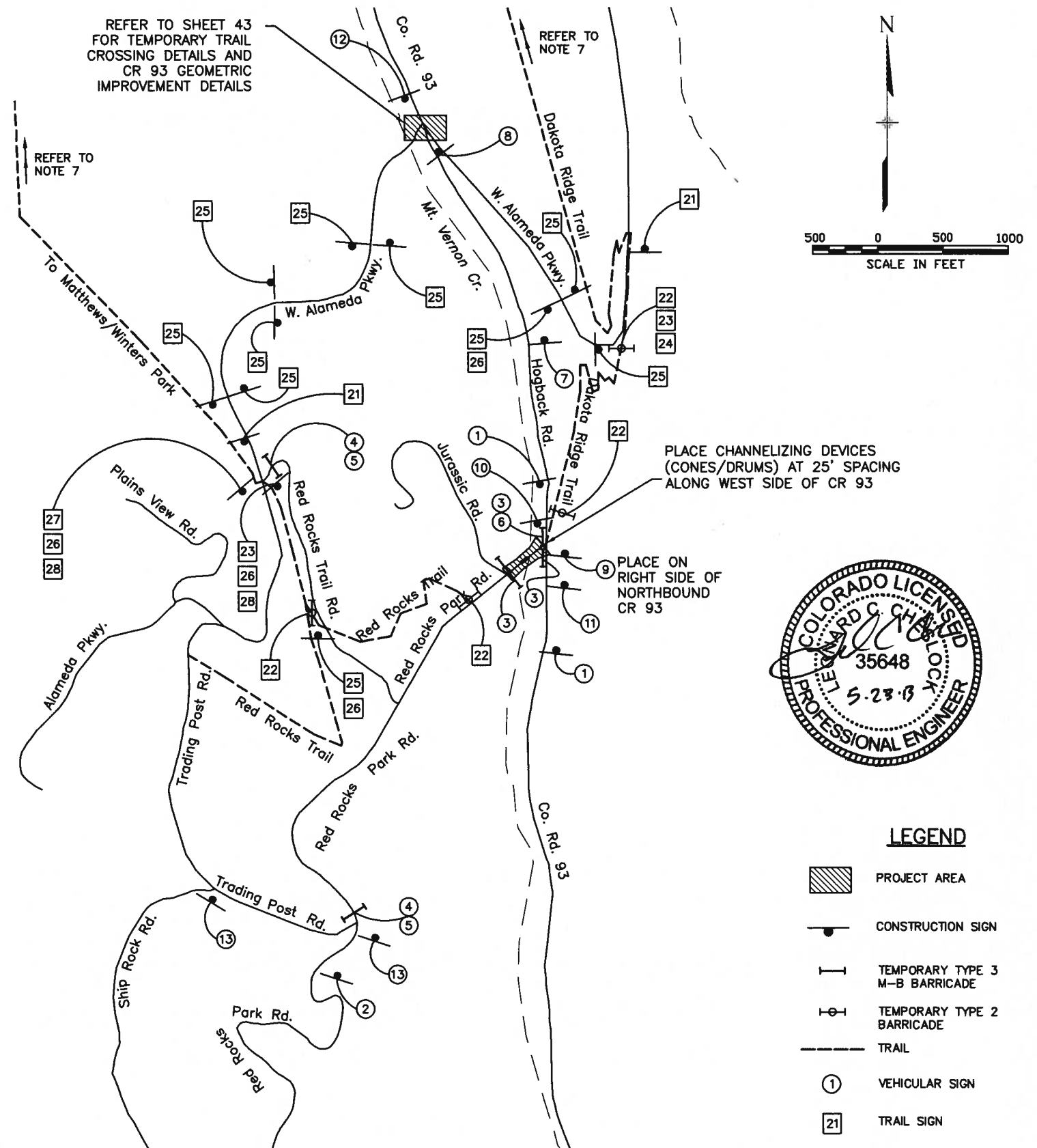
RED ROCKS PARK ROAD (RD. 2) CR 93 SIGNING AND STRIPING PLAN	
Designer:	BAH Structure D-27-MP-010A
Detailer:	NPD Numbers
Sheet Subset:	ST Subset Sheets: 3 of 6

Project No./Code	
CE00896	
Sheet Number	42

NOTES:

- CONTRACTOR TO PLACE CONSTRUCTION TRAFFIC CONTROL (CTC) DEVICES IN ACCORDANCE WITH CDOT S-630-1, AND THE MUTCD, 2009 EDITION.
- MEASUREMENT AND PAYMENT OF CTC DEVICES SHALL BE AS PER CDOT STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED.
- CONTRACTOR TO SUBMIT A TRAFFIC CONTROL PLAN FOR CLOSURE OF THE INTERSECTION OF RED ROCKS PARK ROAD (RD. 2)/ CR 93.
- CONTRACTOR TO COORDINATE WITH JEFFERSON COUNTY OPEN SPACE (KIM FREDERICK, 303-271-5987) AND CCD PARKS (DICK GANNON, 720-865-0895) FOR TRAIL CLOSURE AND DETOUR SIGNING.
- CONTRACTOR TO MAINTAIN 11 FT LANES WITH 1 FT SHOULDERS, MINIMUM, ON CR 93.
- CONTRACTOR TO MAINTAIN EMERGENCY ACCESS ON CR 93 DURING CONSTRUCTION, AT ALL TIMES.
- CONTRACTOR TO COORDINATE WITH JEFFERSON COUNTY OPEN SPACE AND CCD PARKS WHEN CLOSING TRAILS. TRAIL CLOSURE INFORMATION NOT SHOWN ON THESE SHEETS WILL BE POSTED BY OTHERS.

① ROAD WORK AHEAD W20-1 36" x 36"	② ROAD CLOSED AHEAD W20-3 36" x 36"	③ ROAD CLOSED R11-2 48" x 30"	④ ROAD CLOSED TO THRU TRAFFIC R11-4 60" x 30"
⑤ DETOUR M4-10L 48" x 18"	⑦ DETOUR M4-9T 30" x 24"	⑧ DETOUR M4-9L 30" x 24"	⑨ NO LEFT TURN R3-2 24" x 24"
⑥ DETOUR M4-10R 48" x 18"	⑩ NO RIGHT TURN R3-1 24" x 24"	⑪ Red Rocks Entrance 2 Closed Use Entrance 1 SPECIAL 54" x 72"	⑫ Red Rocks Entrance 2 Closed Use Entrance 1 SPECIAL 54" x 72"
		⑬ Entrance 2 Closed Use Entrance 1 SPECIAL 36" x 48"	
⑲ END DETOUR M4-8A 24" x 18"	⑳ TRAIL CLOSED SPECIAL 24" x 18"	㉓ TRAIL DETOUR SPECIAL 30" x 24"	㉔ TO RED ROCKS TRAIL SPECIAL 30" x 24"
㉕ TRAIL DETOUR SPECIAL 30" x 24"	㉖ TO DAKOTA RIDGE TRAIL SPECIAL 30" x 24"	㉗ TRAIL DETOUR SPECIAL 30" x 24"	㉘ USE SHOULDER SPECIAL 24" x 18"



Computer File Information		Sheet Revisions		As Constructed	RED ROCKS PARK ROAD (RD. 2) AREA-WIDE DETOUR PLAN		Project No./Code
Creation Date:	03/13/12 Initials: DLH	CR	/ / .		No Revisions:	/ /	CE00896
Last Modification Date:	05/23/13 Initials: AML	CR	/ / .	Revised:	/ /	Designer: BAH	Structure: D-27-MP-010A
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Drawing File Name:	REDROCKS_SS_03.DWG	CR	/ / .			Sheet Subset: ST	Subset Sheets: 4 of 6
Acad Ver. R17.0s	Scale: As Shown Units: English	CR	/ / .				Sheet Number: 43



NOTES:

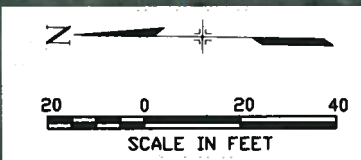
- EXISTING SIGNS TO REMAIN, NOT SHOWN ON THIS SHEET.
- REFER TO SHEET 44 FOR SPECIAL SIGN DETAILS.

TRAIL DETOUR
 INSTALL SPECIAL 30" x 24"
TO RED ROCKS TRAIL
 INSTALL SPECIAL 30" x 24"

TRAIL DETOUR
 INSTALL SPECIAL 30" x 24"
TO DAKOTA RIDGE TRAIL
 INSTALL SPECIAL 30" x 24"

INSTALL W11-55 30" X 30"
NEXT 500 FT
INSTALL W16-4P 30" X 24"

INSTALL ADVANCE WARNING SIGN APPROX. 500' UPSTREAM OF THE INTERSECTION (TEMPORARY)



SIGN LEGEND

- SIGN TO BE INSTALLED
- SIGN TO BE REMOVED
- SIGN TO BE RESET
- REMOVE SIGN
- INSTALL SIGN

INSTALL W11-55 30" X 30"
NEXT 500 FT
INSTALL W16-4P 30" X 24"

INSTALL ADVANCE WARNING SIGN APPROX. 500' UPSTREAM OF THE INTERSECTION (TEMPORARY)

TRAIL DETOUR
 INSTALL SPECIAL 30" X 24"
USE SHOULDER
 INSTALL SPECIAL 24" X 18"

INSTALL TRAIL DETOUR SIGN FACING ROADWAY (TEMPORARY)

YIELD
 INSTALL R1-2 30"X30"X30"

TRAIL DETOUR
 INSTALL SPECIAL 30" X 24"

TRAIL DETOUR
 INSTALL SPECIAL 30" X 24"



Computer File Information

Creation Date:	12/12/12	Initials:	DLH
Last Modification Date:	04/08/13	Initials:	AML
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Acad Ver. R17.0s	Scale: As Shown	Units:	English

Sheet Revisions

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As Constructed

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Revised:	/ /
Void:	/ /

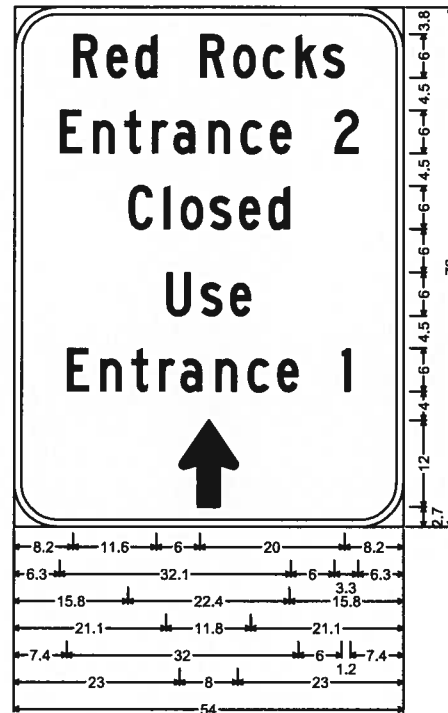
RED ROCKS PARK ROAD (RD.2) ENTRANCE 1 DETOUR PLAN

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Detailer:	NPD	Numbers:	
Sheet Subset:	ST	Subset Sheets:	5 of 6

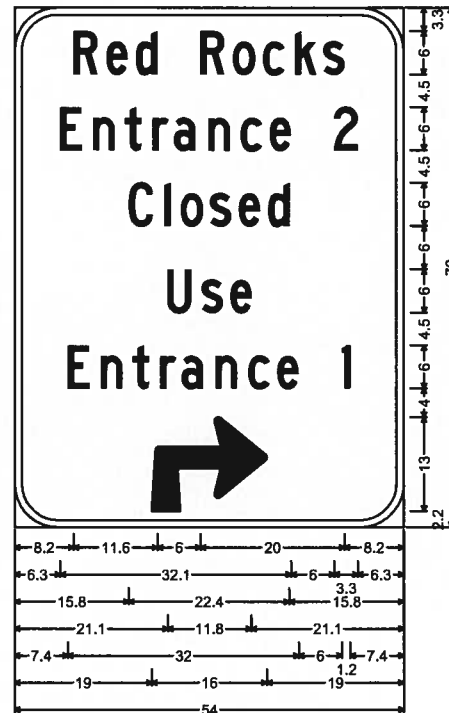
Project No./Code

CE00896
Sheet Number 44

SPECIAL SIGN DETAILS



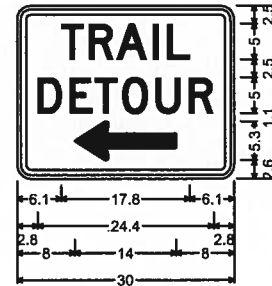
6.0" Radius, 1.0" Border, Black on Orange;
 [Red Rocks] C; [Entrance 2] C; [Closed] C;
 [Use] C; [Entrance 1] C;
 Standard Arrow Custom 12.0" X 8.0" 90°;



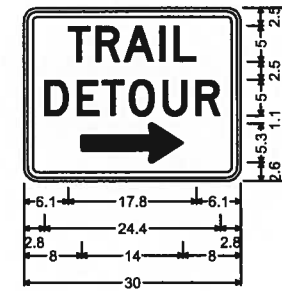
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 [Use] C; [Entrance 1] C;
 90 Deg Advanced Turn Arrow 16.0" X 13.0°;



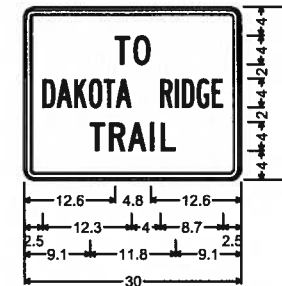
Special;
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 [TRAIL] D 2K;
 [CLOSED] D 2K;



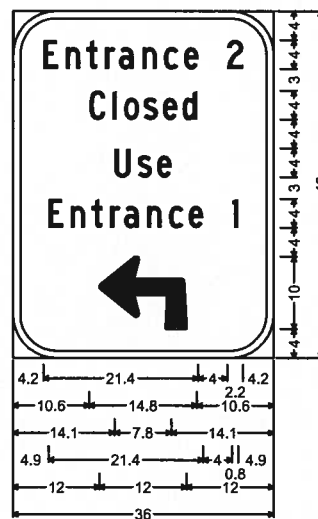
Special;
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 [TRAIL] D 2K;
 [DETOUR] D 2K specified length;
 Standard Arrow Custom 14.0" X 5.4" 180°;



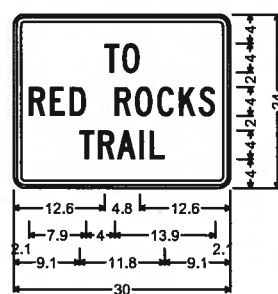
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 [DETOUR] D 2K specified length;
 Standard Arrow Custom 14.0" X 5.4" 0°;



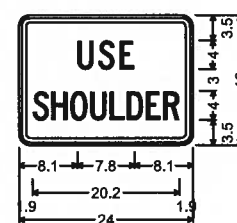
Special;
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 [TO] C 2K;
 [DAKOTA RIDGE] B 2K 50% spacing;
 [TRAIL] C 2K;



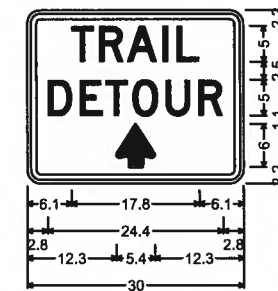
6.0" Radius, 1.0" Border, Black on Orange;
 [Entrance 2] C; [Closed] C;
 [Use] C; [Entrance 1] C;
 90 Deg Advanced Turn Arrow 12.0" X 10.0°;



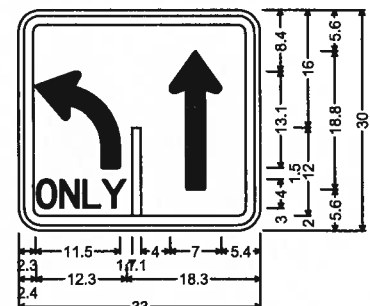
Special;
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on Orange;
 [TO] C 2K;
 [RED ROCKS] C 2K;
 [TRAIL] C 2K;



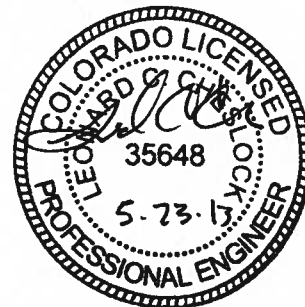
Special;
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on Orange;
 [USE] C 2K;
 [SHOULDER] C 2K 50% spacing;



Special;
 1.9" Radius, 0.8" Border, 0.5" Indent, Black on Orange;
 [TRAIL] D 2K;
 [DETOUR] D 2K specified length;
 Standard Arrow Custom 6.0" X 5.4" 90°;



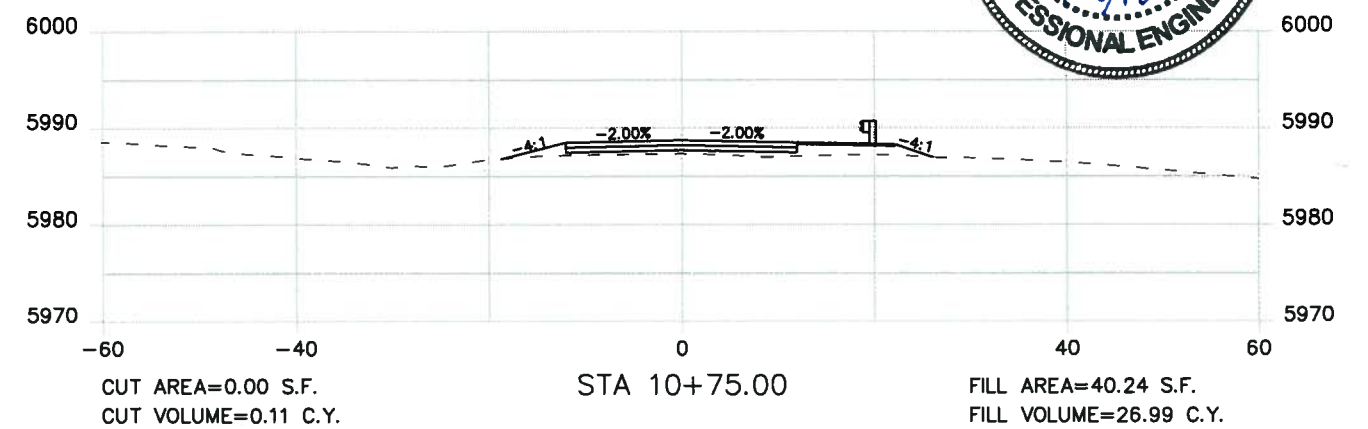
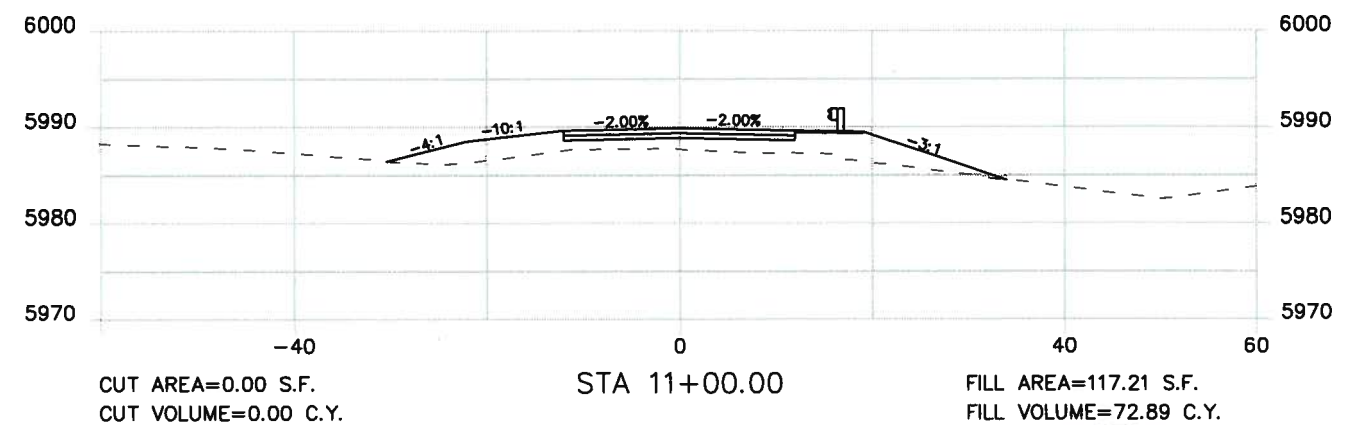
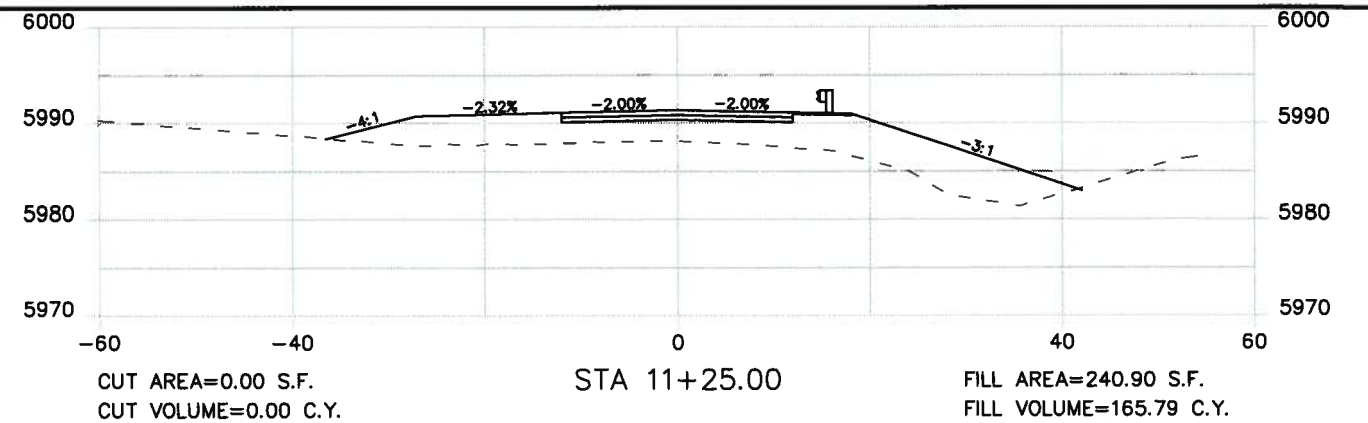
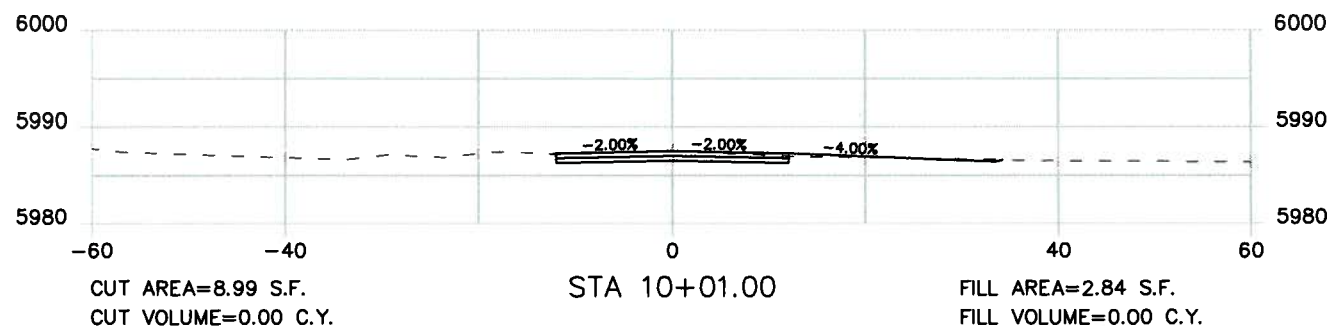
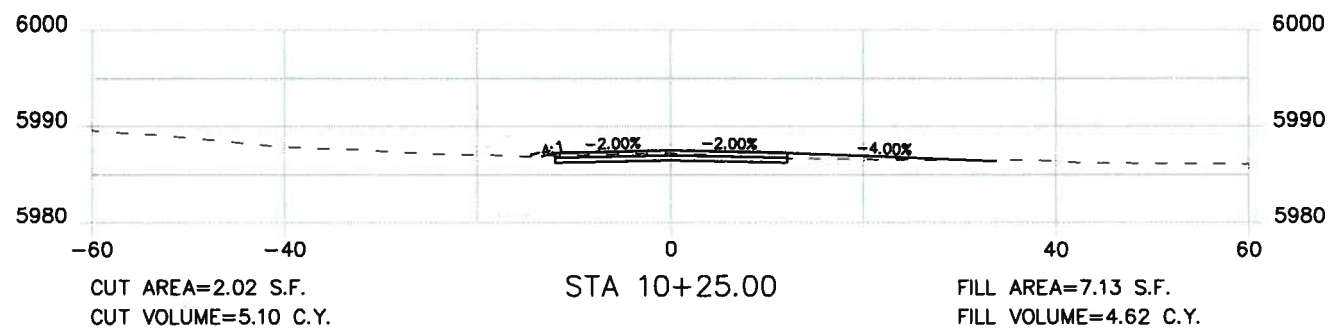
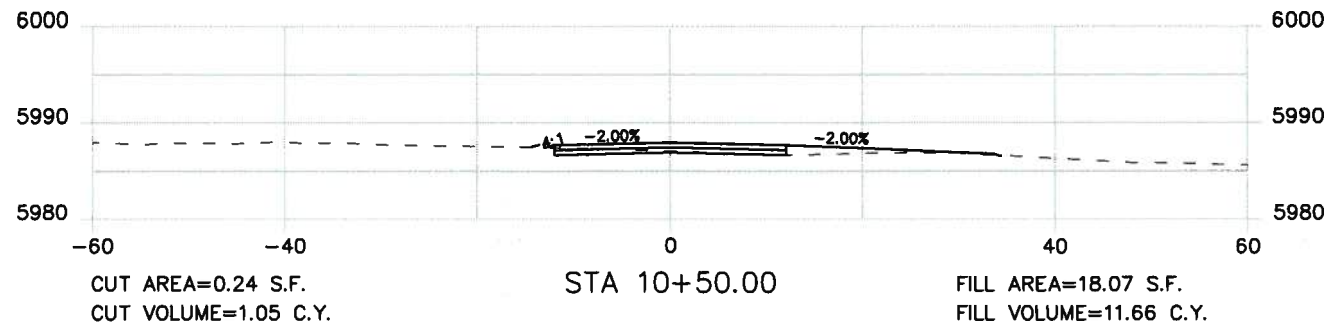
Special 33x30;
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 EL Ir=5.813, s=2.5;
 [ONLY] D 2K 40% spacing;
 C h=18.875, s=2.5;



Computer File Information				Sheet Revisions				As Constructed		RED ROCKS PARK ROAD (RD. 2) SPECIAL SIGN DETAILS			Project No./Code	
Creation Date:	03/13/12	Initials:	DLH					No Revisions:	/ /				CE00896	
Last Modification Date:	04/08/13	Initials:	AML					Revised:	/ /	Designer:	BAH	Structure:	D-27-MP-010A	
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Acad Ver. R17.0s	Scale:	As Shown	Units:	English								Sheet Number:	45	



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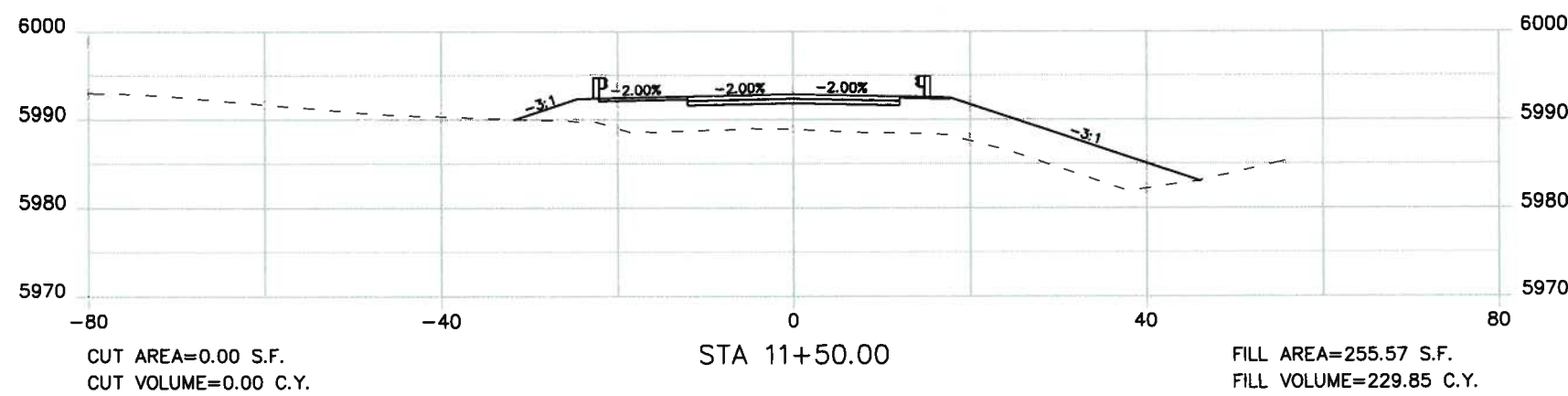
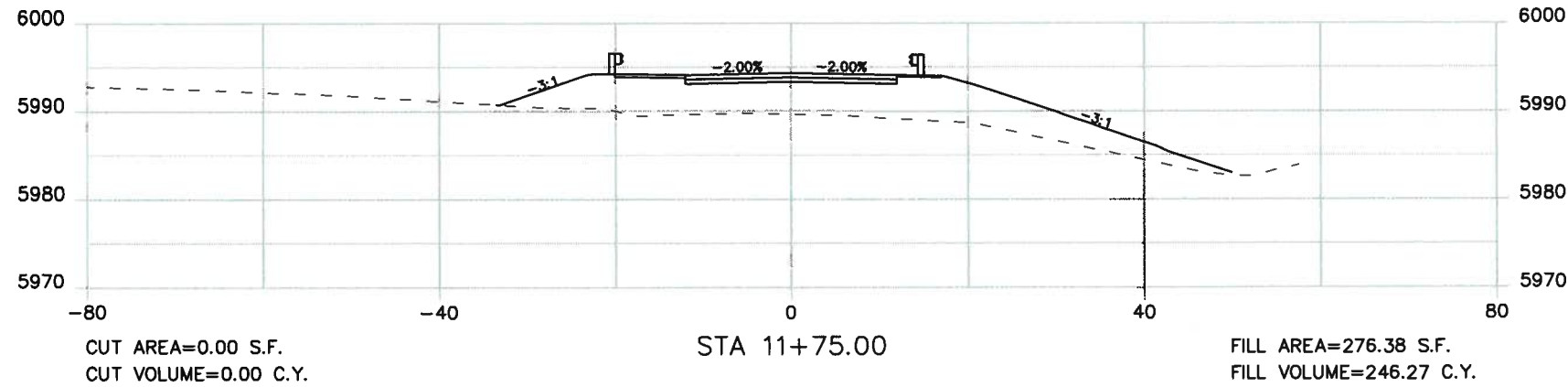
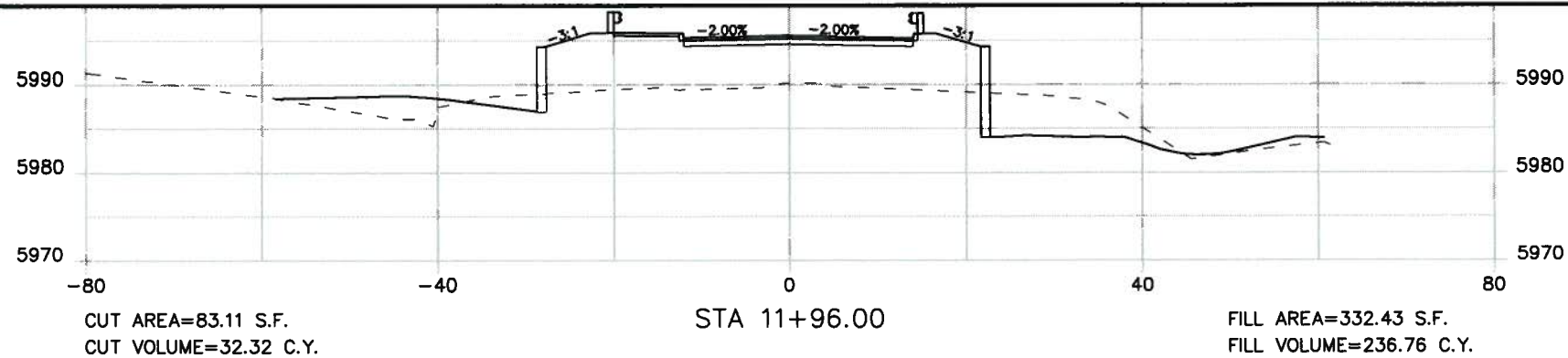


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Revised:	///
Void:	///

RED ROCKS PARK ROAD (RD. 2) CROSS-SECTIONS		
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Detailer:	AML	Numbers:
Sheet Subset:	X	Subset Sheets: 1 of 4

Project No./Code	CE00896
Sheet Number	46



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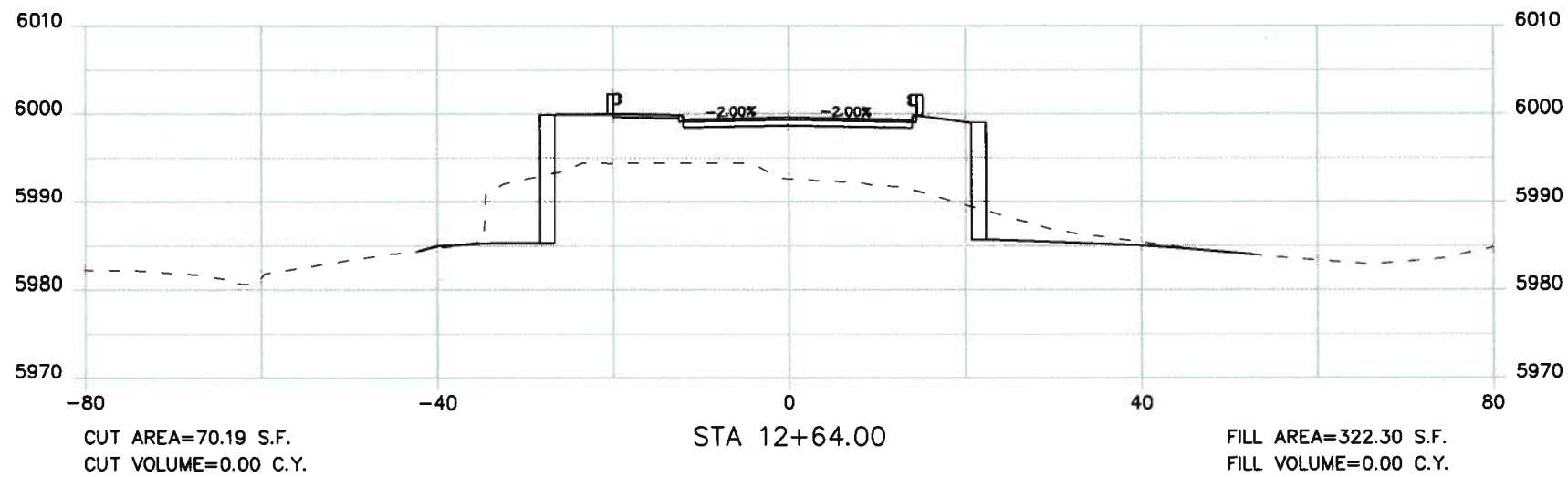
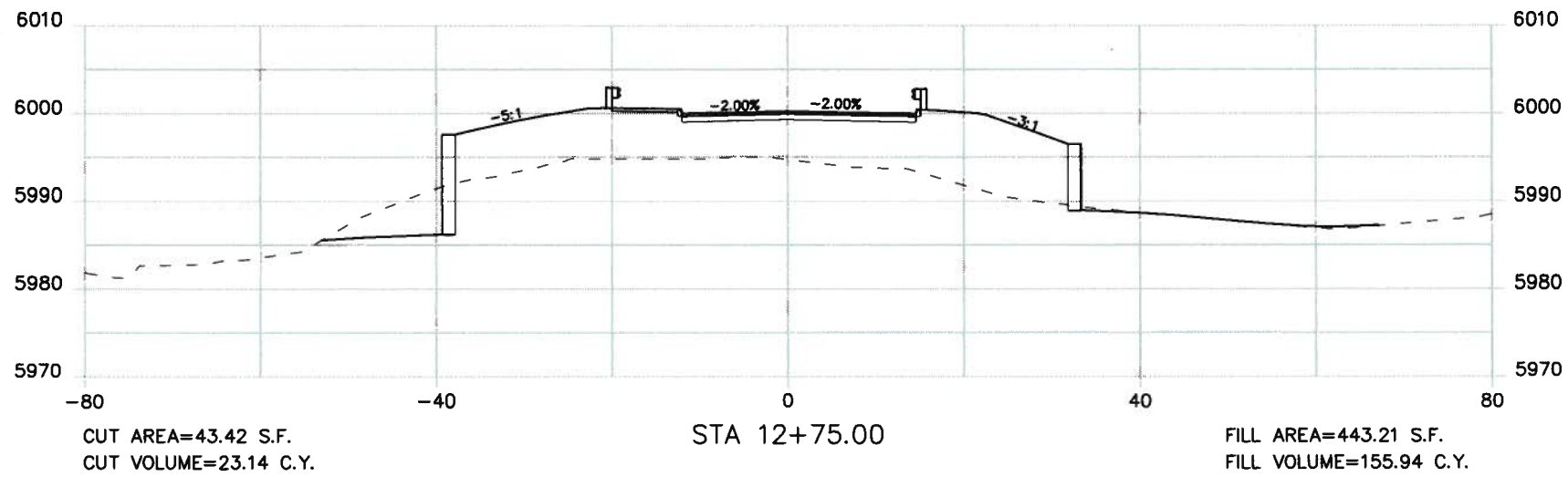
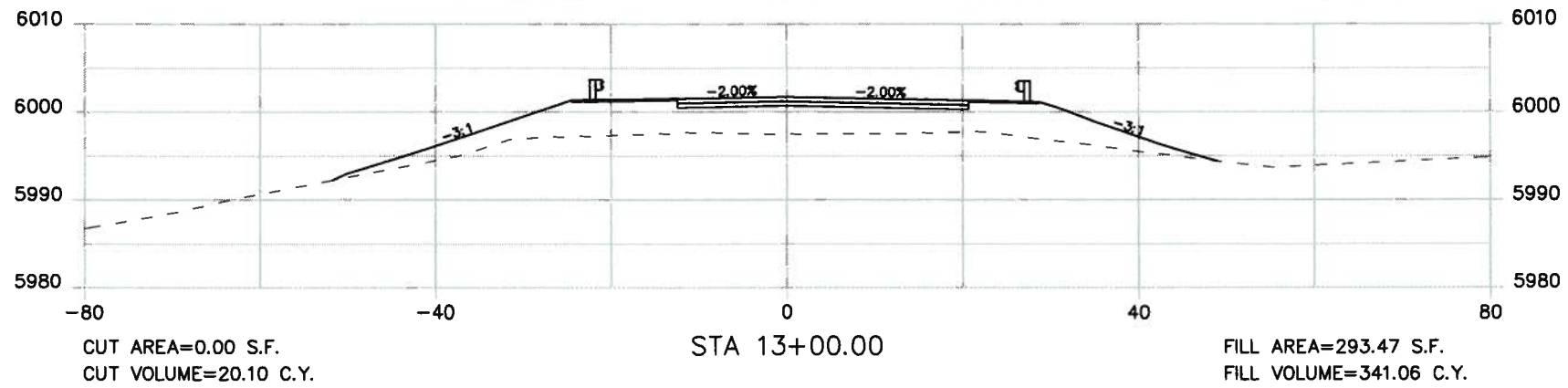


JACOBS

As Constructed	
No Revisions:	///
Revised:	///
Void:	///

RED ROCKS PARK ROAD (RD. 2) CROSS-SECTIONS			
Designer:	AML	Structure	D-27-MP-010A
Detailer:	AML	Numbers	
Sheet Subset:	X	Subset Sheets:	2 of 4

Project No./Code	
CE00896	
Sheet Number	47



Computer File Information	
Creation Date:	Initials:
Last Modification Date: 03/30/12	Initials: PMM
Full Path: W\X\0519_CCD_RedRocksBridge\cad_REF\	
Drawing File Name: XSXR.dwg	
Acad Ver. 2007	Scale: As Shown Units: English

Sheet Revisions	
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(R-)	/// .
(R-)	/// .
(R-)	/// .
(R-)	/// .



As Constructed
No Revisions: / /
Revised: / /
Void: / /

RED ROCKS PARK ROAD (RD. 2)			
CROSS-SECTIONS			
Designer: AML	Structure: D-27-MP-010A		
Detailer: AML	Numbers:		
Sheet Subset: X	Subset Sheets: 3 of 4		

Project No./Code	CE00896
Sheet Number	48

